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立法會政府帳目委員會  
議會秘書  
(經辦人：朱先生)

中文翻譯本

朱先生：

政府帳目委員會

就審計署署長第六十七號報告書第1章  
公共租住屋邨單位的維修保養和與安全有關的改善工作的考慮

就貴處在2016年12月30日標題事宜致運輸及房屋局局長的查詢，本人現將政府的回覆夾於附件，以供參閱。

運輸及房屋局局長

(楊光艷 代行)

2017年1月9日

附件

香港九龍何文田佛光街33號房屋委員會總部  
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副本送： 運輸及房屋局局長 (包含附件)  
屋宇署署長 ) 不包含附件  
消防處處長 )  
環境保護署署長 )  
勞工處處長 )  
財經事務及庫務局局長 )  
審計署署長 )

我們於 2016 年 12 月 23 日政府帳目委員會 (帳委會) 的公開聆訊中, 就審計報告第 1 章第 4 部分有關「公共租住屋邨含石棉物料的管理」向委員提供進一步資料。因應帳委會 2016 年 12 月 30 日來信中的提問, 我們現答覆如下:

## **(I) 公共租住屋邨含石棉物料的管理**

- (a) 房屋署在處理含石棉物料時, 必須遵守《空氣污染管制條例》(第 311 章) 等有關法例。然而, 政府於 1997 年豁免香港房屋委員會根據《空氣污染管制條例》第 69 (1) 條就其所管理的物業內的六類含石棉物料, 提交有關保養、修理、處理或消滅的石棉調查報告或石棉消滅計劃。

如審計報告第 4.6 段所述, 房屋署聯同環保署和勞工處成立跨部門石棉工作小組(石棉工作小組), 共同制定公共租住屋邨的石棉管制策略與及合作編訂《石棉管制手冊》以確保符合相關規例及條例。其中包括了露台通花磚和樓梯大堂通花磚的調查、保養、修理、處理或消滅的方法, 詳情可參閱《石棉管制手冊》附錄-項目(I)(a)。

- (b) 根據房屋署的《石棉管制手冊》第 2.3.4 段指出, 由於大部份公共租住屋邨含石棉製品的石棉纖維皆有水泥黏合著, 這些纖維釋出於空氣中的可能性非常低。

在單位內的露台通花磚的包封層已印有經石棉工作小組同意的三角型特定標籤(見附錄-項目(I)(b))。而其他公共租住屋邨含石棉物料, 例如樓梯大堂通花磚或煙囪等, 則未設有警告標籤。

在有關法例於 1997 年 6 月 19 日生效前, 房屋署一直透過石棉工作小組與環保署保持緊密溝通, 例如在 1997 年 1 月 23 日及 1997 年 5 月 22 日會議上曾經討論及建議修訂《石棉管

制手冊》。隨後，房屋署亦將修訂後的《石棉管制手冊》備份送交環保署和勞工處。

- (c) 如(b)所述，房屋署、環保署和勞工處的石棉工作小組制定的《石棉管制手冊》要求在單位內的露台通花磚的包封層印上經石棉工作小組同意的三角型特定標籤。而其他公共租住屋邨含石棉物料，例如樓梯大堂通花磚或煙囪等，則未設有警告標籤。

根據當年密封工程的記錄，房屋署已按《石棉管制手冊》在單位露台通花磚的包封層上印有三角型特定標籤。

- (d) 如審計報告第 4.25(e)(iv)段所述，房屋署會為所有屋邨含石棉物料加上新的標籤，設計會跟從環保署所建議的含石棉物料警告標籤。目前，房屋署已為所有含石棉物料樓梯/大堂通花磚加上新的警告標籤。至於其他含石棉物料，如室內露台通花磚和煙囪等，亦會於稍後陸續加上。

- (e) 石棉工作小組從 1988 年至 2016 年共舉行了 66 次會議。所有這些會議均備有會議記錄。石棉工作小組會議日期按時間順序列於**附錄-項目(I)(e)-1**

關於房屋署、環保署及勞工處在公共屋邨管制石棉的角色，可參考石棉工作小組的職權範圍(見**附錄-項目(I)(e)-2**)。房屋署主要負責日常管理及監察屋邨含石棉物料，而環保署及勞工處則就相關規例及條例提供意見。

- (f) 環保署發出的《石棉管制的工作守則》，並非法例要求。至於房委會，如審計報告第 4.6 段所述，房屋署聯同環保署和勞工處成立跨部門石棉工作小組，共同制定公共租住屋邨的石棉管制策略及合作編訂《石棉管制手冊》以確保符合相關規例及條例。房屋署一直透過石棉工作小組與環保署保持緊

密溝通和協調，按《石棉管制手冊》實施的公共屋邨石棉管理機制亦行之有效。

有關環保署的石棉管制工作守則(見附錄-項目(I)(f))和房屋署的《石棉管制手冊》的比較如下：

環境保護署 《石棉管制的工作守則》-操作及保養計劃	房屋署 《石棉管制手冊》	
- 處所或船舶的詳細描述;	- 2.1	大致跟從
- 實施操作及保養計劃的人事組織;	- 2.2 - 4.1 - 5.5	大致跟從
-已辨別出的含石棉物料及懷疑含石棉物料的詳情;	-3.2	大致跟從
-已辨別出的含石棉物料及懷疑含石棉物料的狀況;	- 3.3 - 5.4 - 5.6	大致跟從
-含石棉物料及懷疑含石棉物料不應拆除的理由;	- 3.3 - 3.5	大致跟從
- 標識含石棉材料的方法;	- 2.3	見 2.3.4 大部份居民、公眾和房屋署職員可到達的屋邨含石棉物料都是有水泥黏合著的。 另外，在單位內的露台通花磚的包封層已印

		<p>有三角型特定標籤。其他屋邨含石棉物料，例如樓梯大堂通花磚或煙囪等，則未設有警告標籤。</p> <p>其他改善措施，可見審計報告第 4.25 段。</p>
<p>- 告知所有可能受影響人士的方法；</p>	<p>- 2.3</p>	<p>住戶方面：</p> <p>房屋署向住戶派發小冊子、在地下大堂張貼告示、備存石棉物料記錄於各屋邨辦事處供查閱及在單位內的露台通花磚的包封層已印有三角型特定標籤。</p> <p>工人方面：</p> <p>房屋署工程人員清楚含石棉物料的位置。他們會向維修承辦發出工程單，並監察工人施工。另外，在單位內的露台通花磚的包封層已印有三角型特定標籤。</p> <p>在 2009 年，房屋署將有關石棉資料上載房委會/房屋署網站，供公眾查閱。</p> <p>其他改善措施，可見審計報告第 4.25 段。</p>

- 監察方案；	- 2.3 - 3.5	房屋署有三層的監察機制。首先，房屋署會透過日常巡查及每半年一次狀況巡查，檢視屋邨含石棉物料的狀況。如發現問題，可即時跟進。其次，研究及發展小組會在所呈報的石棉巡查記錄中，進行隨機抽查。此外，房屋署會委聘獨立的註冊石棉顧問，進行不定期的覆查工作，作為附加措施。
- 避免擾亂含石棉材料的方法；	- 2.3	大致跟從
- 備存記錄方案；	- 3.2	大致跟從
- 對狀況逐漸惡化的含石棉物料所採取的行動	- 2.4 - 3.3	大致跟從

- (g) 房屋署工程人員清楚含石棉物料的位置。他們會向維修承辦發出工程單，並監察工人施工。另外，在單位內的露台通花磚的包封層已印有三角型特定標籤。在過去，房屋署曾向住戶派發小冊子、在地下大堂張貼告示及備存石棉物料記錄於各屋邨辦事處。在 2009 年，房屋署更將有關石棉資料上載房委會/房屋署網站，供公眾查閱。

為了加強溝通和提升員工對處理石棉事宜的警覺性，房屋署已採取各項改善措施，詳情可見審計報告第 4.25 段。

(h) 房屋署、環保署和勞工處為房委會制定的《石棉管制手冊》在某些方面的要求較環保署的《石棉管制的工作守則》為高。對石棉物料的監察而言，環保署的《石棉管制的工作守則》建議最少每兩年巡查一次，但房委會則每半年巡查一次及有三層的監察機制。首先，透過日常巡查及每半年一次狀況巡查，檢視屋邨含石棉物料的狀況。如發現問題，可即時跟進。其次，研究及發展小組在所呈報的石棉巡查記錄中，進行隨機抽查。此外，房屋署會委聘獨立的註冊石棉顧問，進行不定期的覆查工作，作為附加措施。石棉工作小組也不時討論和改善監察機制。

(i) 過去，房屋署在傳遞含石棉物料記錄予各屋邨辦事處時，多以文字方式來表達，沒有採用圖示方式，部份個別前線員工可能對石棉物料的位置有所誤會。現時，房屋署已重新檢查各屋邨辦事處的所有石棉記錄，並以圖示方式來表達，更張貼於有關屋邨各座地下大堂，供居民查閱。

房屋署不時檢討和更新含石棉物料的資料。如有需要時，會委託註冊石棉顧問作技術支援，協助處理石棉事宜。在 2016 年，房屋署曾指示註冊石棉顧問全面巡查含石棉物料的記錄。

(j) 房屋署巡查屋邨含石棉物料的狀況，主要是由地區助理工程監督(ACW)執行。他們在入職時，需具備建築學文憑或高級證書及 3 年工作經驗。在巡查時，他們是根據《石棉管制手冊》來判斷這些含石棉物料的損毀面積是否已超越石棉製品面積的 5% 或 10%，而決定進一步的跟進行動。如有任何問題，他們會向上級報告和請示。如(h) 所述，這是房屋署第一層初步監察石棉物料的機制。

房屋署聯同環保署和勞工處成立跨部門石棉工作小組，共同制定公共租住屋邨的石棉管制策略及合作編訂了《石棉管制手冊》。有關 10% 或 5% 的評估標準是由石棉顧問於 1990 年代擬定在手冊中，並交由石棉工作小組討論和隨後執行。



(k) 有關研究及發展小組對含石棉物料的巡查工作，可參閱報告第 4.22 段(a)-(c)。

(l) 報告中提及的五個未公佈的屋邨或大廈，是彩虹邨、福來邨、大元邨及朗邊中轉房屋，及加上富山邨富禮樓的煙囪。

由於這四個屋邨(彩虹邨、福來邨、大元邨及朗邊中轉房屋)的含石棉物料全部位於一般公眾及居民不易到達的天台。在 2009 年 6 月 29 日房屋署內部高層會議 Maintenance Planning & Review Committee(MPRC) 上，曾討論及決定將屋邨含石棉建築製品的資料上載於房委會/房屋署網頁。隨後，由當時的高級屋宇保養測量師(研究及發展)按 MPRC 會議的決定，把相關資料上載於房委會/房屋署網頁，以供公眾查閱。

雖然這四個屋邨的含石棉物料並沒有標籤，前線職員一直進行日常巡查，亦沒有發現有任何異常。另外，研究及發展小組也曾於 2009 年、2010 年、2015 年及 2016 年對這些含石棉製品進行視察，發現狀況良好，可參見附錄—項目(I)(I)。同時房屋署工程人員清楚含石棉物料的位置。他們向維修承辦發出工程單時，會監察工人施工。

(m) 這四個報告是房屋委員會向立法會房屋事務委員會報告在各年度房屋署的環保工作目標和措施的成效，其中一項是在現有屋邨管制有害物料的工作。這四個屋邨的含石棉物料一直狀況良好，並無任何異常。

(n) 如(l) 所述，前線職員一直進行日常巡查，亦沒有發現有任何異常。另外，研究及發展小組也曾於 2009 年、2010 年、2015 年及 2016 年對這些含石棉製品進行視察，發現狀況良好，可參見附錄—項目(I)(I)。

- (o) 根據房屋署的記錄，在 2009 年之前，最後的現有整存石棉記錄是在 2007 年 10 月的，可參見附錄—項目(I)(o)。除了位於富山樓富禮樓的煙囪外，其他五個屋邨均在名單內。
- (p) 朗邊中轉房屋的辦公室原屬於前朗邊臨時房屋區的其中一座。前朗邊臨時房屋區是設計及興建於 1984 年，並於 1985 年落成。雖然房屋署已於 1984 年後停止使用含石棉建築製品，但當年一些已完成設計或正在施工的工程，如朗邊臨時房屋區，可能仍採用含石棉的建築製品。由於年代久遠與及前朗邊臨時房屋區已經拆卸，現時未能找出當時決定繼續採用該等物料的相關文件。
- (q) 房屋署已經安排了註冊石棉顧問公司為所有含石棉物料樓梯/大堂通花磚及露台通花磚進行全面覆檢。結果，顧問認為這些個案性質輕微，確認不需要作跟進工程。儘管如此，房屋署亦要求顧問建議跟進方案。隨後，在聽取環保署和勞工處的意見後，房屋署進行修補工程。有關工程亦已完成。此外，會加設新的警告標籤，提示含石棉物料的存在，並要小心使用，避免對含石棉物料造成破壞。

有關跟進工作和改善建議的細節，可參閱報告第 4.25 段和 4.36 段。

另外，房屋署已發信通知所有有關租戶，並已聯絡他們，確保他們知悉有關石棉消減工程的影響。

房屋署一直與衛生署聯絡，聽取了他們的專業意見。居民如有疑問，可諮詢醫生的意見。另外，居民也可瀏覽環保署、勞工處和衛生署的網站，了解更多有關石棉的資訊。

- (r) 翻查記錄，有關住戶沒有向房屋署申請安裝冷氣機，而安裝冷氣機亦無需太長時間，約一至兩小時已可完成，前線職員未必能即時察覺並及時要求住戶停止冷氣機的安裝工程。

**\*委員會秘書附註：附錄—項目(I)(o)並無在此隨附。**

房屋署於 2016 年中委聘註冊石棉顧問對冷氣機的支架，進行檢查。結果發現這些個案性質輕微，確認不需要作跟進工程。

- (s) 房屋署認為需要提升前線員工對處理含石棉物料時的警覺性，並已採取一系列改善措施。詳情可參閱報告第 4.25、4.36 和 4.46 段。
- (t) 個案 3 的煙囪是餐館持牌人的財產。由於煙囪安裝在樓宇外牆，房屋署曾對煙囪進行檢視，查看是否情況良好。房屋署一直都有記錄和跟進該煙囪的情況，並先後於 2011 年 1 月 14 日、1 月 17 日及 5 月 3 日，向持牌人發信，建議他聘請合資格的承辦商處理損壞的煙囪。

由於該煙囪為餐館所擁有並由該持牌人負責直接聘請承辦商或工人進行拆除煙囪工程，房屋署並沒有責任監督這些承辦商或工人的工程。

對於公共屋邨含石棉物料的管理，房屋署已採取一系列改善措施。詳情可參閱報告第 4.25、4.36 和 4.46 段。

(i)

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**TITLE PAGE**

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Reviewed for adequacy, approved and authorized for issue :



(William W.L. HO)

Chief Manager / Management (Project Management)

The Contact Point and the Review Authority for this Technical Guide are Senior Maintenance Surveyor / Research & Development and Chief Manager / Management (Project Management) respectively.

1.0

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**ASBESTOS MANAGEMENT**

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**1.0 PURPOSE**

1. The policy responsibilities and procedures for the management and abatement of asbestos containing materials (ACM) in properties under the management of the Housing Department or its management agents, including HA property and Estate Schools, are described in the following documents:

EMDTG07 Asbestos Management;

MWPM03 Selection & Appointment of Contractor

MWPM07 Programme Planning

EMDTG08 Asbestos Technical Guidelines;

SL Specification Library

2. The contents of this Technical Guide are for reference only, departure is permitted on justifiable grounds as determined by the Action Officer.

## 2.1

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### ASBESTOS MANAGEMENT

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## 2.0 PLANNING

### 2.1 Policy

#### GENERAL

1. Various types of asbestos containing materials (ACM) were used in Housing projects before asbestos was known to be harmful to health. The significance of asbestos and its effect on health is detailed in Section 5.2, Significance of Asbestos. The Housing Department has formulated a policy on asbestos and developed an overall asbestos management strategy for the management of the existing ACM in Housing property.

#### POLICY ON ASBESTOS

2. The Department will endeavour to minimise as far as reasonably practicable the risk to its tenants, the public and its staff arising from asbestos-containing materials in its property stock.

#### ASBESTOS MANAGEMENT STRATEGY

3. The Housing Department's overall asbestos management strategy is summarized below :
  - (a) to establish and update a central record of all relevant information related to asbestos.
  - (b) to communicate effectively and accurately the information both within the Department/its management agents and with external parties such as other Government Departments, media, tenants' groups, etc.
  - (c) to plan effectively for necessary abatement works and set priorities for action.
  - (d) to provide necessary resources for implementation of the management programme.
  - (e) to coordinate the effects of different divisions of the Department in an overall management programme.
  - (f) to define responsibility among different parties concerned in the asbestos issue e.g. the Housing Department, the tenants, the contractors etc.
  - (g) to monitor and control effectively the on-going asbestos abatement works and subsequent safe dumping of asbestos waste.

## 2.2

**ASBESTOS MANAGEMENT****2.2 Responsibility****GENERAL**

1. The Housing Department's asbestos management strategy is implemented through the Asbestos Management Programme / ad-hoc asbestos abatement works when considered necessary.
2. The HD Asbestos Working Group (AWG) which is chaired by CM/M(PM), advises AD(EM)2 on the implementation of the Department's asbestos management strategy and monitors the Asbestos Management programme.
3. The AWG comprises representatives from the Housing Department, the Environmental Protection Department, the Labour Department.
4. The Housing Department representatives include the following coordinators :
  - (a) CM/M(PM) for the Estate Management Division,
  - (b) SMS/R&D for the Estate Management Division, (BW Section),
  - (c) SSE/15 for the Development & Construction Division,
  - (d) SE/122 for the Development & Construction Division,
  - (e) SE/SIS3 for the Estate Management Division (SE Section),
  - (f) HM/BPS2 for the Estate Management Division,
  - (g) MS/ENV for the Estate Management Division, (BW Section),
  - (h) CTO(BS)/TD for the Estate Management Division (BS Section)

**ASBESTOS WORKING GROUP**

5. The AWG receives and considers information on materials containing asbestos in Housing Authority (HA) Managed Properties or the properties managed by the HA's agents, develops and monitors the Housing Department's asbestos abatement programmes and advises the Director of Housing on the continued development of the asbestos abatement strategy.
6. The List of Registered Asbestos Contractors / Consultants / Supervisors / Laboratories is managed by EPD.
7. Refer to Section 5.2 for the detailed terms of reference and membership of the AWG.

**HD RESPONSIBILITIES**

8. The Assistant Director/Estate Management(2), AD/EM(2), is responsible for the implementation of the Asbestos Management programme within the Estate Management Division, and the management of the central records of information related to asbestos.
9. The Assistant Directors of the Construction Division are responsible for administering demolition contracts.
10. The Chief Manager/Management (PM) is responsible for the coordination and recording of the asbestos abatement activities within the Estate Management Division and the coordination of central records on ACM and specialist contractors.
11. The detailed responsibilities and procedures for asbestos abatement activities are set out in this Technical Guide.



## 2.3

**ASBESTOS MANAGEMENT****2.3 Management Strategy****GENERAL**

1. The Asbestos Management Programme provides a comprehensive plan for the implementation of the Housing Department's asbestos management strategy. The programme includes the following asbestos management activities :

- Identification of ACM
- Training
- Personnel Protection
- Periodic ACM Surveillance
- Central Records
- Abatement
- Emergency Procedures
- Special Procedures

**IDENTIFICATION OF ACM**

2. Most of the existing Asbestos Containing Materials within property managed by the Housing Department & HKHA's management agents have been identified and the type of asbestos, location and condition recorded.
3. Where records do not exist of a material suspected of containing asbestos, staff arrange for the material to be sampled in accordance with Section 5.6, BULK SAMPLING, and report the results on Form [EMDTG07-F02](#) to SMS/R&D or CTO(BS)/TD as appropriate. The results of any bulk sampling arranged during the course of demolition works are copied to SMS/R&D.
4. The majority of ACM materials accessible to the tenants, public or HD staff are of the cement bonded type, and due to the quantities involved these have not been individually labelled. Where balcony grill panels containing asbestos have been encapsulated since 1989, these have been marked to aid later identification. Refer to Section 3.3, ASBESTOS ABATEMENT.
5. Staff are notified of the location and condition of ACM through regular reports based on the central records of ACM. Tenants and the public can view these reports at the relevant Estate Office.
6. New materials used in the construction and maintenance of property are screened for [free of](#) asbestos before being approved for use.

**TRAINING**

7. HD staff are provided with training on a need basis to ensure that they are aware of the possible occurrence of ACM in buildings and in materials, and to ensure that they are familiar with the policy, responsibilities and procedures for the management and abatement of asbestos.
8. Staff required to use personal protective equipment in the inspection and monitoring of asbestos abatement activities are provided with training in its care and use.

## 2.3

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**ASBESTOS MANAGEMENT**

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**PERSONNEL PROTECTION**

9. The risk of staff being exposed to asbestos dust is low, however, staff who are required during the course of their duties to enter a space where asbestos dust is present or liable to escape are provided with the appropriate respiratory protective equipment and protective clothing in accordance with the Factories and Industrial Undertakings (Asbestos) Regulations.
10. All staff who are involved in asbestos abatement works are provided, free of charge, with the opportunity to have their health and physical condition checked for fitness to wear respirators. Staff with severe lung disabilities are strongly advised to undergo a medical examination prior to taking up the inspection of asbestos work.
11. For further details refer to Section 3.1, PERSONNEL PROTECTION.

**HALF-YEARLY PERIODIC ACM SURVEILLANCE**

12. Periodic surveillance of ACM is carried out through an [half-yearly](#) condition survey of asbestos containing building elements. The result of the surveys and any proposed changes to the asbestos abatement programme are recorded, and the central records updated at the end of [each survey](#).
13. The condition of existing ACM in building services equipment is monitored and checked during routine maintenance.
14. If at any time it is suspected that an additional material or element may contain asbestos, samples are collected and analysed to verify the presence of asbestos. If the result is affirmative, the additional material / element will be replaced with asbestos free materials and recorded accordingly.
15. For further details refer to Section 3.5, [HALF-YEARLY](#) ACM SURVEILLANCE.

**CENTRAL RECORDS**

16. Central records being maintained contain information related to asbestos, including :
  - all ACM, the location, condition and the type of asbestos contained.
  - abatement programmes and activities.
17. For further details refer to Section 3.2, CENTRAL RECORDS.

**ABATEMENT**

18. Asbestos abatement activities carried out under the Asbestos Management Programme include the encapsulation and removal of ACM. These activities are carried out in accordance with agreed programmes and procedures.
19. For further details refer to Section 3.4, ABATEMENT PROGRAMME and Section 3.3, ASBESTOS ABATEMENT.

2.3

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**ASBESTOS MANAGEMENT**

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**EMERGENCY PROCEDURES**

20. HD procedures for dealing with emergencies involving asbestos include procedures to deal with :
  - emergency repair to underground asbestos cement watermain.
  - emergencies during the course of Asbestos Abatement work.
21. In the case of asbestos contamination, immediate steps shall be taken to restrict access to the contaminated area, erect warning signs, verify the asbestos contamination and arrange for decontamination.
22. Any person who may have touched the contamination in any way should be advised to wash their hands, hair and face, or to take a thorough shower as soon as practicable.
23. Emergencies during the course of Asbestos Abatement work include :
  - spillage of contaminated debris outside the work area
  - exceeding the Environmental Control Limit of 0.01 fibres/mL
  - a fire in or adjoining the work area
  - the raising of a Number Three Typhoon Signal (or above)
  - a worker collapses or some other accident occurs
24. For further details refer to Section 5.7, EMERGENCY PROCEDURES and the respective Divisional documentation.

**SPECIAL PROCEDURES**

25. Special procedures covering asbestos management are set out in the respective Divisional documents and include detail procedures for :
  - contracting
  - specification
  - work methods
  - monitoring
  - inspection
  - testing
  - remedial action
  - records

## 2.4

### ASBESTOS MANAGEMENT

#### 2.4 Abatement Programme

##### GENERAL

1. The asbestos abatement activities carried out under the Asbestos Management Programme are coordinated by way of the following programmes :

- the Asbestos Abatement Programme; and
- the Redevelopment Programme

##### ASBESTOS ABATEMENT PROGRAMME

2. All the asbestos abatement works planned and undertaken by the Estate Management Division are recorded in a asbestos abatement programme.
3. The asbestos abatement programme is maintained by SMS/R&D, based on abatement works reports and ACM condition information provided as a result of the periodic surveillance of ACM.
4. SMS/R&D updates the asbestos abatement programme when significant changes are required.
5. There is no specific programme to remove ACMs from building services equipment, however the condition of such ACM is inspected during the routine maintenance and testing of the equipment. When the inspection reveals that the ACM warrants removal, it is replaced with an asbestos-free substitute whenever practicable.

##### REDEVELOPMENT PROGRAMME

6. The demolition of older Housing Blocks for redevelopment purposes is planned and undertaken in accordance with the Redevelopment Programme. As a result, all existing ACM in these blocks will be removed during the demolition of the blocks.

## 3.0

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**ASBESTOS MANAGEMENT**

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**3.0 MANAGEMENT****3.1 Personnel Protection****GENERAL**

1. The approach to asbestos removal adopted by the Department is intended to minimise as far as reasonably practicable the risk to its tenants, the public and its staff arising from the removal of the ACM. The approaches adopted depend on the type of ACM involved and include negative pressure full containment, partial segregation and open air removal with wetting and careful dismantling.
2. Where the asbestos removal requires the full containment approach, inspection by HD staff is normally from outside the containment by means of a viewing panel. Where full containment is not required, inspection by HD staff normally involves occasional visits to works areas where the air-borne dust level has been established to be well below the air monitoring control levels.
3. Although the risk of HD staff being exposed to asbestos is low, the Factories and Industrial Undertakings (Asbestos) Regulations, require that respiratory protective equipment and protective clothing must be worn by every person employed in connection with an asbestos abatement process or in a place into which asbestos dust is liable to escape.
4. As the use of a filter type respirator may affect the health of people who suffer from severe lung disabilities, a medical examination, including chest X-ray and lung function test, is necessary for all staff who are likely to be involved with asbestos abatement inspection duties. People most likely to be affected are those who suffer from chronic bronchitis, asthma, chronic obstructive airway diseases, silicosis or advanced cases of pulmonary TB.

**MEDICAL EXAMINATION**

5. All HD staff who are likely to be involved in asbestos abatement works are provided, free of charge, with the opportunity to have their health and physical condition checked for fitness to wear respirators. Staff with severe lung disabilities are strongly advised to undergo a medical examination prior to taking up the inspection of asbestos work.
6. Staff who are concerned that their respiration has deteriorated or is adversely affected because of illness, or those who wish merely to have their respiration checked may, at any time, (prior to or during duties involving the inspection of asbestos abatement work) request a medical examination.
7. Requests for medical examinations are submitted in memo form to the appropriate Chief Professional Officer for professional staff or to the appropriate Chief Technical Officer for site staff. The officer concerned reviews the request and forwards it to CM/M(PM) for the necessary arrangements to be made. Refer to sample memo [EMDTG07-F03](#).

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**ASBESTOS MANAGEMENT**

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**USE OF HALF-FACE RESPIRATOR**

8. The respiratory protection provided by the half-face respirator is dependent on the effectiveness of its fit to the face of the wearer. Two tests that may be carried out to check that the half-face respirator fits satisfactorily are the Positive Pressure Fit Test and the Negative Pressure Fit Test. The tests are conducted as follows :

a) Positive Pressure Fit Test

Completely cover the exhaust with the palm of the hand and breathe out slightly. The respirator fit is effective if it lifts slightly away from the face and no air leaks out.

b) Negative Pressure Fit Test

Completely cover the cartridges with the palm of the hands and breathe in slightly. The respirator fit is effective if it sticks slightly to the face.

## 3.2

### ASBESTOS MANAGEMENT

#### 3.2 Central Records

##### GENERAL

1. The Chief Manager/Management(PM) is responsible for the recording of the asbestos abatement activities within the Estate Management Division and the coordination of central records on ACM
2. SMS/R&D and CTO(BS)/TD are responsible for the maintenance of the building works and building services records respectively.
3. As, BSEs and SEs of the Development & Construction Division are responsible for supplying the Estate Management Division coordinators with information on their asbestos abatement activities for updating the central records.

##### ACM RECORDS

4. SMS/R&D maintains central records of asbestos related information for building elements, including:
  - survey records and bulk sampling reports on the location and condition of the ACM;
  - the type and quantity of asbestos contained; and
  - the dates of any enclosure/encapsulation etc.
5. CTO(BS)/TD maintains central records of all asbestos containing building services installations.

##### ABATEMENT PROGRAMMES

6. SMS/R&D maintains an asbestos abatement programme recording all the asbestos abatement works planned and undertaken by the Building Works Sections of the Estate Management Division.
7. MSs are responsible for supplying SMS/R&D with ACM condition information after each condition survey to update the Asbestos Abatement Programme.

##### LISTS OF REGISTERED ASBESTOS CONSULTANTS, CONTRACTORS, SUPERVISORS AND LABORATORIES

8. The updated lists of Registered Asbestos Consultants/Contractors/Supervisors/Laboratories can be viewed at EPD's website: <http://www.epd.gov.hk/epd>.

##### REPORTS

9. SMS/R&D prepares reports on asbestos recording :
  - the progress of all abatement works for the current year;
  - a summary of major types of ACMs; and
  - the number of blocks in Housing Properties with ACMs.

### 3.3

## ASBESTOS MANAGEMENT

### 3.3 ASBESTOS ABATEMENT

#### GENERAL

1. Asbestos abatement activities carried out under the Asbestos Management Programme are carried out in accordance with agreed programmes and procedures. These activities include the encapsulation and removal of ACM.

#### ENCAPSULATION

2. The encapsulation method of asbestos abatement is generally confined to staircase and balcony grille panels. Where the panels are in good condition the work method set out in EMDTG08 is followed and the work is treated as normal building maintenance work, and is carried out by the Housing Department's Contractors.
3. Most asbestos balcony grille panels of properties managed by Housing Department or HKHA's management agents have been encapsulated. It is intended that the remaining panels also be encapsulated if access and other constraints can be overcome.
4. Upon completion of the work, the Project MS records the encapsulation in Form [EMDTG07-F05](#) and submits the form to SMS/R&D for the updating of the central record.

#### ASBESTOS REMOVAL

5. Asbestos removal activities are carried out under the Asbestos Abatement Programme and the Redevelopment Programme.
6. [Development](#) & Construction Division staff arrange for asbestos removal works under the Redevelopment Programme.
7. Estate Management Division staff arrange for asbestos removal works under the Asbestos Abatement Programme or on need basis.
8. Not all works involving the removal of ACM from HA properties are included in the programme, which primarily covers the large scale works involving the removal of a particular type of ACM from a whole block.
9. Where any individual panel or section of ACM becomes defective and warrants abatement without delay, the MS shall arrange for its removal or abatement as appropriate regardless of whether such was included in the current programme or not.
10. On occasions the Estate Management Division may request the removal of ACM from squatter structures. Refer to Section 4.5. [\(Deleted\)](#)
11. Estate Management Division BS staff arrange for the removal of friable ACM found in building services installations that warrants abatement.



### 3.3

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## ASBESTOS MANAGEMENT

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### ASBESTOS ABATEMENT PROCEDURES

12. The detailed responsibilities and procedures for the abatement of asbestos containing materials are described in Sections 3 and 4, and the following Divisional documents :

- The Asbestos Technical Guidelines, EMDTG08.
- [Development &](#) Construction Division's SE Technical Guide to Asbestos Removal (DSEG-ASB).

### ASBESTOS ABATEMENT SPECIFICATIONS

13. Detailed specifications for the asbestos abatement works are prepared at Divisional level setting out specific requirements where necessary concerning:

- Statutory obligations and codes of practice
- Use of Registered Asbestos Consultants, Contractors, Supervisors & Laboratories
- Preliminary site visits and surveys for asbestos
- Notifications to Government authorities
- The submission required with tenders/quotations
- The submission required before the works may commence
- Asbestos removal works programmes
- Site supervisors
- Air monitoring
- Approvals for commencement of work
- Personnel access to sites and signage
- Equipment and materials
- Maintenance and testing of plant and equipment
- Decontamination facilities
- Containments
- Methods of removal
- Control limits for airborne asbestos dust levels
- Suspension of works
- Acceptance of asbestos removal work
- Disposal of contaminated waste
- Project records
- Decontamination
- Emergency procedures during course of asbestos removal works
- Payment of works

### ASBESTOS REMOVAL WORK METHODS

14. Detailed removal methods for the asbestos abatement works are prepared at Divisional level for each type of ACM. The work methods set out specific guidelines concerning:

- Associated non asbestos works
- Equipment required
- Preliminary cleaning
- Zoning of works
- Containments/segregation
- Decontamination facilities
- Protective equipment required
- The removal work
- Preparation for visual inspections
- Air monitoring on completion of works
- Waste disposal

### 3.3

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#### ASBESTOS MANAGEMENT

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- Air monitoring strategy

#### WORKS MONITORING

15. In the management of asbestos abatement works HD staff/[Estate Manager \(Maintenance\) of PSA \(applies to all "PSA" as mentioned in this manual\)](#) closely monitor the works to ensure that the Registered Asbestos Contractor complies with the regulations and the specified requirements. An important part of this monitoring involves the monitoring of air test samples. Registered asbestos consultant is to be engaged for asbestos abatement work for non-exempted works.
16. Before commencement of any preparation work on site, background air tests are carried out. Environmental, leakage and personal air monitoring tests are carried out during asbestos removal work and penultimate, clearance and reassurance air monitoring tests on completion of the works. An air monitoring strategy is included in the approved work methods for the works.
17. Air monitoring is carried out by Registered asbestos Laboratories through HD's materials testing services term contracts, and requests for air monitoring tests are made to SCE/MTM using Form DCMM-F03.
18. Refer to section 6.5, AIR MONITORING.

### 3.4

## ASBESTOS MANAGEMENT

### 3.4 Approved Specialist Contractors

#### LISTS OF REGISTERED ASBESTOS CONSULTANTS, CONTRACTORS, SUPERVISORS AND LABORATORIES.

1. The Environmental Protection Department (EPD) maintains and manages lists of Registered Asbestos Consultants, Contractors, supervisors and Laboratories.
2. The current lists can be viewed at EPD's website: <http://www.epd.gov.hk>.

#### PERFORMANCE OF REGISTERED ASBESTOS CONTRACTORS/CONSULTANTS/SUPERVISORS

3. On the completion of an asbestos abatement project, the MS/BSE of the Estate Management Division and the PSA in charge of the project completes a report on the performance of the Registered Asbestos Contractor, using Form [EMDTG07-F01](#). Should the project MS/BSE or the PSA find that the performance of registered asbestos consultants is poor they shall also report to SMS/R&D.
4. Reference should be made to all project records and all items of non-compliance recorded on the form. The report is countersigned by the senior professional officer and submitted, together with copies of all supporting project records and documents for items of non-compliance, to SMS/R&D within one week of the completion of the project. The BSE submits the report via CTO(BS)/TD.
5. SMS/R&D reviews the report and submits, where the poor performance of the above asbestos professionals is noted with recommendations as appropriate to EPD and LD (Attn.: S(RW)6, Asbestos Management & Control Section (1), EPD and SOH(D), Occupational Hygiene (Development) Division, LD).

## 3.5

**ASBESTOS MANAGEMENT****3.5 Periodic ACM Surveillance****GENERAL**

1. An [half-yearly](#) condition survey of asbestos containing building elements in each area is carried out by the MS, SCW and PSA concerned. The results of the surveys are recorded on Form [EMDTG07-F04](#) and submitted to SMS/R&D at the end of each condition survey.
2. SMS/R&D carries out a random check of the submissions and advises the MS/SCW/PSA of any discrepancies.

**ASSESSMENT**

3. Each "ACM unit" (i.e. a whole panel, a whole length of pipe in one storey, a roof tile, a piece of corrugated sheet) is initially inspected and considered independently. Those damaged parts that are clustered at the one point are defined as localized. Single cracks that can be found in various locations on the ACM unit are taken as scattered.
4. Using the definitions above, if localized damage exceeds 10% of the total area or length of that ACM unit, or if scattered damage exceeds 5% of the total area or length of that ACM unit, that ACM unit will be considered as "in poor condition".
5. After assessing all ACM units independently in the one building, the number of "poor" ACM units is calculated and divided by the total number of ACM units to obtain the percentage of poor ACM units. If the proportion so calculated exceeds 10%, all poor ACM units should be removed without delay and the rest of the same type of ACM in the building included in the asbestos abatement programme.
6. If any length of asbestos pipe is in poor condition, the whole stack should be removed. If the number of stacks to be removed is more than 10% of the total number of stacks in the building, the remaining stacks should also be included in the asbestos abatement programme.
7. The condition of each asbestos containing building element is inspected in accordance with the guidelines set out below.

**GRILLES (STAIRCASE/BALCONY/LOBBY)**

8. Initial inspection is conducted on the exterior using binoculars. The grille conditions are assessed according to the following :-

### 3.5

#### ASBESTOS MANAGEMENT

Satisfactory : No visible damage (major cracks or chipping) or up to 5% of area scattered OR up to 10% of area localized damage.

Poor : More than 5% of area scattered or more than 10% of area localized damage (major cracks or chipping).

9. Those panels classified as "poor" are inspected at close range. The potential for further deterioration is assessed. Those that can easily be reached by occupants (without employing any physical aid) are classified as accessible. Where this is the case, the grille is recorded and put on an immediate removal programme.
10. The above guidelines also apply to encapsulated grilles.

#### CORRUGATED SHEETS

11. As the corrugated sheets are predominantly used as canopies, and are therefore installed in a slanting manner, external inspection through the use of binoculars might not be practicable, but would provide an initial assessment. As the corrugated sheets are generally only accessible via the residential units, those able to be covered by the initial assessment can be eliminated thereby minimizing the disturbance to tenants.

12. Where it is not possible to assess the condition of the corrugated sheets through an initial assessment, the sheets are inspected at close range. The assessment criteria are as follows :-

Satisfactory : No visible damage i.e. no chipping, breakage, or hole on the Corrugated Sheet or up to 5% of area scattered OR up to 10% of area localized damage.

Poor : More than 5% of area damage or more than 10% of area localized damage.

#### ROOF TILES

13. Each tile is considered individually. However, since the removal of an individual roof tile is impractical, the aim of the assessment should be to determine whether to carry out an overall removal or not. In assessing the condition of the roof tiles, the overall percentage of damaged tiles should be worked out and an assessment made using the following criteria :-

Satisfactory : 15% of area damage or less (major cracks or chipping).

Poor : >15% of area damage (major cracks or chipping).

3.5

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**ASBESTOS MANAGEMENT**

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**REFUSE CHUTE**

14. Refuse chutes are assessed on a floor by floor basis. The assessment guidelines are as follows :-

Satisfactory : No visible damage (major cracks or chipping) or deterioration, OR damage (major cracks or chipping) up to 5% of area of the surface if scattered or up to 10% of area if localized.

Poor : Damage (e.g. chipping) >5% of area of the surface if scattered or >10% of area if localized or any major crack.

**CEMENT PIPES**

15. Cement pipes (or rainwater pipes) are assessed on a floor by floor basis both at public areas such as corridor or staircase landings and inside occupied flats. The assessment guidelines are as follows :-

Satisfactory : No visible damage (major cracks or holes or rusting) OR damage (major cracks or chipping) up to 5% of area of the surface of that run of the pipe if scattered or up to 10% of area if localized.

Poor : Damage (e.g. chipping) >5% of area of the surface of that run of the pipe if scattered or >10% of area if localized or any major crack.

**CHIMNEY**

16. Every section of the chimney body is surveyed if applicable. In general the bottom section of the chimney starts at the restaurant kitchen level. As the restaurant is taken as a high activity area, damage inflicted by human factors would be very probable. The ending section of the chimney is usually at the roof area of the building. This section of the chimney is of low human disturbance and damage by means of natural causes such as weathering is more likely.

17. The middle or traverse areas of the chimney are usually enclosed in the building structure or enclosed by features such as ducting. These sections of the chimney normally receive low or no disturbances of any kind and if deemed inaccessible, the bottom and top section should be representative enough of the whole chimney for the purpose of condition surveillance.

18. The chimney should be assessed using the following criteria :-

Satisfactory : No visible damage (major cracks or holes or rusting) OR damage up to 5% of area of the surface if scattered or up to 10% of area if localized.

Poor : Damage (major cracks or holes or rusting) >5% of area of the surface if scattered or >10% of area if localized.

### 3.5

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## ASBESTOS MANAGEMENT

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### OTHER ELEMENTS

19. All other ACMs should be assessed on an % of area basis. The assessment guidelines are as follows :-

Satisfactory : No visible damage or deterioration OR damage up to 5% of area of the surface if scattered or up to 10% of area if localized.

Poor : Damage >5% of area of the surface if scattered or >10% of area if localized.

4.1

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**ASBESTOS MANAGEMENT**

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**4.0 MAINTENANCE WORKS**

**4.1 Responsibilities**

**BUILDING WORKS**

1. SMS/R&D
  - to provide MS/PSA with ACM information where necessary.
  - to give advice on abatement method guidelines and air monitoring strategy.
  - to give advice on preparation of Particular Specification on asbestos abatement.
  - to attend pre-work meeting.
  - to carry out technical audit inspections.
  - to keep record of Registered Asbestos Contractor's performance reports.
  - to take over special asbestos abatement works from the MS as may be required.
2. MS
  - to arrange for asbestos abatement works.
  - to notify EPD of asbestos abatement works in standard form
  - to arrange for bulk sampling of suspected ACM.
  - to hold pre-work meetings for asbestos abatement works.
  - to monitor asbestos abatement works.
  - to compile Registered Asbestos Contractors' performance reports for submission to SMS/R&D.
3. SCW
  - to assist MS in the inspection of asbestos abatement works.
  - to attend emergency Work Request from Estate Management Office regarding asbestos contamination.



4.1

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**ASBESTOS MANAGEMENT**

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**BUILDING SERVICES**

4. CTO(BS)/TD
  - to give advice on abatement method guidelines and air monitoring strategy.
  - to give advice on preparation of particular Specification on asbestos abatement.
  - to attend pre-work meeting.
  - to carry out technical audit inspections.
  - to coordinate Registered Asbestos Contractors' performance reports and provide such reports to SMS/R&D.
  - to take over special asbestos works from BSE as may be required.
5. BSE
  - to arrange bulk sampling of suspected ACM.
  - to arrange for asbestos abatement works.
  - to notify EPD of asbestos works in standard form.
  - to hold pre-work meetings for asbestos works.
  - to monitor asbestos works.
  - to compile Registered Asbestos Contractors' performance reports for submission to SMS/R&D through CTO(BS)/TD.
6. SBSI
  - to assist BSE in the inspection of asbestos works.
  - to attend emergency Work Request from Estate Management Office regarding asbestos contamination in building services installation.

**4.2**

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**ASBESTOS MANAGEMENT**

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**4.2 PLANNING****INTRODUCTION**

1. The MS initiates and monitors asbestos abatement work in accordance with the asbestos abatement programme. In addition the abatement of individual ACM elements are initiated, regardless of whether they are included in the programme or not, if they become defective and require abatement without delay.
2. The BSE initiates and monitors asbestos abatement work whenever friable ACM is found in building services installations that requires abatement.
3. The Project Professional for asbestos works shall check whether the works belong to the list of exempted works in Section 6.8, which determine the need to engage a Registered Asbestos Consultant/Contractor.
4. The procedures for the engagement of a Registered Asbestos Consultant for Maintenance works are described in paragraph 25-27.
5. Exempted works shall be carried out in accordance with the Asbestos Management (EMDTG07) and supporting documents. Non-exempted classes of works shall be carried out according to the Asbestos Abatement Plan prepared by a Registered Asbestos Consultant and accepted by EPD.
6. The procurement of Registered Asbestos Contractor services may be arranged by means of separate lump sum contracts, quotations etc. depending on the nature, scale and urgency of the works.
7. The MS/BSE selects the appropriate procurement method and prepares for the works as set out below for each contract type. The MS/BSE seeks advice from SMS/R&D or CTO(BS)/TD as appropriate, for the detail preparation of the documentation.
8. If no work method guideline is suitable for the asbestos job, the MS/BSE should consult SMS/R&D or CTO(BS)/TD as appropriate, for advice. Where the works are of a special nature they may be taken over by SMS/R&D or CTO(BS)/TD as appropriate.
9. If details of the type(s) of asbestos are not available in the Central record, the MS/BSE arranges for bulk sampling tests in accordance with Section 5.6.

**GUIDELINES/SAMPLE SPECIFICATIONS**

10. Guidelines for works procurement are set out in the Appendices and sample specifications and work methods are set out in the Asbestos Technical Guidelines, EMDTG08.

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### ASBESTOS MANAGEMENT

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11. Where guidance on the preparation of the particular specification is included in a sample document it is enclosed in brackets and identified. All guidance notes must be deleted from the final printout of the particular specification.
12. Copies of the sample documents and specifications contained in EMDTG08 may be obtained in electronic and hardcopy form from QMU/M.

#### LUMP SUM CONTRACTS

13. A lump sum contract may be arranged if the cost of the asbestos job together with any necessary builder's work is high and suitable work method guidelines are described in EMDTG08. In this situation the Registered Asbestos Contractor is a subcontractor to the general contractor.
14. The contract documents are prepared in accordance with the Estate Management Division (EMD)'s Contract Procedures manuals, and with the specific requirements for asbestos works included as part of the Particular Specification as described in the Appendices.

#### QUOTATIONS

15. The most common procurement arrangement is to use a quotation.
16. The quotation documents are prepared in accordance with the EMD's Contract Procedures manuals and with the specific requirements for asbestos works included as part of the Quotation Terms as described in the Appendices.

#### DOCUMENTATION/NOTIFICATION REQUIREMENTS

17. There are a number of requirements both statutory and from Housing Department for contractors involved in asbestos abatement works to give prior notice to other Government Departments and to maintain specific records relating to the works. These are set out below for each of the Departments concerned.

#### ENVIRONMENTAL PROTECTION DEPARTMENT (EPD)

18. At least 28 days before commencement of asbestos removal works, the MS/BSE shall notify EPD using the standard form ([EMDTG07-F12](#)) at section 5 giving details of location, planned commencement and completion dates of asbestos removal, type of ACM, and project contact officer's telephone number. A copy of the prescribed form shall be forwarded to SMS/R&D or CTO(BS)/TD as appropriate.

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**ASBESTOS MANAGEMENT**

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19. The contractor is required to apply for a waste disposal trip ticket for the disposal of asbestos waste generated from the asbestos abatement work well ahead of time. The application for this trip ticket should be kept on-site for inspection.
20. Maintenance records for any HEPA equipment must be kept on-site.

**LABOUR DEPARTMENT**

21. It is a statutory requirement that the contractor should give notification to the Labour Department 28 days before the commencement of asbestos abatement work. The notification is done through a prescribed form and a copy should be kept on-site.
22. All asbestos workers must have valid and up-to-date medical certificates.
23. Where special construction or equipment such as scaffolding or hoists are used as part of the asbestos abatement work, the relevant certificates or inspection reports must be available on-site.

**HOUSING DEPARTMENT**

24. The contractors are required to keep a complete list of the workers and site supervisor, including their I.D. numbers and an organization chart on-site for inspection.

**PROCEDURE FOR ENGAGEMENT OF A REGISTERED ASBESTOS CONSULTANT**

25. This procedure describes the arrangements to be followed for the engagement of a Registered Asbestos Consultant for Maintenance works.
26. For planned jobs the Project Professional obtains the latest list of registered asbestos contractors/consultants through EPD's website. (Note: For the asbestos abatement work of non-exempted classes of work, it is recommended that the registered asbestos contractor shall engage at their own cost the said consultant for periodic supervision and certification of completion of works).
27. The Project Professional should give 28 days notice to EDP in the prescribed form at Section 5.8 before commencement of the asbestos work.
  - a) Emergency repairs to underground asbestos cement watermain shall follow the procedures stipulated in Estate Management Division Instruction No. W01/2014.

### 4.3

## ASBESTOS MANAGEMENT

### 4.3 MANAGEMENT

#### INTRODUCTION

1. In the management of asbestos abatement works the MS/BSE/PSA and their site staff closely monitor the works to ensure that the Registered Asbestos Contractor complies with the regulations and the specified requirements. This includes :
  - a) requiring the contractor to obtain approval prior to the commencement of the works, or any zone of the works.
  - b) air monitoring testing before during and after the works.
  - c) the maintenance of a daily log by EMD staff.
  - d) inspection to ensure that the contractor adheres to the approved work method/Asbestos Abatement Plan.
  - e) inspecting the works on completion of any zone.
  - f) requiring the contractor to obtain approval prior to removing any containment or segregation.
  - g) requiring the contractor to prepare emergency measures.
  - h) technical audit of the works by SMS/R&D or CTO(BS)/TD.
  - i) reporting on the contractor's performance on completion of the works.

#### PRE-WORK MEETING

2. A pre-work meeting is arranged by the MS/BSE/PSA and consists of the MS/BSE/PSA and site staff, SMS/R&D's representative or CTO(BS)/TD as appropriate, the Registered Asbestos Contractor and site supervisor, the main contractor, the Registered Asbestos Laboratory representative, the affected occupiers' representatives and a representative from EMD.
3. The MS/BSE/PSA prepares Form [EMDTG07-F06](#) and submits it together with the required information to SMS/R&D or CTO(BS)/TD respectively at least one week before the pre-work meeting.
4. The purpose of the pre-work meeting is to :
  - (a) ensure that all parties understand the work method;
  - (b) confirm the programme and zoning arrangements;
  - (c) scrutinise the contractor's submission on the proposed site supervisor and the equipment and its maintenance records;
  - (d) confirm the air monitoring strategy and schedule including arrangement of background air monitoring;
  - (e) confirm the site set-up and location of the secure store or storage skip; and

## 4.3

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**ASBESTOS MANAGEMENT**

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- (f) issue the necessary forms to the Registered Asbestos Contractor for his use.

**AIR MONITORING**

5. Air monitoring is crucial to the management of asbestos abatement works. Before commencement of any preparation work on site, background air tests are carried out. Environmental/leakage and personal air monitoring tests are carried out during asbestos removal work and penultimate, clearance or reassurance air monitoring tests on completion of the works as appropriate. An air monitoring strategy is included in each of the BW work method guidelines, and CTO(BS)/TD provides the required air monitoring strategy for BS.
6. Requests for air monitoring tests are made to SCE/MTM (tel.2728 3992) using Form DCMM-F03. This Form can be downloaded from HKHA's Intranet.

**COMMENCEMENT OF ASBESTOS REMOVAL WORK**

7. Having completed the necessary preparation work, the Registered Asbestos Contractor is required to request approval to commence work on Form [EMDTG07-F07](#), Request for Approval to Commence Work. The contractor completes Part A of the form and submits the form to the MS/BSE/PSA.
8. The MS/BSE completes Part B of Form [EMDTG07-F07](#) to either give approval to commence work or to indicate any checklist item not in order and require the contractor to re-submit. The forms are filed on the project file.

**INSPECTION REQUEST ON COMPLETION OF ZONE**

9. On completion of the asbestos removal of one zone, the contractor is required to request an inspection of the zone on Form [EMDTG07-F08](#), Request for Inspection. The contractor completes Part A of the form and submits the form to the MS/BSE/PSA after receiving the penultimate air test results from the testing contractor. The final clearance air test or reassurance air test for the zone may only be carried out after approval is given by the MS/BSE/PSA.
10. After receiving satisfactory clearance/reassurance air test results of the zone, the contractor completes Part B of the form and submits the form to the MS/BSE/PSA for approval to commence the next zone, if there is more than one zone.
11. On completion of the asbestos removal works the contractor completes Part C of the form and submits the form to the MS/BSE/PSA for approval to remove the containment/segregation for the zone. The forms are filed on the project file.
12. If the contractor removes a containment/segregation before obtaining approval the MS/BSE/PSA instructs them to carry out appropriate remedial measures, including reinstatement and cleaning, before resubmitting the form.
13. The MS/BSE/PSA ensures that the asbestos waste is disposed of to the satisfaction of EPD.

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**ASBESTOS MANAGEMENT**

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**DAILY LOG**

14. The MS/BSE/PSA maintains a daily log of the asbestos abatement works on Form [EMDTG07-F09](#). The check list is a guideline only and only the non-compliances are to be recorded. This form is used as an aid to the assessment of the contractor's performance and the lower part of the form shall be kept on the project file.

**AIR MONITORING TEST RESULTS**

15. The laboratory is required to fax the air monitoring test results to the MS/BSE/PSA within 4 hours of a test or before 9 a.m. the next morning.
16. The MS/BSE/PSA checks the results against the air monitoring control limits at Section 6.5, Air Monitoring, and takes action as necessary in accordance with the work method and the emergency measures.
17. The laboratory is required to compile a weekly summary of air monitoring test results using Form [EMDTG07-F10](#) and submit the form to the Project Officer each week.
18. If the duration of the removal work is less than one week (e.g. removal of the lagging on a generator flue) one form is used on completion of the work.

**MONITORING OF THE WORKS**

19. The MS/BSE/PSA and site staff monitor the works to ensure that they are carried out in accordance with the statutory requirements and the approved work method.
20. A Registered Asbestos Supervisor is required to be on-site full time. Whenever asbestos work or asbestos work related activities are being carried out (such as site cleaning and constructing containment) supervision of the works must be provided by the Registered Asbestos Contractor's Registered asbestos Supervisor. This is a mandatory requirement and deviation from this is considered a serious offence.
21. The contractor is required to follow the approved method statement meticulously. Any request for deviation must be submitted to the project professional officer in writing for approval.
22. Upon leaving the site at the end of a work day, all power and water supply must be switched off. However, in the cases where a containment is used, the air mover is required to be switched on 24 hours a day and hence electricity supply must be kept going for this purpose.
23. Where the power supply to a containment must be switched off until the next working day, all the openings of the containment must be sealed up before the air mover is switched off. The air mover must be switched on before the sealed openings are re-opened on the next working day.
24. Detailed inspection guidelines set out in the Appendices.

### 4.3

## ASBESTOS MANAGEMENT

### EMERGENCY MEASURES

25. The MS/BSE/PSA and site staff ensure that the contractor carries out the appropriate emergency measures if any of the following situations arise during the course of asbestos removal works :
  - (a) Spillage of asbestos contaminated debris outside the work area;
  - (b) The environmental control limit is exceeded;
  - (c) A fire breaks out in or near the work area;
  - (d) A worker collapses or occurrence of an accident; or
  - (e) Number 3 typhoon signal (or above) is raised or a rain storm warning is given.
26. Where either the leakage or Personal samples or both have exceeded the required limit during a short duration job (one day), the site staff instruct the contractor to carry out necessary clean-up at appropriate locations.
27. Where either the leakage or Personal samples or both have exceeded the required limit and the abatement work has not been completed at the time of receiving the results, the site staff ensure that the contractor carries out the appropriate emergency measures.
28. In all cases site staff check thoroughly that the contractor has followed the approved method statement meticulously and report to the MS/BSE/PSA as appropriate.
29. The emergency measures that the contractor is required to follow are included in the contract documents. Refer to EMDTG07-5.7, EMERGENCY PROCEDURES.

### TECHNICAL AUDIT INSPECTION

30. SMS/R&D or CTO(BS)/TD or their representatives as appropriate carry out random technical audit inspections of asbestos abatement works. The inspection reports are recorded on Form [EMDTG07-F11](#) and a copy is sent to the MS/BSE/PSA in charge of the project.

### REPORT ON PERFORMANCE OF SPECIALIST ASBESTOS REMOVAL CONTRACTOR

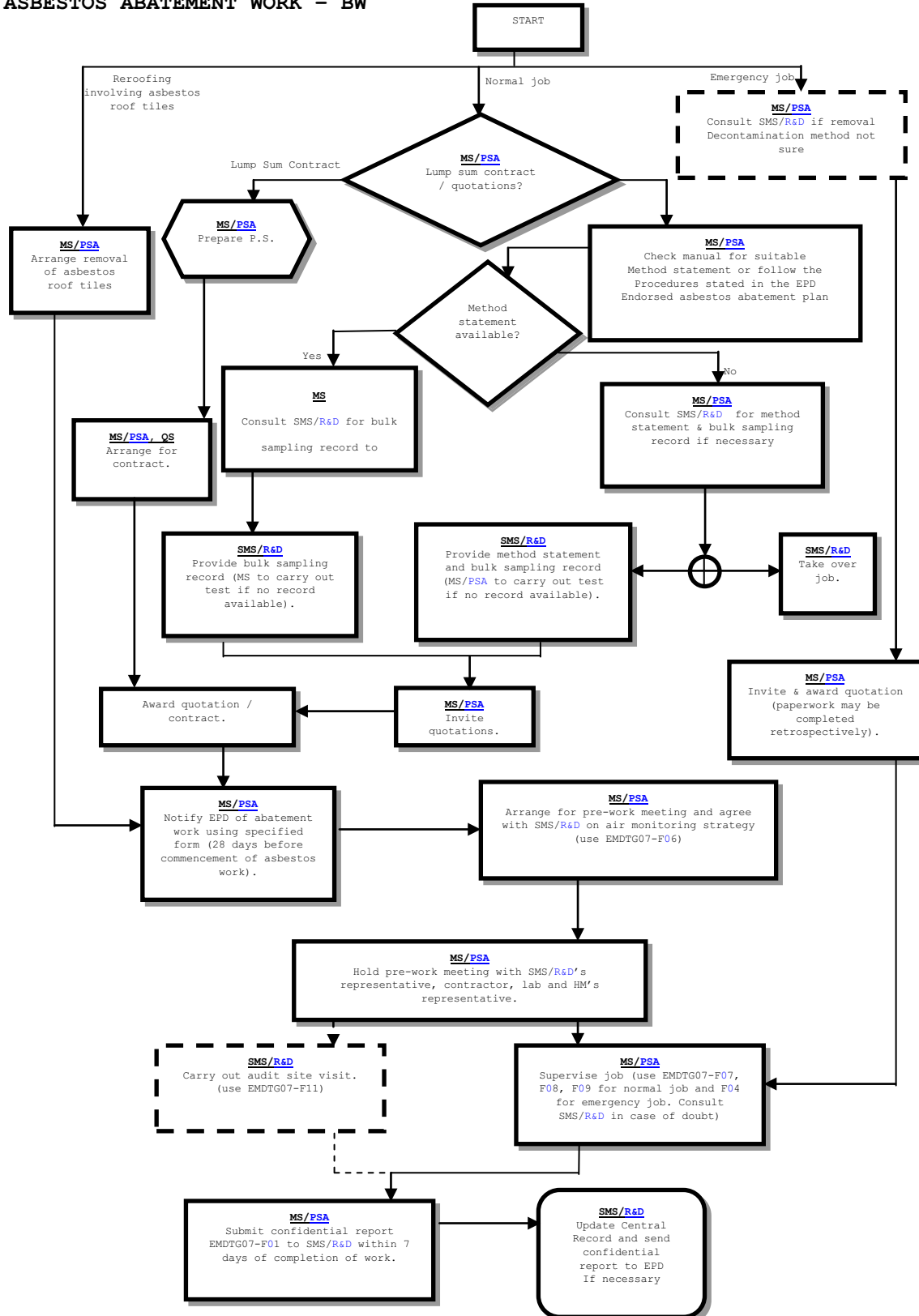
31. On the completion of an asbestos abatement project, the MS/BSE/PSA in charge of the project completes a report on the performance of the specialist contractor, using Form [EMDTG07-F01](#).
32. Refer to Section 3.4, Registered Asbestos Consultants, Contractors, supervisors & Laboratories.



## ASBESTOS MANAGEMENT

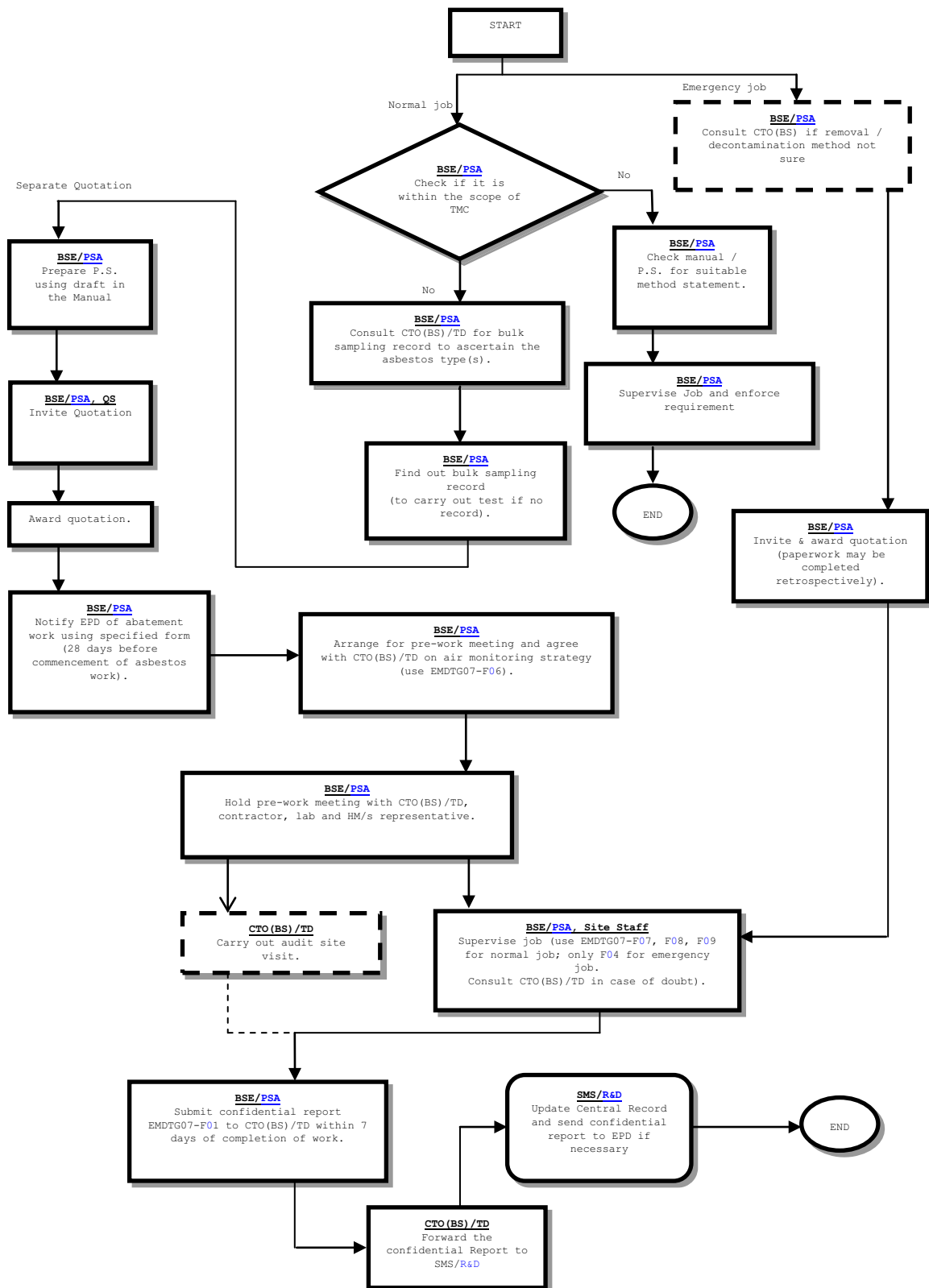
### 4.4 Flow Charts

#### ASBESTOS ABATEMENT WORK - BW



ASBESTOS MANAGEMENT

ASBESTOS ABATEMENT WORK - BS



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**ASBESTOS MANAGEMENT**

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**4.5 Squatter Structures (Deleted)**

**GENERAL**

1. For demolition of squatter structures suspected of containing asbestos, the squatter control staff liaise with the relevant MS to arrange a joint site visit with a view to ascertaining whether ACM are present. As soon as ACM are confirmed by laboratory analysis, the HM is notified of the test results.
2. The HM will request the MS to remove the ACM by sending a memo with details such as location, dimensions etc. and funding arrangement. The MS shall then arrange the asbestos abatement work following proper procedures, and send a performance report on the registered asbestos contractor to SMS/R&D upon completion of work. After the removal of the ACM, the remaining structure is removed by the Squatter Control Section.

## 5.1

**ASBESTOS MANAGEMENT****5.0 MISCELLANEOUS****5.1 Abbreviations****ABBREVIATION****A**

<a href="#">A</a>	-	<a href="#">Architect</a>
ACM	-	Asbestos Containing Material
Arch. S.D.	-	Architectural Services Department
AWG	-	Asbestos Working Group

**B**

BS	-	Building Services
BSE	-	Building Services Engineer
BW	-	Building Works

**C**

CM	-	Contract Manager (see SO)
CM/M	-	Chief Manager/Management
CSE	-	Chief Structural Engineer
CTO	-	Chief Technical Officer

**D**

DMO	-	District Maintenance Office
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**E**

EPD	-	Environmental Protection Department
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**H**

HD	-	Housing Department
HEPA	-	High Efficiency Particulate Air
HM	-	Housing Manager

**L**

LD	-	Labour Department
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**M**

EMD	-	Estate Management Division
MS	-	Maintenance Surveyor

**P**

PO	-	Project Officer
<a href="#">PSA</a>	-	<a href="#">Property Services Agent</a>
PVA	-	Polyvinyl Acetate

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**ASBESTOS MANAGEMENT**

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**ABBREVIATION**

<b>Q</b>		
QA	-	Quality Assurance
<b>S</b>		
SBSI	-	Senior Building Services Inspector
SCW	-	Senior Clerk of Works
SE	-	Structural Engineer
SMS	-	Senior Maintenance Surveyor
SO	-	Supervising Officer (in Specification means Contract Manager)
SSE	-	Senior Structural Engineer

## 5.2

### ASBESTOS MANAGEMENT

#### 5.2 SIGNIFICANCE OF ASBESTOS

##### THE ORIGIN AND NATURE OF ASBESTOS

1. Asbestos occurs naturally in many parts of the world; the main sites of commercial production are in Canada, the Russian Federation and South Africa. 'Asbestos' is a generic term for the fibrous forms of several mineral silicates. These occur naturally in seams or veins, in many igneous or metamorphic rocks and belong to one of two large groups of rock-forming minerals : the serpentines and the amphiboles.
2. The three main types of asbestos produced commercially are :  
 Chrysotile - white asbestos  
 Crocidolite - blue asbestos  
 Amosite - brown asbestos
3. The serpentine group contains chrysotile, which is the only asbestos form member of this group of minerals and by far the commonest and commercially the most important type of asbestos.
4. The amphibole group contains crocidolite and amosite and also anthophyllite, actinolite and tremolite. Amosite is an acronym for Asbestos Mines of South Africa and is mineralogically known as cummingtonite - grunnerite asbestos. Tremolite may occur as a contaminant with chrysotile and with other minerals such as vermiculite.
5. Asbestos-containing rock is crushed and milled at the mining site to produce raw asbestos of various grades. Asbestos fibre is incombustible and mechanically strong and the different types are also, in different degrees, resistant to high temperatures, electric current and alkalis and efficient at absorbing sound. Only the amphibole fibres are resistant to acids. Because of its fibrous nature, it can be woven into fabrics and used as reinforcement for cement and plastics.

##### ASBESTOS RELATED DISEASES

6. The principal diseases known to be caused by exposure to asbestos are asbestosis, lung cancer and malignant mesothelioma.  
 Asbestosis : Fibrosis or scarring of the lung in which the tissue becomes less elastic making breathing progressively more difficult. It is irreversible and may progress even after cessation of exposure to asbestos. Asbestosis is an industrial disease arising from high levels of exposure to airborne dust and there is little risk of contracting this disease from normal levels of environmental exposure to asbestos.

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### ASBESTOS MANAGEMENT

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- Lung cancer : An increased incidence of lung cancer has been found amongst people who work with asbestos. The incidence is dependent on the degree of exposure and is very much greater for smokers than for non-smokers. All three types of commonly-used asbestos fibre can cause lung cancer, but crocidolite and amosite are thought to be more dangerous than chrysotile.
- Mesothelioma : A cancer of the inner lining of the chest or of the abdominal wall. The incidence in the general population is very low and most cases are attributable to working with asbestos. Crocidolite and probably amosite are much more likely to cause mesothelioma than chrysotile asbestos.

#### EXPOSURE, LATENCY, FIBRE SIZE

7. The risk of contracting an asbestos related disease depends on a number of factors, including the cumulative dose to which an individual has been exposed, the time since first exposure and the type and size of the asbestos fibres. It is generally assumed that the risk of cancer is proportional to total exposure. There is commonly a lag or latency period of 10-20 years between first exposure and onset of symptoms for asbestos related diseases and, in the case of cancer, the period of latency may be up to 40 years or more.
8. Fibre size and shape are thought to be important variables in determining the risk from asbestos. Longer fibres with a length of greater than 200 microns are generally cleared from the nasal passages, but shorter fibres with a diameter of less than about 2 microns may penetrate deep into the lungs.
9. Laboratory evidence suggests that the hazard is greatest with fibres between 5 and 10 microns in length and 1.5 or 2 microns in diameter. There are, however, no clear boundaries between hazardous and non-hazardous configurations.

#### PUBLIC HEALTH EFFECTS

10. Most of the information of the health effects of exposure to asbestos has been derived from studies of workers occupationally exposed to asbestos fibres at concentrations many times higher than those encountered by the general public. Estimates of the risk of low level exposure have to be based on extrapolation from occupational exposure levels, and the range of uncertainty in such estimates is large.

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### ASBESTOS MANAGEMENT

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11. The risk of mesothelioma is thought to increase rapidly with time since first exposure and it is therefore likely that children will be more at risk than adults from a similar exposure. Smoking and asbestos appear to act synergistically in causing lung cancer, and smokers exposed to asbestos have a much greater additional risk of contracting lung cancer than non-smokers similarly exposed.
12. There is no known threshold level for exposure to asbestos below which there is no risk and it is advisable to reduce exposure to the minimum that is reasonably practicable. In cases where there is potential for long periods of exposure, as in homes, or where children are involved, as in schools, particular efforts should be made to ensure that the levels are as low as possible.

### ASBESTOS IN DRINKING WATER

13. The UK Committee on Medical Aspects of the Contamination of Air, Soil and Water, advising on the implications for public health of the use of asbestos cement pipes in drinking water distribution systems, concluded that :
14. "The only potential risk from the presence of asbestos in drinking water which has been suggested as at all plausible, is that of certain forms of cancer. The Committee has considered the substantial body of research findings relevant to this question; it has found no convincing evidence which indicates that the concentrations and forms of asbestos in drinking water in the UK, including those derived from the use of asbestos-cement pipes according to current practice, represent a hazard to the health of the consumer. The information assessed by this Committee suggests that, if there is any carcinogenic risk to the consumer from exposure to asbestos in drinking water, it is of an extremely low order and is not detectable by the methods currently available."
15. The report of the Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment states that studies have generally yielded negative results and that there is no clear epidemiological evidence of increased carcinoma in the gastro-intestinal tract attributable to asbestos in non-occupationally exposed populations.



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**ASBESTOS MANAGEMENT**

**5.3 SIGNIFICANCE OF ASBESTOS**

1. Relevant information on the subject can be found in the following legislations and publications :
  - (a) Factories and Industrial Undertakings (Asbestos) Regulation (Cap. 59AD). The regulation was made under the Factories and Industrial Undertakings Ordinance (Cap. 59).
  - (b) Pneumoconiosis and Mesothelioma (Compensation) Ordinance (Cap. 360).
  - (c) Occupational Safety and Health Ordinance (Cap. 509)
  - (d) Occupational Safety and Health Regulation (Cap. 509A)
  - (e) The Air Pollution Control Ordinance (Cap. 311).
  - (f) The Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C). The regulation is made under the Waste Disposal Ordinance (Cap. 354).
  - (g) Code of Practice: Safety and Health at Work with Asbestos published by LD.
  - (h) Health Hazards of Asbestos published by LD.
  - (i) 5 sets of Code of Practice on Asbestos Control published by EPD :-
    - Handling, Transportation and Disposal of Asbestos Waste;
    - Preparation of Asbestos Investigation Report, Asbestos Management Plan and Asbestos Abatement Plan;
    - Asbestos Work Using Full Containment or Mini Containment Method;
    - Safe Handling of Low Risk Asbestos Containing Material; and
    - Asbestos Work Using Glove Bag Method.
  - (j) 4 leaflets published by EPD :-
    - Environmental Asbestos Control;
    - Asbestos Removal of Unauthorized Building Works;
    - How to Handle Corrugated Asbestos Cement Sheets; and
    - Banning Asbestos.
  - (k) Practice Note 2/97 Handling of Asbestos Containing Materials in Buildings issued by the Professional Persons Environmental Consultative Committee.
  - (l) Code of Practice for Demolition of Buildings published by the Buildings Department.

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**ASBESTOS MANAGEMENT**

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- (m) Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers - ADV-1 "Asbestos" issued by the Buildings Department.
- (n) Practice Note for Registered Contractors - PNRC 15 "Asbestos" issued by the Buildings Department.

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**ASBESTOS MANAGEMENT**

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**5.4 Air Monitoring Control Limits**

**GENERAL**

1. Air monitoring is carried out to ensure that there is no contamination of the surrounding environment or increase in risk to any person as a result of asbestos abatement works.
2. The air monitoring standards that are applied to all asbestos abatement works in accordance with the local legislation and accepted international standards are set out below.

**BACKGROUND LEVEL**

3. Background sampling is conducted to determine the ambient fibre level prior to the commencement of abatement work and to detect any change in it resulting from the works.
4. There is no standard level for a background sample, however unless there are other sources of fibre generation in the vicinity of the work site that cannot be isolated or removed, the 0.01 fibre/mL level is imposed.

**OCCUPATIONAL EXPOSURE LIMITS**

5. Personal sampling is conducted for the protection of workers during the process of asbestos abatement works.
6. The occupational exposure limits should not exceed :
  - 0.2 fibre/mL for crocidolite and amosite
  - 0.5 fibre/mL for other forms of asbestos
7. In practice some form of respiratory protection is essential and the equipment used must be that which is appropriate for the dust levels involved.

**LEAKAGE (DURING ABATEMENT) CONTROL STANDARD**

8. Leakage sampling is conducted adjacent to the site where asbestos abatement works is being carried out to ensure that there is no contamination of the surrounding environment during the course of the works.
9. The dust level adjacent to the sites where asbestos abatement works is being carried out should not exceed 0.01 fibre/mL or be significantly different from the background level, whichever is higher.

**PENULTIMATE/FINAL CLEARANCE STANDARD**

10. Penultimate and final clearance sampling is conducted to ensure that the site is safe for re-occupation after asbestos abatement works have been carried out by the containment or mini-containment method.

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**ASBESTOS MANAGEMENT**

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11. The fibre count upon completion of abatement works should not exceed 0.01 fibre/mL or be higher than the original background level and no visible debris be apparent.

**REASSURANCE STANDARD**

12. Reassurance sampling is conducted to ensure that the site is safe for re-occupation after asbestos abatement works have been carried out by a method other than containment or mini-containment.
13. A reassurance sample is acceptable if it is below 0.01 fibre/mL, or is not greater than original background sampling results.

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**ASBESTOS MANAGEMENT**

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**5.5 Asbestos Working Group Terms of Reference**

**MEMBERSHIP**

1. The membership of the Asbestos Working Group (AWG) is as follows :-

Chairman	CM/M(PM)
Members	SMS/R&D
	SSE/15
	SE/122
	SE/SIS3
	CTO(BS)/TD
	HM/BPS2
Secretary	MS/ENV

Representative from :

Environmental Protection Department.  
Labour Department

**TERMS OF REFERENCE**

2. - to advise the Permanent Secretary of Housing on the continued development of an asbestos abatement strategy;
- to receive and consider information on materials containing asbestos in Housing Authority managed property;
- to receive and consider information on the Housing Department's asbestos abatement programmes;
- to keep under review the Housing Department procedures for removal or encapsulation of materials containing asbestos, and to provide advice to the Housing Department on these procedures to ensure standards of asbestos abatement are appropriate for the level of risk;
- to receive and consider information of the performance of asbestos abatement contractors and consultants undertaking work for the Housing Department, and the results of associated routine air monitoring.

**FREQUENCY OF MEETINGS**

3. Meetings are held annually.

**FILE REFERENCE**

4. HD3-4/RD/-9/3

## 5.6

**ASBESTOS MANAGEMENT****5.6 Bulk Sampling****GENERAL**

1. The purpose of these guidelines for bulk sampling is to enable staff to produce representative sampling strategies for materials suspected of containing asbestos. The basic principles of bulk sampling are :
  - to obtain representative samples of the suspected asbestos-containing materials (ACM), and
  - to draw inference from the samples collected about the overall ACM, stating clearly the statistical validity of such inference.
2. Sampling guidelines are set out below for each type of ACM.

**SURFACE MATERIAL**

3. Surface material includes ACM used as surface finishing such as acoustic plaster and asbestos paint. If asbestos is suspected in surfacing material, a full depth approach should be adopted.
4. Sampling guideline for surface material.

Homogeneous Area	No. of samples
50 m <sup>2</sup> or less	3 (only analyse the second and third sample if the result of the first is negative)
for each additional area up to 100 <sup>2</sup>	1 further sample
for an area larger than 500m <sup>2</sup>	at least 5 in total

5. Sample should be taken to full depth with dimension of 25mm x 25mm.

**CEMENTITIOUS MATERIAL**

6. Cementitious material includes asbestos segregation boards, corrugated sheets, asbestos roof tiles, grille panels, asbestos cement pipes and all other cementitious suspected ACM. Sample size should have a minimum dimension of 25mm x 25mm.
7. Sampling guideline for cementitious material.

Homogeneous Area	No. of samples
100m <sup>2</sup> of less	2 (only analyse the second sample if the result of the first is negative)
for each additional area up to 100m <sup>2</sup>	1 further sample
for an area larger than 700m <sup>2</sup>	at least 5 in total

8. Sample should have a minimum size of 25mm x 25mm.

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**ASBESTOS MANAGEMENT**

**RESINATED MATERIAL**

9. Resinated material includes materials such as gaskets, caulking material, pump packing, lift brake lining, brake shoe, fire damper of busbar riser, arc chute of switch gear and vinyl floor tiles.
10. Two samples shall be taken for each type of material located at a single location. (for cases where it is impractical to obtain sample from the installation which is in operation, relevant contractor shall provide sample of the same material for analysis, such as lift brake lining). The second sample should be analysed only if the first is negative.
11. Sample should be equivalent to a volume dimension of 25mm x 25mm x 10mm.

**WOVEN MATERIAL**

12. Woven material includes suspected woven ACM used as flexible joints, fire blankets, and fire curtain.
13. Two samples shall be taken for each type of material located at a single location. (For cases where it is impractical to obtain sample from the installation which is in operation, relevant contractor shall provide sample of the same material for analysis if available). The second sample should be analysed only if the first is negative.
14. Sample should have a minimum dimension of 25mm x 25mm.

**INSULATION MATERIAL**

15. Insulation material includes materials such as switch gear arc chutes, insulation boards, pipe/flue/rope/chimney lagging, refuse chutes, sandwiched chimney insulation material and air duct insulating material.
16. Sampling guideline for insulation material in the form of lagging.

Homogeneous run	No. of samples
10m in length/50m <sup>2</sup> or less	3 (only analyse the second and third sample if the result of the first is negative)
for each additional length up to 5m or additional area up to 100m <sup>2</sup>	1 further sample
for a total length longer than 50m or larger than 200m <sup>2</sup>	at least 5 in total

17. For other insulation material, 2 samples shall be taken for each type of material located at a single location. (For cases where it is impractical to obtain sample from the installation which is in operation, relevant contractor shall provide sample of the same material for analysis if available). The second sample should be analysed only if the first is negative.

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**ASBESTOS MANAGEMENT**

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**CONNECTING PARTS**

18. Connecting parts includes installations such as elbows, flanges and valves.
19. 2 samples shall be taken for each type of installation items located at a single location. The second sample should be analysed only if the first is negative.
20. Sample should have a minimum dimension of 25mm x 25mm.

**REQUEST FOR TESTING SERVICES**

21. Bulk sampling is carried out through the Department's materials testing services, and requests for bulk sampling are made to SCE/MTM using Form DCMM-F03. This form can be downloaded from HKHA's Intranet



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**ASBESTOS MANAGEMENT**

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**5.7 Emergency Procedures**

**ASBESTOS CONTAMINATION**

1. If Management staff or PSA identify a case of asbestos contamination, they should immediately fence off the contaminated area, erect warning signs and arrange a guard to patrol if necessary. They should advise any person who has touched the contamination to wash their hands, hair and face, or to take a thorough shower as soon as practicable.
2. The appropriate DMO should be notified of the case by an Urgent Works Request from the HM/PSA.
3. As soon as possible after receiving the notice the MS/BSE or SCW/SBSI conducts an inspection to verify the asbestos contamination and arranges for decontamination of the contaminated area by an Registered Asbestos Contractor. The associated paperwork for award of quotation, issue of Works Order and notification to EPD may be dealt with retrospectively. For emergency repairs to underground asbestos cement water mains, the procedures stated in EMDI No.W01/2014 shall be followed.
4. If the MS/BSE/PSA is not sure of the decontamination method or the contamination is widespread, SMS/R&D or CTO(BS)/TD should be consulted.
5. The site staff monitor the works and maintain a record using the DAILY LOG Form [EMDTG07-F09](#).
6. Within one week of the completion of the works the MS/BSE/PSA submits a report on the registered asbestos contractor's performance to SMS/R&D for processing in the normal manner. Refer to Section 3.4
7. Any subsequent asbestos work following the decontamination work is dealt with according to the procedures for Planned works.

**PROCEDURES IN THE CASE OF A SPILLAGE OF DEBRIS**

8. If during the course of Asbestos Abatement work Asbestos contaminated debris is spilled outside the Work Area, staff ensure that the registered asbestos contractor immediately carries out the following :-
  - a) Segregate the contaminated area and post warning signs.
  - b) Stop all processes which would result in producing more asbestos debris.
  - c) Spray all the suspected contaminated surfaces and debris within the Work Area with Amended Water in a fine mist spray, using airless spray equipment.
  - d) Bag all loose asbestos materials/debris which are present in the Work Area.
  - e) Wet-wipe clean the surfaces and thoroughly clean the contaminated area with a HEPA vacuum cleaner once the surfaces become dry. Prepare the site for visual inspection by the SO, who shall verify by visual inspection and/or air testing that

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**ASBESTOS MANAGEMENT**

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the above measures have been carried out satisfactorily, before works are allowed to proceed.

Approved full-face positive-pressure powered respirators should be worn by workers carrying out the above.

**PROCEDURES IF THE ENVIRONMENTAL CONTROL LIMIT IS EXCEEDED**

9. If during the course of Asbestos Abatement work air monitoring results show that the Environmental Control Limit of 0.01 fibres/mL has been exceeded, staff ensure that the Contractor immediately carries out the following :-

- a) Stop all processes which would result in producing more asbestos debris.
- b) Spray all surfaces and debris within the Work Area with Amended Water in a fine mist spray, using airless spray equipment.
- c) Bag all loose asbestos materials/debris present in the Work Area(s).
- d) Investigate together with the SO the source of dust, the integrity of the Containment and the work procedures to identify the causes; and take immediate measures to rectify the situation as agreed by the SO.

Approved full-face positive-pressure powered respirators should be worn by workers carrying out the above.

**PROCEDURES TO ADOPT AFTER A FIRE**

10. If during the course of Asbestos Abatement work a fire has occurred and has been put out, staff ensure that the Contractor immediately carries out the following :-

- a) Spray all surfaces and debris within the Work Area with Amended Water in a fine mist spray, using airless spray equipment, once the fire has been extinguished and the site is safe for re-entry.
- b) Bag all loose asbestos materials/debris which are present in the Work Area.
- c) Wipe clean the surfaces and thoroughly clean the contaminated area with a HEPA vacuum cleaner once the surfaces become dry. Prepare the site for visual inspection by the SO, who shall verify by visual inspection and/or air testing that the above measures have been carried out satisfactorily, before works are allowed to proceed.

Approved full-face positive-pressure powered respirators should be worn by workers carrying out the above.

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**ASBESTOS MANAGEMENT**

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**PROCEDURES IF A NUMBER THREE TYPHOON SIGNAL (OR ABOVE) IS RAISED OR WHEN THE RAIN STORM WARNING IS GIVEN**

11. If during the course of Asbestos Abatement work a Number Three Typhoon Signal (or above) is raised, or if the Red Rainstorm Warning Signal is given, staff ensure that the registered asbestos contractor immediately carries out the following :-
  - a) Stop all processes which would result in producing more asbestos debris.
  - b) Bag all loose asbestos materials/debris which are present in the Work Area and remove to the Secure Store.
  - c) Clean the contaminated area thoroughly with a HEPA vacuum cleaner. Cut off all power and water supplies and secure all loose equipment and materials against typhoon damage. Check the drainage system is not blocked within the site area to avoid flooding.
  - d) Move all bags of asbestos waste to the Secure Store.
  - e) Prepare the site for visual inspection by the SO, who shall verify that the above measures have been carried out satisfactorily, before workers leave the site.
12. The abatement works are allowed to recommence once the Number Three Typhoon Signal has been lowered or when the Red-Rainstorm Warning signal is of whichever is applicable and the SO has verified that any necessary cleaning up work and repairs to containments have been completed.

**PROCEDURES IN THE CASE OF AN ACCIDENT**

13. If during the course of Asbestos Abatement work a worker collapses or some other accident occurs, staff ensure that the registered asbestos contractor immediately carries out the following :-
  - a) Stop all work and if necessary remove worker or workers to safety.
  - b) If a worker has collapsed, remove his face mask. In other cases the face mask should be left in place. Carry out normal Emergency First Aid procedures.
  - c) Arrange for the worker to be taken to a Hospital. Personal decontamination should be carried out whenever possible.
  - d) If the worker has not been decontaminated, the rescue or medical personnel involved should be so informed so that they are aware that the workers' clothing are contaminated and take appropriate safety measures.
  - e) Clean any adjoining area contaminated during the emergency thoroughly with a HEPA vacuum cleaner. Prepare the site for visual inspection by the SO, who shall verify by visual inspection and/or air testing that the above measures have been carried out satisfactorily, before works are allowed to proceed.

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**ASBESTOS MANAGEMENT**

**5.8 Standard Forms**

FORM NO.	TITLE/DESCRIPTION	LAST AMENDMENT DATE	
<a href="#">EMDTG07-F01</a>	Report on Performance of Registered Asbestos Contractor	17/07/2015	
<a href="#">EMDTG07-F02</a>	Report on Bulk Sample Test Results	17/07/2015	
<a href="#">EMDTG07-F03</a>	Sample memo to request : Medical Examination for HD Staff Engaged in the Inspection of Asbestos Abatement Works	17/07/2015	
<a href="#">EMDTG07-F04</a>	Condition Survey of Asbestos Containing Materials	17/07/2015	
<a href="#">EMDTG07-F05</a>	Report on Encapsulation of Asbestos Cement Balcony Grille Panels	17/07/2015	
<a href="#">EMDTG07-F06</a>	Information for Pre-work Meeting	17/07/2015	
<a href="#">EMDTG07-F07</a>	Request for Approval to Commence Work	15/05/2009	
<a href="#">EMDTG07-F08</a>	Request for Inspection	15/05/2009	
<a href="#">EMDTG07-F09</a>	Daily Log	15/05/2009	
<a href="#">EMDTG07-F10</a>	Air Monitoring Data Summary Sheet	15/05/2009	
<a href="#">EMDTG07-F11</a>	Technical Audit Inspection Report	17/07/2015	
<a href="#">EMDTG07-F12</a>	Notification of Commencement of Asbestos Abatement Work	15/05/2009	

## 6.1

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**ASBESTOS MANAGEMENT**

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**6.0 APPENDICES****6.1 Pre-works Check****GENERAL**

1. This part of the site work involves three aspects :
  - a) Works area preparation;
  - b) Secure storage area preparation;
  - c) Availability of facilities;

**WORKS AREA PREPARATION**

2. Before the commencement of any containment/segregation construction work, the site must be properly prepared. This involves :
  - removing all removable items and storing them in a secure place (inaccessible by anyone not part of the work team);
  - cleaning thoroughly by wet-wiping with wet cloth and HEPA vacuuming to the extent that all visible dust particles or fibres are cleared; and
  - covering securely the non-removable items with 0.15mm thick polythene sheets (to avoid contamination).
3. All these must be properly and thoroughly done before the contractor should be allowed to proceed with building the containment or segregation.
4. Where asbestos is known to be present, any fibre that is unclassified will be treated as asbestos fibre to be on the safe side. Therefore, pre-site cleaning is not to be taken lightly especially when the asbestos-containing material is friable in nature.

**SECURE STORAGE AREA PREPARATION**

5. A secure storage area shall mean a fully segregated area that is lockable with access limited to those handling the asbestos waste. Appropriate warning signs must be put up in conspicuous locations to warn any potential trespassers that might pass by.
6. The secure storage area must be locked at all times except when waste is being placed in it or removed from it.
7. The secure storage area should ideally be located not too far away from the waste producing point, however, waste transporting through public areas must be kept to a minimum.
8. Should it be considered unavoidable to transport waste through public areas, the waste should be transported in sturdy carriers of an inconspicuous appearance. Additional precautionary measures will be required as approved by the Housing Department.

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**ASBESTOS MANAGEMENT**

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**AVAILABILITY OF FACILITIES**

9. Power and water supply on site must be checked and confirmed well ahead. Very often, these items would have to be provided for the contractor and time must be allowed to arrange for them.

## 6.2

### ASBESTOS MANAGEMENT

#### 6.2 Equipment Check

##### GENERAL

1. The inspection of equipment involves the following aspects :
  - a) availability of equipment
  - b) clean and free of debris
  - c) HEPA items
  - d) items for wetting ACM
  - e) containment/segregation items
  - f) personal protective items
  - g) waste disposal items
  - h) ACM removal items

##### AVAILABILITY OF EQUIPMENT

2. In the registered asbestos contractor's technical submission, an equipment list of all equipment and consumables the contractor proposed to use would be included. This list should form the basis of cross checking the equipment available on site. Any missing item(s) must be identified and be in place before any work can be carried out.

##### CLEAN AND FREE OF DEBRIS

3. As all dust and unclassified fibre will invariably be taken as asbestos, the equipment themselves must be clean and free of visible dust/fibre before they can be used in asbestos work procedures. Cleaning of the equipment can be done by either wet-wiping and or HEPA vacuuming.

##### HEPA ITEMS

4. HEPA (High Efficiency Particulate Air) items include the air movers, vacuum cleaners, and respirators. They are there to screen out asbestos dust/fibres effectively (capable of trapping and retaining 99.97% of the particles (asbestos fibres) greater than 0.3µm in mass median aerodynamic equivalent diameter).
5. With the air movers and the vacuum cleaners, the HEPA filters shall be installed in the maintenance workshop and the maintenance record kept on site for inspection when required. Hence, if the site staff are in any doubt as to the integrity of the HEPA filters in the equipment, the servicing record should be checked. The date of the record should also be checked to make sure it is the latest one.
6. The HEPA filter used in the respirators should be the replaceable cartridge type filters as approved under the Factories and Industrial Undertakings (Asbestos Approval of Respiratory Protective Equipment) Notice.
7. With effect from December 1998, HEPA-filtered appliances that are used in asbestos works should be tested by the HEPA Appliance

## 6.2

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**ASBESTOS MANAGEMENT**

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Testing Centre recognized by the Environmental Protection Department. Certificate would be issued to the appliances that have passed the tests stipulated on the Code of Practice on Asbestos Control. Certification for all such appliances in use should be kept on site to facilitate compliance inspections carried out by the Environmental Protection Department and the Housing Department.

**ITEMS FOR WETTING ACM**

8. Amended water must be available on site for wetting of the ACM before removal. Amended water means a water diluted wetting agent (chemically 50% polyoxyethylene ether + 50% polyoxyethylene ester).
9. A common commercial product that is widely acceptable is called 'Asbesto-wet' which is an American product. If there is any doubt, the product's specifications should be checked. If the composition matches with the chemical composition described above (sometimes a few volume percentages will be allocated to some sort of emulsion), then the product is considered acceptable.

**CONTAINMENT/SEGREGATION ITEMS**

10. A containment will consist of the following parts/items each of them must be checked to assess the overall integrity of the containment :-
  - a) 0.15mm thick polythene sheets; timber battens;
  - b) 50 to 70mm wide duct tape;
  - c) air mover for full containment/HEPA vacuum cleaner for mini containment;
  - d) viewing panels (made of clear acrylic sheets);
  - e) mirror (in the clean room for assisting the face fitting of respiratory equipment) :
  - f) shower equipment including shower head, basin, shampoo & soap, nail brush, etc., and water filtration system capable of filtering particles down to 5µm in suspension. The water supply should also be checked on the sufficiency and cleanliness of water source.
  - g) warning signs;
11. A segregation will consist of the following parts/items and each of them must be checked to assess the overall integrity of the segregation :-
  - a) plywood boards used for hoardings;
  - b) 0.15mm thick polythene sheets;
  - c) 50 to 70mm thick duct taps;
  - d) viewing panels (made of clear acrylic sheets);
  - e) mirror (in the clean room for assisting the face fitting go respiratory equipment) :



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### ASBESTOS MANAGEMENT

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- f) shower equipment including shower head, basin, shampoo & soap, nail brush, etc., and water filtration system capable of filtering particles down to 6µm in suspension. The water supply should also be checked on the sufficiency and cleanliness of water source.
- g) warning signs;

#### PERSONAL PROTECTIVE ITEMS

12. Personal protective equipment includes :

- a) disposable, impervious coveralls with hood and shoe cover;
- b) approved half mask respirators and/or full-face powered respirators fitted with approved disposable cartridge with HEPA filters.
- c) Generally, all abatement procedures for friable ACMs would require the full-face type respirators. The compliance of these items should be checked against the Factory and Industrial Undertakings (Asbestos) Special Regulation and their related Codes of practice;
- d) eye protector (for sharp/cementitious ACMs only) or where such are needed for safety reasons.

#### WASTE DISPOSAL ITEMS

- 13. Asbestos waste, depending on its physical nature, can either be stored in waste bags or steel waste drums. Generally, for asbestos waste that has sharp edges that may cause damage to waste bags and are bulky, or the waste is wet or heavy, they should be stored in waste drums. However, sometimes an additional woven bag as the innermost bag can be used if the sharp items are not large in size.

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14. In any case, an appropriate warning sign with "DANGER - ASBESTOS WASTE, DO NOT INHALE DUST" in both Chinese and English printed on them must be put on the waste containing medium. In the case of waste drums, the type of asbestos (chrysotile, amosite, crocidolite etc.) should be specified as part of the label.
15. Asbestos waste bags
  - a) Inner layer waste bags should be made of 0.15mm thick polythene and appropriately colour coded following the guideline below :
    - transparent for bonded ACM excluding blue/brown asbestos.
    - white for chrysotile (white asbestos);
    - orange for any other type of asbestos apart from chrysotile;
  - b) Outer layer waste bags should be made of 0.15mm thick polythene and must be transparent so that the inner layer coloured bag can be seen.
  - c) Each layer of the bagged waste should be vacuum packed and goose-neck sealed with tape. This practice is important to help minimize damage to the plastic layers during temporary storage and handling of the waste. Any damaged plastic bag will be self-revealing in that the bagged waste would become puffy due to loss of the vacuum, meaning that at least an additional layer of plastic is required, i.e. vacuum packed and goose-neck sealed again, to avoid release of asbestos fibres.
16. Asbestos waste drums
  - a) The waste drums should be made of mild steel (light duty with removable heads). These drums are of full aperture type and the lids may be secured with latch, lever, or nut and bolt.

**ACM REMOVAL ITEMS**

17. Apart from exceptional cases where written approval is granted by the authorities, removal of ACMs should be conducted using hand tools only. These hand tools could be paint scrapers, wire brushes etc.

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**ASBESTOS MANAGEMENT**

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**6.3 Visual Inspection****GENERAL**

1. The main purpose of the visual inspection is to check whether the asbestos removal work is complete. Although asbestos fibres, in their most lethal size, are invisible to the human eye, the air samples and the thorough cleaning have helped to ensure the cleanliness of the containment.
2. Because the human eye cannot distinguish asbestos fibres from other fibres, any fibre or dust that is visibly detectable is treated as asbestos fibre.
3. If any fibres or dust are visible it is clear indication that the cleaning has not been thorough enough.
4. The visual inspection involves the following aspects:
  - a) personal protection
  - b) visual inspection
  - c) decontamination

**PERSONAL PROTECTION**

5. To ensure personal safety, the visual inspections should only be conducted after satisfactory penultimate air test results have been received from the laboratory.
6. Although satisfactory penultimate air test results are normally a good indication of cleanliness, the site staff should still take care in putting on the protective equipment such as coveralls and a half mask respirator. **Paper masks are not to be used.**

**VISUAL INSPECTION**

7. In conducting the visual inspection, the site staff should check every corner of the containment, not only the surfaces previously covered with ACM. A good method is to wipe a finger across the plastic sheet to check the dustiness.
8. Take care to look at the duct tapes where peeling could have occurred. As the duct tapes have very strong adhesives, fibres or debris can easily get stuck where there is not a perfect seal. The use of a torch will assist in the inspection.

**DECONTAMINATION**

9. If the site staff are satisfied that the work area is cleaned, they will not be expected to carry out extensive decontamination when leaving from the decontamination unit.
10. As a minimum however, wet-wiping with a clean towel and washing the hands and face should be carried out. Any tools brought into the containment such as torches shall be cleaned by wet-wiping before taking them out of the containment.

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**ASBESTOS MANAGEMENT**

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**6.4 Smoke Test**

**GENERAL**

1. The smoke test is used in the following activities :
  - a) containment integrity check
  - b) air mover efficiency check

**CONTAINMENT INTEGRITY CHECK**

2. After the site staff are fully satisfied with the integrity of the containment, a smoke test is carried out. The purpose of the smoke test is to ensure the air-tightness of the Containment.
3. When the site staff are ready for the smoke test, the contractor is instructed to prepare the containment by filling it with non-toxic smoke, usually by means of a smoke generator. As the test is to ensure that the containment is air-tight, any trace of smoke leakage from the containment is not acceptable and rectification should be carried out immediately (usually by applying duct tape or foam).
4. External lighting should be switched off as this would affect the ease of visually detecting the smoke. Site staff should inspect the containment by shining a torch along the sides of the containment, concentrating on the joints, where leakage is most likely.

**AIR MOVER EFFICIENCY CHECK**

5. The purpose of the test is to check the efficiency of the air mover and to ensure that the negative pressure required is attained. When there is no visual leakage of smoke from the containment, the air mover and the negative pressure monitor should both be switched on.
6. The site officer should then check visually to see if all smoke inside the containment is extracted, that the absolute filters screen out the smoke effectively and that the pressure gauges read normal.
7. The test is important because the path of smoke extraction can indicate whether all area of the containment fall within the extractable zone. Should there be any short-circuiting of the extraction path, there will be areas of the containment where smoke will congregate and stay.
8. In order for this visual assessment to be accurate, the site staff may be required to enter the containment in order to obtain a complete picture of the extraction profile of the smoke.

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**ASBESTOS MANAGEMENT**

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9. The short-circuiting of the extraction path might be due to the location of the decontamination unit (the entry/exit points) and the air mover. In theory they should be located in diagonally opposite corners of the containment. For a very large containment, 2 air movers placed at 2 strategically chosen locations may be required.
10. If the particular site conditions make it difficult to satisfy the above requirements, the smoke test will be especially useful in determining the integrity of the containment in terms of the air change effectiveness and the negative pressure.

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**ASBESTOS MANAGEMENT**

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**6.5 Air Monitoring**

**GENERAL**

1. Air monitoring tests are conducted at various stages of the asbestos abatement work. Asbestos abatement works are normally done under full/mini containment, or segregation.
2. Air monitoring tests required for asbestos abatement work performed under full/mini containment are :
  - a) Background
  - b) Leakage
  - c) Penultimate
  - d) Final Clearance, and
  - e) Personal.
3. Air monitoring tests required for asbestos abatement work performed under segregation are :
  - a) Background
  - b) Environmental
  - c) Reassurance
  - d) Personal.

**BACKGROUND TEST**

4. Background samples are collected after the pre-cleaning of the work site but before building of the containment or segregation commences. Background air tests should generally be collected one day before the commencement of building the containment or segregation. The building of the containment or segregation is not to commence until the background samples have been received and interpreted to be acceptable.
5. The background sample will not necessarily be under 0.01 fibres/mL because there may be other sources of fibre generation that cannot be isolated or removed. If the site officer is not convinced that there are other sources of fibre generation contributing to the excessive fibre level, the 0.01 fibres/mL criteria should be imposed.
6. Another common problem that may occur with background sampling is dust overloading of the filter. This may occur in cases such as where the work site is open and in close proximity to heavy traffic, or there is dusty construction work nearby.
7. Where there is a problem with dust overloading of the filter, the contractor should be instructed to clean the site as thoroughly as possible, then :
  - a) For works under containment, have the containment built. The inside of the containment should then be cleaned after it is completed. Background re-sampling are then carried out inside the containment. In this case, background sample results of 0.01 fibres/mL are required.

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**ASBESTOS MANAGEMENT**

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- b) For works under segregation, take multiple samples of shorter duration and pool the results. This method is used as a last resort.

**LEAKAGE TEST**

8. Leakage samples are taken to continuously monitor the integrity of the containment. Four leakage samples are required as a minimum. The suggested locations for these four samples are as follows :-
  - a) one inside the clean room of the decontamination unit or debris port;
  - b) one at 1.5m away from the unobstructed exhaust of an air mover;
  - c) two area samples outside the containment remote from the decontamination unit;
9. If the containment is large, the site officer may, at their own discretion, request for further leakage sampling be carried out.
10. Leakage samples are acceptable if they are below 0.01 fibres/mL, or are not greater than the original background sampling results. If leakage sample results are considered unacceptable, all asbestos abatement work should be stopped and remedial action(s) taken. This may involve one or more of the following :
  - a) a thorough checking of the containment for leaks, especially when the area samples are exceeding the required level, and/or
  - b) checking the effectiveness of the air mover, hence the negative pressure if the clean room sample exceeds the requirements, and/or
  - c) checking the integrity of the air mover, such as the maintenance record of the HEPA filter. If in doubt, site officer should request the changing of the air mover.

**ENVIRONMENTAL TEST**

11. Environmental samples are taken in the vicinity of an asbestos abatement work area to check the ambient fibre level. Any sudden rise in the ambient level is investigated to determine if it is due to a failure of the precautionary measures taken in the asbestos works.

**PENULTIMATE TEST**

12. Penultimate samples are taken after the innermost plastic layer of the containment has been HEPA vacuumed and wet-wiped, PVA sprayed and removed, and the 2nd innermost plastic layer HEPA vacuumed and wet-wiped.
13. Penultimate test samples are acceptable if under 0.01 fibre/mL. If the Penultimate sample exceeds the requirement, the containment should be re-cleaned by HEPA vacuuming and wet-wiping and further Penultimate tests carried out.

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**ASBESTOS MANAGEMENT**

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14. The Laboratory is responsible for carrying out a visual inspection and ensuring that there is no fibre/debris visually detectable before the Penultimate samples are carried out. If the Contractor fails the visual inspection carried out by the Consultant (after Penultimate tests), the site would be required to be re-cleaned and Penultimate tests re-carried out. The fees so incurred will be borne by the Specialist Testing Contractor, not the Contractor.

**FINAL CLEARANCE TEST**

15. Final Clearance tests are carried out after the visual inspection finds the area clean and free of fibres/dust, the surfaces previously covered with ACM sealed and PVA sprayed, the 2nd innermost layer of plastic sheet PVA sprayed and removed, and the work area HEPA vacuumed and wet-wiped once more.
16. Final Clearance test samples are acceptable if under 0.01 fibre/mL. If the Final Clearance samples exceed the standards, the containment should be re-cleaned by HEPA vacuuming and wet-wiping and further Final Clearance tests carried out.

**PERSONAL TEST**

17. Personal samples are requirements by the labour Department and are taken to monitor the fibre level asbestos workers are subjected to during asbestos abatement work. The sampler should be fixed to the worker's coverall and within his breathing zone.
18. Personal samples must comply to the following standards :-
- |     |   |
|-----|---|
| 0.5 | fibres/mL for Chrysotile;                           |
| 0.2 | fibres/mL for asbestos fibre other than Chrysotile. |

**REASSURANCE TEST**

19. As asbestos abatement work performed under segregation is done under open air conditions, only one set of clearance indicators is required and these samples are termed Reassurance.
20. Reassurance samples are taken after completion of asbestos removal, thorough cleaning of the site, and surfaces previously covered by ACM sprayed with PVA. Locations of the samples are at where the asbestos abatement took place and at the periphery of the segregation.
21. The fibre level indicated by the reassurance test should not exceed 0.01 fibre/mL or that of the background test, whichever is the higher.



## 6.6

**ASBESTOS MANAGEMENT****6.6 Lump sum contracts****GENERAL**

1. The MS/BSE/PSA prepares the tender documents for a lump sum contract for asbestos abatement works in accordance with the HD's Contract Procedures manuals, as appropriate. The documents generally consist of the following :
  - a) Conditions of Tender
    - General Conditions
    - Special Conditions
  - b) Form of Tender
  - c) Articles of Agreement
  - d) Conditions of Contract
    - General Conditions
    - Special Conditions
  - e) General Specification
  - f) Particular Specification
    - Part A, The Works
    - Part B, Amendments to the GS
    - Appendices
  - g) Schedule of Quantities (& Rates)
  - h) Summary of Tender
2. The MS/BSE/PSA seeks advice from SMS/R&D or CTO(BS)/TD as appropriate, for the detail preparation of the documentation.

**FORM OF TENDER**

3. The Form of Tender should include details of the :
  - a) Description of the Works;
  - b) Site of the Works; and
  - c) Working Period.

**SPECIAL CONDITIONS OF TENDER**

4. In addition to listing the documents issued and the documents available to the tenderers the Special Conditions of Tender should include the following paragraph:

Other submissions required with tender

In accordance with condition GCT 3(c), any further information described in Appendix B of the Particular Specification is required to be submitted with the tender.

**PARTICULAR SPECIFICATION, PART A - THE WORKS**

5. Part A, The Works, defines the Project, identifies the Contract Manager and gives a general description of the works.

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**ASBESTOS MANAGEMENT**

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6. Paragraphs are added to Part A concerning the asbestos abatement work to be carried out by registered asbestos contractor employed direct by the Authority/PSA (if appropriate). Air monitoring and testing for asbestos removal shall normally be carried out by HD's term testing services contractor (request to be made through SCE/MTM).

**PARTICULAR SPECIFICATION, PART B - AMENDMENTS AND ADDITIONS TO THE GS**

7. [Appropriate](#) Appendices A to F [should be inserted in the Particular Specification.](#)

**PARTICULAR SPECIFICATION - APPENDICES**

8. The detail requirements for asbestos abatement works are described in the appendices to the Particular Specification. The following appendices are added to the Particular Specification for Lump Sum contracts:

Appendix A	-	Definitions
Appendix B	-	Asbestos Works
Appendix C	-	Emergency Measures
Appendix D	-	Equipment Standards
Appendix E	-	Standard Forms
Appendix F	-	Asbestos Work Methods (see below)

9. Appendix A, Definitions, defines the terms associated with asbestos works as used in the contract. Refer EMDTG08-2.1.
10. Appendix B, Asbestos Works, is the general specification for asbestos works. Refer EMDTG08-2.2.
11. Appendix C, Emergency Measures, sets out the measures the contractor is required to take in the case of an emergency during the course of asbestos removal works. Refer EMDTG08-2.3.
12. Appendix D, Equipment Standards, sets out the standards for the specific equipment and materials used in asbestos removal works. Refer EMDTG08-2.4.
13. Appendix E, Standard Forms, includes the standard forms that the contractor is required to use for requesting approvals and inspections. Refer EMDTG08-2.5.
14. Appendix F, Asbestos Work Methods, sets out the work method guideline for the specific type of asbestos removal works. Only the work method relevant to the works is included as Appendix F. Refer to EMDTG08 section 3 and section 4 for Building Works and Building Services asbestos work methods respectively.

6.6

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**ASBESTOS MANAGEMENT**

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15. Where guidance on the preparation of the particular specification is included in a sample document it is enclosed in brackets and identified. All guidance notes must be deleted from the final printout of the particular specification.
16. Copies of the sample documents and specifications contained in EMDTG08 may be obtained in electronic and hardcopy form from QMU/M.
17. Refer to EMDTG08, Section 1.2, for a sample particular specification for contracts covering specialist asbestos abatement works.

6.7

**ASBESTOS MANAGEMENT**

**6.7 Quotations**

**GENERAL**

1. The MS/BSE/PSA prepares the quotation documents for a quotation for asbestos abatement works in accordance with the Maintenance Works Process Manual as appropriate. The documents generally consist of the following :
  - a) Conditions of Quotation
  - b) Form of Quotation
  - c) Conditions of Contract
  - d) General Specification
  - e) Particular Specification - Appendices
  - f) Schedule of Quantities (& Rates)
  - g) Summary of Quotation
2. The MS/BSE/PSA seeks advice from SMS/R&D or CTO(BS)/TD as appropriate, for the detail preparation of the documentation.
3. The specific requirements for the asbestos abatement works are included in the Quotation Terms and the Particular Specification as described below.

**FORM OF QUOTATION**

4. HD's Maintenance Works Process Manual contains standard Form of Quotation.

**QUOTATION TERMS**

5. The quotation terms generally consist of the following :
  - a) List of the documents making up the quotation documents.
  - b) Conditions of Quotation

**CONDITIONS OF QUOTATION**

6. The conditions of quotation includes the following :
  - a) List of the documents issued to tenderers.
  - b) Conditions of Contract
  - c) Inspection of other documents
  - d) Definitions
  - e) Description of the Works;
  - f) Site of the Works;
  - g) Working Period; and
  - h) Other submissions required with quotation.

7. Refer to the sample Quotation Terms at EMDTG08-1.1.

**PARTICULAR SPECIFICATION**

8. The particular specification consists of amendments to the general specification and appendices setting out the detail specification for asbestos works.

6.7

**ASBESTOS MANAGEMENT**

9. [Appropriate](#) Appendices A to F [should be inserted into the Particular Specification](#).
10. Refer to the sample particular specification at EMDTG08, Section 2.
11. The detail requirements for asbestos abatement works are described in the appendices to the Particular Specification. The following appendices are added to the Particular Specification:

Appendix A	-	Definitions
Appendix B	-	Asbestos Works
Appendix C	-	Emergency Measures
Appendix D	-	Equipment Standards
Appendix E	-	Standard Forms
Appendix F	-	Asbestos Work Methods (see below)
12. Appendix A, Definitions, defines the terms associated with asbestos works as used in the contract. Refer EMDTG08-2.1.
13. Appendix B, Asbestos Works, is the general specification for asbestos works. Refer EMDTG08-2.2.
14. Appendix C, Emergency Measures, sets out the measures the contractor is required to take in the case of an emergency during the course of asbestos removal works. Refer EMDTG08-2.3.
15. Appendix D, Equipment Standards, sets out the standards for the specific equipment and materials used in asbestos removal works. Refer EMDTG08-2.4.
16. Appendix E, Standard Forms, includes the standard forms that the contractor is required to use for requesting approvals and inspections. Refer EMDTG08-2.5.
17. Appendix F, Asbestos Work Methods, sets out the work method guideline for the specific type of asbestos removal works. Only the work method relevant to the works is included as Appendix F. Refer to EMDTG08 section 3 and section 4 for Building Works and Building Services asbestos work methods respectively.
18. Where guidance on the preparation of the particular specification is included in a sample document it is enclosed in brackets and identified. All guidance notes must be deleted from the final printout of the particular specification.
19. Copies of the sample documents and specifications contained in EMDTG08 may be obtained in electronic and hardcopy form from QMU/M.

**LIST OF DOCUMENTS ISSUED TO TENDERERS**

20. The following documents are issued to the tenderers :

a)	Conditions of Quotation
b)	Form of Quotation <a href="#">and one additional form of quotation</a>
c)	<a href="#">Special</a> Conditions of Contract
d)	Particular Specification
e)	Schedule of Quantities
f)	Summary of Quotation

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**ASBESTOS MANAGEMENT**

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**INSPECTION OF OTHER DOCUMENTS**

21. Where the General Specification and other additional documents are provided for inspection only, the following paragraph is included together with the appropriate list of documents :

The following additional document(s) may be inspected at the office of the Contract Manager's Representative :-

- a) The General Specification for Building Works 2013 Edition, issued by the Estate Management Division of the Housing Department.

For the purpose of this clause the appropriate officer is :  
Mr. at telephone No.

**DEFINITIONS**

22. Refer to the sample Quotation Terms at EMDTG08-1.1.

## 6.8

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**ASBESTOS MANAGEMENT**

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**6.8 List of Exempted Classes of Works****List of exempted classes of works to be specified under s.69(2) of the Air Pollution Control Ordinance**

An owner of premises is not required to submit an asbestos investigation report or an asbestos abatement plan for the following works :

**Class 1**

Maintenance, repair, use, handling or abatement of :-

- (1) non-woven non-friable asbestos gasket.
- (2) asbestos gland packing material in pump, valve, engine and other mechanical plant items.
- (3) non-friable asbestos friction products.
- (4) corrugated asbestos cement sheet not within a fire site.
- (5) asbestos cement watermains maintained by Water Supplies Department.
- (6) asbestos blackboard
- (7) fuse box/switch box containing asbestos materials
- (8) resilient floor covering not within a fire site, such as : -
  - (a) vinyl asbestos floor covering; and
  - (b) sheet vinyl asbestos floor covering; and
  - (c) bitumen asbestos roofing felt.

**Class 2**

Maintenance, repair, handling or abatement of the following materials installed in properties managed by the Hong Kong Housing Authority : -

- (1) balcony asbestos cement grille panel.
- (2) staircase asbestos cement grille panel.
- (3) roof asbestos cement insulation tile.
- (4) asbestos cement soil stack.
- (5) asbestos cement refuse chute.
- (6) laboratory asbestos bench-top.

**Class 3**

Storage or sale of asbestos containing material.

**Class 4**

Manufacturing process involving asbestos.

**Class 5**

Transport of asbestos containing material.

6.8

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**ASBESTOS MANAGEMENT**

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**List of exempted classes of works to be specified under s.75(4) of the Air Pollution Control Ordinance**

An owner of premises is not required to engage a registered asbestos contractor to carry out the following works :

**Class 1**

Maintenance, repair, use, handling or abatement of : -

- (1) non-woven non-friable asbestos gasket.
- (2) asbestos gland packing material in pump, valve, engine and other mechanical plant items.
- (3) non-friable asbestos friction products.

**Class 2**

Demolition work involving only resilient floor covering in a vacant building not within a fire site, such as : -

- (1) vinyl asbestos floor tile;
- (2) sheet vinyl asbestos floor covering; and
- (3) bitumen asbestos roofing felt.

**Class 3**

Storage or sale of asbestos containing material.

**Class 4**

Manufacturing process involving asbestos.

**Class 5**

Transport of asbestos containing material.



2.3

ASBESTOS MANAGEMENT

2.3 Management Strategy

GENERAL

1. The Asbestos Management Programme provides a comprehensive plan for the implementation of the Housing Department's asbestos management strategy. The programme includes the following asbestos management activities :

- Identification of ACM
- Training
- Personnel Protection
- Periodic ACM Surveillance
- Central Records
- Abatement
- Emergency Procedures
- Special Procedures

IDENTIFICATION OF ACM

2. Most of the existing Asbestos Containing Materials within property managed by the Housing Department & HKHA's management agents have been identified and the type of asbestos, location and condition recorded.
3. Where records do not exist of a material suspected of containing asbestos, staff arrange for the material to be sampled in accordance with Section 5.6, BULK SAMPLING, and report the results on Form EMDTG07-F02 to SMS/R&D or CTO(BS)/TD as appropriate. The results of any bulk sampling arranged during the course of demolition works are copied to SMS/R&D.
4. The majority of ACM materials accessible to the tenants, public or HD staff are of the cement bonded type, and due to the quantities involved these have not been individually labelled. Where balcony grill panels containing asbestos have been encapsulated since 1989, these have been marked to aid later identification. Refer to Section 3.3, ASBESTOS ABATEMENT.
5. Staff are notified of the location and condition of ACM through regular reports based on the central records of ACM. Tenants and the public can view these reports at the relevant Estate Office.
6. New materials used in the construction and maintenance of property are screened for free of asbestos before being approved for use.

TRAINING

7. HD staff are provided with training on a need basis to ensure that they are aware of the possible occurrence of ACM in buildings and in materials, and to ensure that they are familiar with the policy, responsibilities and procedures for the management and abatement of asbestos.
8. Staff required to use personal protective equipment in the inspection and monitoring of asbestos abatement activities are provided with training in its care and use.

GENERAL

1. This particular specification covers the encapsulation of asbestos cement staircase and balcony grille panels, where the panels are in good condition and the works are handled as normal building maintenance work.
2. The Contractor shall execute the asbestos encapsulation works in accordance with the following procedures :-

2.1 Equipment

For this operation, the following equipment is required as a minimum, and to the standard specified in appendix D;

- (a) Paper Mask
- (b) Vacuum Cleaner
- (c) Rust Inhibitor of an approved chemical type of neutralisation of existing rust.

2.2 Cleaning

Clean the grille panel with vacuum cleaner to remove all debris and dust particles. Cover balcony floor with plywood sheets to catch debris.

ENCAPSULATION WORKS3. Encapsulation of the panel

- (a) Apply rust inhibitor to exposed reinforcing steel. Also apply bond coat of cement slurry, 1:2 mix, to surfaces of grille panel.
- (b) Fix galvanised steel expanded metal lathing to each face of the panel using stainless steel wire ties.
- (c) Apply 20mm thick external rendering consisting of cement, lime, and sand, to both faces of the grille panel as follows :-
  - First coat, 10mm thick - mix 1:3 (cement, sand)
  - Finishing coat, 10mm thick - mix 1:3:6 (cement, lime, sand)

4. Marking

Press the standard mark into both faces of the panel before the mortar sets. The mark should be approximately 3mm to 5mm deep, and positioned in the top right hand corner of the panel, as shown in Fig. 5-1.

5. Clearing Site

Vacuum clean the balcony floor, clean up and wipe off all surfaces, leave site clean and tidy on completion.

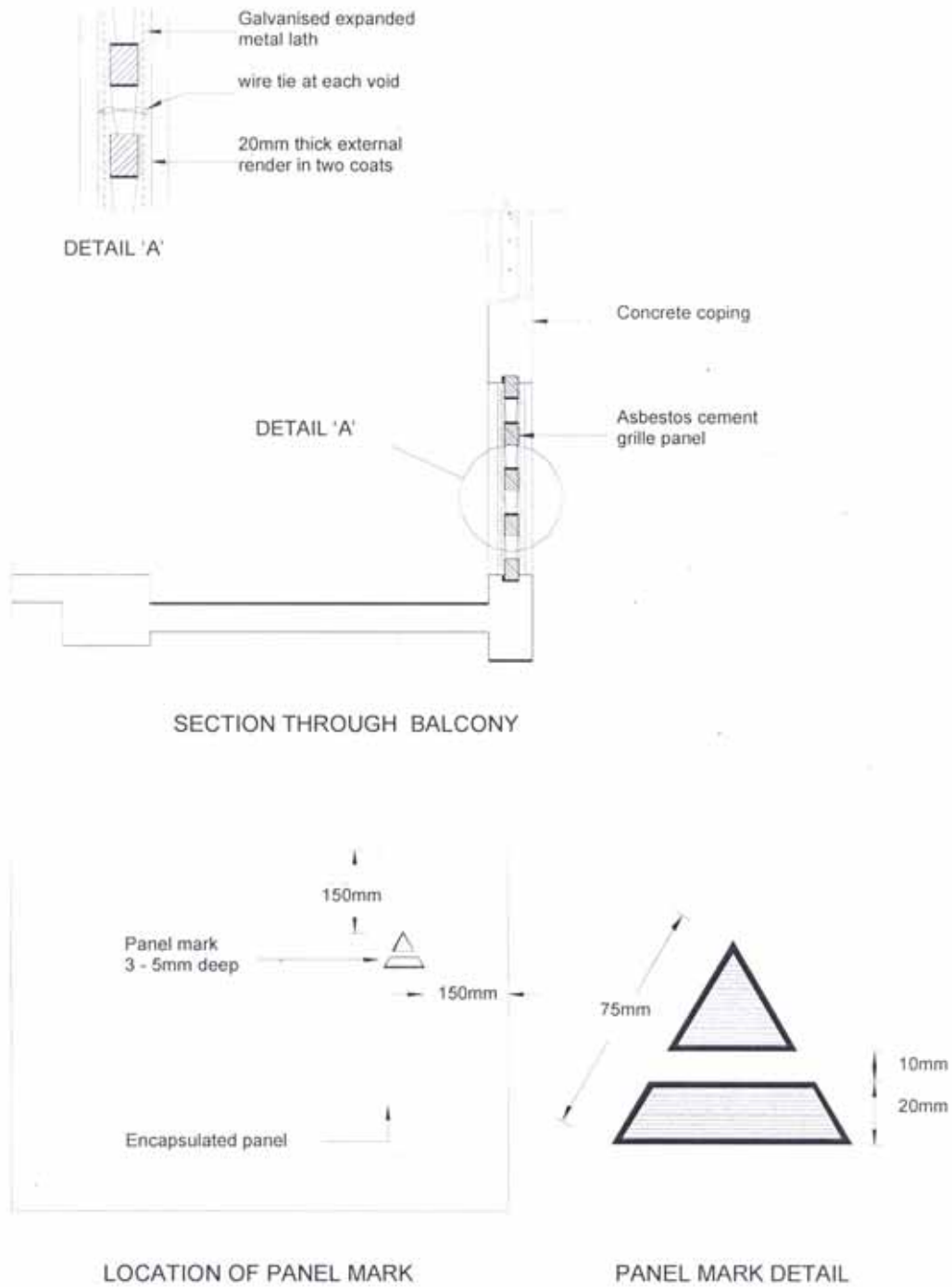


Figure 5-1 : Encapsulation of Balcony Grille

## 石棉工作小組的會議日期

7/9/1988	第 1 次會議	環境保護署, 勞工處, 房屋署
7/10/1988	第 2 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
4/11/1988	第 3 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
9/12/1988	第 4 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
17/2/1989	第 5 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
7/3/1989	特別會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
14/4/1989	第 6 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
31/5/1989	第 7 次特別會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
21/8/1989	第 8 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
29/11/1989	第 9 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
10/1/1990	第 10 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
11/4/1990	第 11 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
8/3/1991	第 12 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
7/6/1991	第 13 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
6/9/1991	第 14 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
6/12/1991	第 15 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
3/3/1992	第 16 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
12/6/1992	第 17 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
4/9/1992	第 18 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
4/12/1992	第 19 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
5/3/1993	第 20 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
4/6/1993	第 21 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
7/9/1993	第 22 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
3/12/1993	第 23 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
8/3/1994	第 24 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
27/5/1994	第 25 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
25/8/1994	第 26 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
28/11/1994	第 27 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
24/2/1995	第 28 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
29/5/1995	第 29 次會議	環境保護署, 房屋署及 EHS Consultants
25/8/1995	第 30 次會議	環境保護署, 房屋署及 EHS Consultants
24/11/1995	第 31 次會議	環境保護署, 勞工處, 房屋署及 EHS Consultants
28/2/1996	第 32 次會議	環境保護署, 房屋署及 EHS Consultants
29/5/1996	第 33 次會議	環境保護署, 勞工處及房屋署
5/9/1996	第 34 次會議	環境保護署, 勞工處及房屋署
23/1/1997	第 35 次會議	環境保護署, 勞工處及房屋署

22/5/1997	第 36 次會議	環境保護署及房屋署
28/8/1997	第 37 次會議	環境保護署，勞工處及房屋署
5/12/1997	第 38 次會議	環境保護署，勞工處及房屋署
6/3/1998	第 39 次會議	房屋署
19/6/1998	第 40 次會議	勞工處及房屋署
18/9/1998	第 41 次會議	環境保護署，勞工處及房屋署
11/12/1998	第 42 次會議	環境保護署，勞工處及房屋署
12/3/1999	第 43 次會議	勞工處及房屋署
4/6/1999	第 44 次會議	環境保護署，勞工處及房屋署
3/9/1999	第 45 次會議	環境保護署，勞工處及房屋署
3/12/1999	第 46 次會議	勞工處及房屋署
22/3/2000	第 47 次會議	環境保護署，勞工處及房屋署
9/6/2000	第 48 次會議	環境保護署及房屋署
8/9/2000	第 49 次會議	環境保護署，勞工處及房屋署
1/12/2000	第 50 次會議	環境保護署，勞工處及房屋署
2/3/2001	第 51 次會議	環境保護署，勞工處及房屋署
1/6/2001	第 52 次會議	環境保護署及房屋署
3/9/2001	第 53 次會議	勞工處及房屋署
3/12/2001	第 54 次會議	勞工處及房屋署
1/3/2002	第 55 次會議	勞工處及房屋署
3/6/2002	第 56 次會議	環境保護署，勞工處及房屋署
2/9/2002	第 57 次會議	環境保護署，勞工處及房屋署
2/12/2002	第 58 次會議	勞工處及房屋署
3/3/2003	第 59 次會議	勞工處及房屋署
10/9/2003	第 60 次會議	勞工處及房屋署
28/9/2010	第 1 次跨部門會議	環境保護署，勞工處及房屋署
19/7/2011	第 2 次跨部門會議	環境保護署，勞工處及房屋署
29/4/2014	第 3 次跨部門會議	環境保護署，勞工處及房屋署
13/9/2016	第 4 次跨部門會議	環境保護署，勞工處及房屋署
30/9/2016	第 5 次跨部門會議	環境保護署，勞工處，衛生署及房屋署

5.5

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ASBESTOS MANAGEMENT

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5.5 Asbestos Working Group Terms of Reference

MEMBERSHIP

1. The membership of the Asbestos Working Group (AWG) is as follows :-

Chairman	CM/M(PM)
Members	SMS/R&D
	SSE/15
	SE/122
	SE/SIS3
	CTO(BS)/TD
	HM/BPS2
Secretary	MS/ENV

Representative from :

Environmental Protection Department.  
Labour Department

TERMS OF REFERENCE

2. - to advise the Permanent Secretary of Housing on the continued development of an asbestos abatement strategy;
- to receive and consider information on materials containing asbestos in Housing Authority managed property;
- to receive and consider information on the Housing Department's asbestos abatement programmes;
- to keep under review the Housing Department procedures for removal or encapsulation of materials containing asbestos, and to provide advice to the Housing Department on these procedures to ensure standards of asbestos abatement are appropriate for the level of risk;
- to receive and consider information of the performance of asbestos abatement contractors and consultants undertaking work for the Housing Department, and the results of associated routine air monitoring.

FREQUENCY OF MEETINGS

3. Meetings are held annually.

FILE REFERENCE

4. HD3-4/RD/-9/3

- 所在位置與天然及人工通風途徑的相對關係；及

- 緊接範圍的人口及活動。

因首次暴露於石棉至有疾病徵狀出現，中間潛伏期會長約十至四十年不等。既然有此情況，應特別注意較易因石棉而引致疾病的嬰兒及學童。

八·三 註冊石棉顧問宜盡可能將任何其他認為有用及相關的資料列入調查報告內。

#### 九 石棉管理計劃

九·一 石棉管理計劃應可獨立成文，由註冊石棉顧問簽署，以確認計劃內載資料均屬真確。

九·二 含石棉物料即使存在，也不一定意味處所或船舶使用人的健康正受到危害。註冊石棉顧問應充分考慮石棉調查結果，然後決定是否需要進行石棉消滅工程。假如無需進行石棉消滅工程，則應該提供操作及保養計劃。假如必需進行石棉消滅工程，則應擬備石棉消滅計劃。因此，對於無需進行消滅工程的含石棉物料及其他懷疑含石棉物料，石棉管理計劃應提供操作及保養計劃；若要進行石棉消滅工程或涉及使用或處理含石棉物料的工程，則另外提供石棉消滅計劃。

#### 十 操作及保養計劃

十·一 操作及保養計劃旨在訂定作業方法，以便：

- 使含石棉物料及懷疑含石棉物料維持在良好狀態；

- 確保妥善清除先前釋出的石棉纖維；
  - 防止進一步釋出石棉纖維；
  - 監察含石棉物料及懷疑含石棉物料的狀況；及
  - 安全處理意外釋出的石棉纖維。
- 十二 操作及保養計劃應述明針對有關處所或船舶而制訂的操作及保養方針和程序，如有需要，要定期修訂更新，並使各有關人員可以取得及知悉這些資料。計劃內至少應包括下列資料：

- 處所或船舶的詳細描述：

詳細描述有關處所或船舶的位置、樓齡或船齡、結構、用途、使用模式及主要活動及概述毗鄰處所或船舶的用途及活動。
- 實施操作及保養計劃的人事組織：

這包括一組織圖表，當中要列明行政及權力架構（附姓名或名稱及職位）及界定主要參與者（如處所或船舶的擁有人、註冊石棉顧問、負責監管及保養的監管人及員工、註冊石棉承辦商等）的職責。
- 已辨別出的含石棉物料及懷疑含石棉物料的詳情：

應表列所有已辨別出的含石棉物料及懷疑含石棉物料的特性、種類、數量及物理狀況，並應在樓宇圖則或草圖上標示所有已辨別出的含石棉物料及懷疑含石棉物料的確實位置。



■ 已辨別出的含石棉物料及懷疑含石棉物料的狀況：

描述所有已辨別出的含石棉物料及懷疑含石棉物料的狀況，及詳細描述任何受損毀物料的尺寸、再受損毀的可能性及空氣質素的量度（如適用）。若先前釋出的石棉污染物經予清除，則應詳加述明清除工作。如受損毀的含石棉物料位於天然或人工通風系統吹風經過處，以致纖維可被吹送，則清理工作可能要廣及整個處所，甚至通風系統。

■ 含石棉物料或懷疑含石棉物料不應拆除的理由：

原處含石棉物料或懷疑含石棉物料通常可留於原處並予以有效管理，但若選用其他石棉消滅方法，如延遲行動、漿封或圍封，則應說明理由。所提出的理由應以調查結果為依據。

■ 標識含石棉物料的方法：

所有已辨別出的含石棉物料若無需拆除，便應按照附錄3內載規定，加以標識。至於標識方法及標籤保養的詳情，亦應說明。

■ 告知所有可能受影響人士的方法：

對於工人、住戶及處所或船舶的其他使用者，適宜將可能受到他們干擾的含石棉物料的位置和物理狀況坦誠公開，並鼓勵他們向處所或船舶的擁有人報告任何含石棉物料受干擾的跡象或受損情況，以便採取矯正措施。應詳加說明能達至上述效果的溝通渠道及方法。

■  
監察方案：

應至少每兩年一次委任一註冊石棉顧問全面覆查所有含石棉物料及懷疑含石棉物料。期間可利用一項經小心設計的計劃，以監察懸浮於空氣中的石棉纖維，使能及早察覺含石棉物料是否狀況惡化或已受到干擾。對於物料在不同時日的狀況，若能拍攝彩照以供比較，則甚為有用。應提供達至上述效果的監察方案的詳情。

■  
避免擾動含石棉物料的方法：

應鼓勵工人、住戶及處所或船舶的其他使用人，在展開任何工程前（即使是預定的小型保養及翻新工程），知會處所或船舶的擁有人。除此，亦應建立核准制度，用以：

- 監察任何操作及保養工程的活動；
- 防止含石棉物料或懷疑含石棉物料受到意外擾動；及
- 阻止使用新的含石棉物料。

上述保養或翻新工程申請表及核准書樣本見附錄4及5。至於該知會及核准制度的行政細節，亦應說明。

■  
備存紀錄方案：

應提供為所有石棉管理文件而制訂的備存紀錄方案的詳情。這些石棉管理文件，包括調查及評估報告、操作及保養計劃、方針及工程程序、員工培訓及醫療紀錄、纖維釋出報告、飄散於空氣中的纖維監察報告、保養及翻新的知會、簽發的核准書、評估影響含石棉物料的工程及覆驗及監察含石棉物料等。

- 對狀況逐漸惡化的含石棉物料所採取的行動：

應充分解釋處理逐漸惡化的含石棉物料的特別操作及保養方法，以及在何種情況下才需展開徹底的清理工序。

十一 石棉消滅計劃

十一·一 石棉消滅計劃的目的在於定出：

- 消滅含石棉物料的方法；
- 保障工人與環境的工作的成效及準則；及
- 所需要的緊急程序及應變措施。

十一·二 石棉消滅計劃應至少包括下列資料：

- 處所或船舶的詳細描述：

詳細描述有關處所或船舶的位置、樓齡或船齡、結構、用途、使用模式及主要活動，及概述毗鄰石棉消滅工程場地及處所或船舶的用途及活動。至於石棉消滅工程場地的確實位置和界限，應予說明及清楚展示在樓宇圖則或草圖上。

- 註冊石棉顧問、承辦商及化驗所的詳情：

提供受委任進行石棉消滅工程的註冊石棉顧問、註冊石棉承辦商及註冊石棉化驗所的姓名或名稱、註冊編號

**Current Condition of Asbestos Containing Material (ACM) at Tai Yuen Estate**

**Date : 07.01.2009**

**Location A : R/F at Block A Tai Yan House**



The current condition of asbestos corrugated cement sheet is fair.

**\* 委員會秘書附註：本文件只備英文本。**



Photos for current coditions of Asbesto Cement Vent Pipes in Choi Hung Estate



Pak Suet House



Luk Ching House



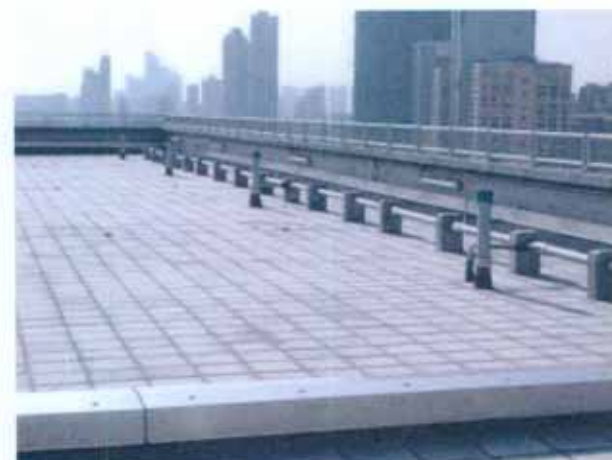
Chi Mei House



Hung Ngok House



Kam Wan House



Chui King House

## Inspection Record

Prepared by : K.C. CHEUNG ACW/R&D3  
 Project : Refuse Chute at Wing Tai House, Fuk Loi Estate  
 Date : 23-11-2009



1. DESCRIPTION : Encapsulated ACM refuse chute at roof floor



2. DESCRIPTION : Encapsulated ACM refuse chute at roof floor



3. DESCRIPTION : ACM refuse chute at roof floor



4. DESCRIPTION : ACM refuse chute at roof floor



5. DESCRIPTION : ACM refuse chute at roof floor



6. DESCRIPTION : ACM refuse chute at roof floor



## Inspection Record

Prepared by : Y.M. TSANG WSI/R&D21  
 Project : Long Bin Interim Housing  
 Date : 11-1-2010



1. DESCRIPTION : Asbestos corrugated sheet at roof of blk. 9



2. DESCRIPTION : Asbestos corrugated sheet at roof of blk. 9



3. DESCRIPTION : Asbestos corrugated sheet at roof of blk. 9



4. DESCRIPTION : Asbestos corrugated sheet at roof of blk. 9



5. DESCRIPTION : Asbestos corrugated sheet at roof of blk. 9



6. DESCRIPTION :

**ACM Details – Corrugated cement sheet installed by HD**

**Long Bin Interim Housing – Management office**

**Photos taken on 23/12/2015**

**Inspected by : W.W.CHAN(ACW/R&D1)**

**Finding : Condition in order**



Management office(屋邨辦事處)



Corrugated sheet at roof of management office



Corrugated sheet at roof of management office



Closed up view of corrugate sheet



ACM Details – Asbestos cement vent pipe

Suspected to be asbestos containing

Choi Hung Estate – Chi Mei, Chiu King, Hung Ngok, Kam Wan, Luk Ching, Pak Suet House

Photos taken on 24/12/2015

Inspected by : W.W.CHAN(ACW/R&D1)

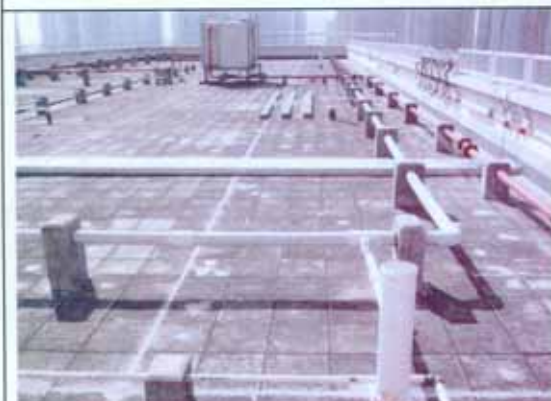
Finding : Condition in order



Chi Mei House( 紫薇樓 )



Vent pipes at roof



Vent pipes at roof



Condition of vent pipe



Condition of vent pipe



Condition of vent pipe



Kam Wan House ( 錦雲樓 )



Vent pipes At roof



Vent pipes at roof



Condition of vent pipe



Condition of vent pipe



Condition of vent pipe





Hung Ngok House( 紅萼樓 )



Vent pipes at roof



Condition of vent pipe



Condition of vent pipe



Closed up view of vent pipe



Closed up view of vent pipe



Pak Suet House( 白雪樓 )



Vent pipes at roof



Vent pipes at roof



Condition of vent pipe



Condition of vent pipe



Condition of vent pipe



**ACM Details – Asbestos cement vent pipe**

**Suspected to be asbestos containing**

**Choi Hung Estate – Kam Pik, Kam Hon, Kam Wah House**

**Photos taken on 28/12/2015**

**Inspected by : W.W.CHAN(ACW/R&D1)**

**Finding : Condition in order**



Vent pipes at roof



Vent pipes at roof



Vent pipes at roof



Vent pipes at roof



Vent pipes at roof



Vent pipes at roof

ACM Details – Corrugated cement sheet installed by tenant

Tai Yuen Estate – Tai Yan House B

Total 2 nos. corrugated sheets at roof

Photos taken on 31/12/2015

Inspected by : W.W.CHAN(ACW/R&D1)

Finding : Condition in order



Tai Yan House( 泰欣樓 B )



Corrugated sheet below water tank of roof



Corrugated sheet below water tank at roof



Corrugated sheet below water tank at roof





**ACM Details – Vent pipe of refuse chute**

**Encapsulated/ enclosed**

**Fok Loi Estate – Wing Lok House**

**Photo taken : 22/3/2016**

**Inspected by : C.H.Cheng(WS1/R&D21)**

**Finding : Condition in order**



Refuse vent pipe at roof



Refuse vent pipe at roof

**ACM Details – Roof vent pipe of refuse chute**

**Encapsulated/ enclosed**

**Fok Loi Estate – Wing Tai House**

**Photos taken on 22/3/2016**

**Inspected by : C.H.CHENG(WS1/R&D21)**

**Finding : Condition in order**



Refuse vent pipe at roof



Refuse vent pipe at roof

我們於 2016 年 12 月 23 日政府帳目委員會(帳委會)的公開聆訊中,就審計報告第 1 章第 6 部分有關「提升舊型公共租住屋邨的消防安全」向委員提供進一步資料。因應帳委會 2016 年 12 月 30 日來信中的提問,我們現答覆如下:

## (II) 提升舊型公共租住屋邨的消防安全

- (u) 房屋署自 2008 年便開始與消防處及屋宇署磋商如何在公共租住屋邨推行《消防安全(建築物)條例》(下簡稱《條例》),但由於涉及六十多個屋邨,包括不同類型的設計,而每個類型的設計涵蓋大量樓宇,因此三個部門需要較長時間才能達成協議採用「樣本模式」的方案以便推行《條例》。

在達成協議後,房屋署一直依循「樣本模式」的方式制定消防安全改善建議以便在公共租住屋邨推行《條例》。在審核/正式接納的過程較長,主要因為房屋署委聘的顧問在制定方案時需要考慮工程對居民的影響及樓宇空間的限制,故此需要充足時間制定有關方案;同時由於每個「樣本模式」所涉及樓宇眾多及技術上的高度複雜性,因此執行當局亦需要足夠時間審核有關方案。事實上,在「樣本模式」獲得執行當局接納後,房屋署委聘的顧問仍須為個別屋邨制定消防安全改善方案提交執行當局予以審核和接納。

到目前為止,七個樣本模式中,三個(長型、塔式及工字型)已獲執行當局接納,餘下四個(梯級型/Y型、十字一型、相連長型及十字二型)亦已呈交屋宇署審核。與此同時,儘管個別公共屋邨因各項原因而未能即時進行《條例》所需的改善工程,多年來房屋署在公共租住屋邨亦進行了各種消防安全改善工程,例如:更換單位門,為公共區域的塑料管加設防火圈以作保護,為各設施房提供防火門,安裝緊急照明系統及自動花灑系統等。



有關審核/正式接納的進度，我們大致同意就審計報告第 6.18 段的建議。而最近三個部門亦已就有關議題達成協議。然而，我們要強調房屋署的消防安全改善工作並沒有延誤。

- (v) 有關當局於 2007 年通過《條例》的目的旨在提升一些現存樓宇的消防安全水平。儘管個別公共屋邨未能即時進行消防安全改善工程，以符合《條例》的要求，但正如審計報告第 6.10(a)段指出，房屋署已在屋邨管理處的保養計劃下進行各類消防安全改善工程，以加強消防安全。其中包括更換單位大門，為公共區域的塑料管加設防火圈以作保護，安裝電池式緊急照明，為各設施房提供防火門，自動花灑系統工程等。所有工程均旨在自願遵守《條例》的規定。

另外，房委會會繼續推行優質消防安全管理系統，包括：

1. 標準建築佈局，面積寬敞

大部分舊式公共屋邨均採用標準設計，設有寬敞的走廊，公共區域，以及逃生樓梯，以達到基本的消防安全要求。

2. 有效的物業管理

良好的物業管理團隊為公共屋邨的租戶維持一個優質和安全的居住環境。屋邨管理人員會每日巡邏，以確保逃生途徑不會受阻。公共屋邨亦設有正確的出口和指示標誌。此外，每個屋邨亦會制定和設立消防安全手冊。

3. 定期維修和定期改善工程

技術人員會定期檢查和進行維修工程，並提議相關改善工程，以改善所有公共屋邨的居住環境。此外，房屋署亦不斷提升公共屋邨的消防安全標準。

4. 定期維修消防安全裝置及設備

所有公共屋邨的消防安全裝置及設備已經提升，並由註冊消防裝置承辦商定期檢查和維修。縱然法例只規定進

行年度檢查，但房屋署每半年便會進行檢查一次，以進一步提高消防安全。

- (w) 房屋署在 2014 年 3 月就公共屋邨實施《消防安全（建築物）條例》的預算及計劃取得房屋委員會建築小組的批准。消防安全改善工程初步計劃分兩階段進行，第一階段先開展長型樓宇的改善工程，餘下類型的樓宇將於第二階段進行工程。

但經研究後，我們發現大部份的屋邨都有多於一種類型的樓宇。為使更能取得居民及各持份者的配合，讓消防安全改善工程順利進行，未來的改善工程將按個別公共屋邨作整體規劃逐步進行工程，而非按樓宇的類型分兩個階段推行。

正如我們在項目(u)所指出，房屋署一直按照「樣本模式」的方案以便在公共屋邨推行《條例》，不過即使所有「樣本模式」獲得執行當局接納，房屋署仍須為個別屋邨制定消防安全改善方案並提交予執行當局審核及接納。基於整體的工程範圍要待改善方案接納後才可確定，所以房屋署會不時就工程預算及相關時間表作出檢討，在適當時候會就檢討結果提交房屋委員會的建築小組審批。

- (x) 正如我們在回應上文第(w)項中所指出，公共屋邨的改善工程將按個別的屋邨作整體規劃逐步進行，而非按樓宇的類型分兩個階段推行。房屋署已安排顧問將不歸類於七個樣本模式的公共屋邨納入整體詳細研究，待七個樣本模式獲得接納後，房屋署會提交有關屋邨的消防安全改善建議予執行當局審核及接納。

- (y) 禾輦邨個案的方案已於 2016 年 8 月獲屋宇署接納。有關蝴蝶邨個案，房屋署的顧問現正就屋宇署提出的意見修訂有關方案，預計會於 2017 年 1 月再次提交屋宇署接納。至於大

興邨個案，已於 2016 年 12 月再次提交於屋宇署接納。根據我們理解，如該兩個方案不需要提交諮詢委員會考慮，我們預計可於 2017 年 3 月獲執行當局接納。

(z) 請參考我們對項目(u)的回應。

(aa) 由於先導計劃，即福來邨及坪石邨的消防安全改善方案已獲執行當局批准，有關工程將展開並預計於 2020 年逐步完成。至於其他公共屋邨，在其餘樣本模式獲得執法當局批准後，個別屋邨的消防安全改善方案亦需要提交執行予執行當局接納。我們亦需要在工程開展前向居民及持份者作足夠諮詢。基於上述各個因素，房屋署認為現在並不是適當時間為工程的開展訂下實際時間表。不過，我們會在適當時間對實際情況作出檢討及制定進行消防安全工程的時間表。

(bb) 由於房屋委員會轄下公共屋邨的建築工程獲豁免受《建築物條例》(第 123 章)所管制，因此該等工程無須受到屋宇署以第三者的身份進行的法定審查。為使對此等工程進行客觀的審查，當局於 2000 年 11 月成立直屬房屋署署長的獨立審查組，以加強對建築設計和施工的監察。

獨立審查組會通過行政管制制度以監督不受《建築物條例》所規管的公共租住屋邨的建築工程。根據上述的行政管制制度，獨立審查組會根據《建築物條例》的規定和標準審查所有公共屋邨的建築工程，批核圖則；並遵循行政程序規定發出施工同意書，監察地盤施工，竣工驗收，以及就新建築物發出佔用許可證。