



# Asbestos: Investigation, Abatement & Management

## Reporting Guidelines Module 1: Hotels

*A supplementary guide to the Code of Practice on  
Preparation of Asbestos Investigation Report, Asbestos  
Abatement Plan and Asbestos Management Plan*

Asbestos Management and Control Section  
Environmental Protection Department

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## Introduction

Hotels and guest houses contain room types/functions and building services that are often associated with asbestos containing materials (ACMs). The type and quantity of ACMs present often depends on the age of construction of the block and whether it was purpose built or converted to a hotel. The provision of hot water, heavy electricity and air conditioning demand, with their associated plant rooms, combined with restaurant, laundry, retail outlets and other hotel facilities means that the whole range of commonly identified ACMs in Hong Kong have been installed in hotels and guest houses.

Renovation of hotels and guest houses can occur frequently due to heavy wear and tear on fixtures and fittings. Since hotels can contain significant quantities of ACMs – particularly high risk friable materials - the comprehensive identification and management of ACMs is very important to prevent hotel staff/guests and workers in building trades from exposure to asbestos.

Whilst the procedures and advice detailed in the EPD's Code of Practice on Asbestos Control "Asbestos Work Using Full Containment or Mini Containment Method" and the General Guidelines should be followed, these additional guidelines have been produced for Registered Asbestos Consultants (RAC) to prepare asbestos investigation reports (AIR) and asbestos abatement plans (AAP) which are suitable for hotels and guest houses. Implementation of asbestos management plans (AMP) are considered essential for these premises - due to the potential exposure of guests and building tradesmen from the large quantity of ACMs, both high and low risk, that can be present - and specific guidelines for AMP are included.

## PART ONE: PREPARATION OF ASBESTOS INVESTIGATION REPORT

### Section 1 – Asbestos Investigation Planning

1.1 Planning for the asbestos investigation of hotels and guest houses should follow the procedures described in the General Guidelines with the following additional measures specific to hotels and guest houses:

- A comprehensive investigation of hotels and guest rooms and their associated service ducts is often difficult without some damage to fixtures. Ornate plasterboard or timber ceilings in function rooms often have limited access hatches for inspection. The Employer can facilitate the investigation by arranging for a general contractor to cut additional access hatches in ceilings.
- Hotels are often organized into departments for running various facilities – guest relations, catering, housekeeping, engineering etc., and it is recommended that department heads are consulted during the planning stage to identify any concerns or constraints within their respective areas of operation and to programme times for investigation. Where guest houses do not occupy an entire building, liaison with building management and other users may be necessary to access all areas of the guest house for investigation. Hotel engineering departments are often the best equipped to facilitate an asbestos investigation and may have knowledge of ACMs in the hotel and any abatement history. They are usually best suited to assist the investigation and arrange any required shut down of services, provide access to areas, and help in any intrusive inspections required.

- Larger hotels can have their own electrical sub-stations, boiler rooms and other plant rooms. Numerous restaurants and kitchens can occur. Modules 3, 4 & 6 should be consulted for investigations in these areas.
- Many hotels already have records about ACM occurrences in their premises and abatement history, and these should be obtained and used as cross reference during the survey.
- Check if a few guest rooms can be made available for an intrusive inspection of buried or concealed services – this could be timed to coincide with maintenance works.

## Section 2 – Site Investigation

### 2.1 Preliminary site walkthrough and assessment

A preliminary site walkthrough is an important part of planning a thorough investigation in a hotel to identify all areas where investigation constraints may occur and areas that need prior notification for access. Completing this process will help accurately define the scope of investigation and identify any works required to facilitate the investigation. On site checks should follow the procedures described in the General Guidelines with the following site specific procedures:

- Check any available as-built drawings against current site situation. Identify if original pipework and flues/chimneys have been removed or relocated and identify locations for investigation to check for buried remnants in walls, service voids etc. Repeated guest room renovations may not have removed all redundant building services and original pipework may still be present. It is important to try and identify their original locations, particularly if buried in walls and make arrangements for investigation.
- Inspect the external elevations and assess how access is going to be safely made, and whether adjacent buildings need to be accessed for further vantage points.
- Identify all plant rooms, restaurants, kitchens and laundry facilities within the premises and assess constraints for comprehensive investigation. In restaurants and kitchens hygiene provisions may have to be arranged.

2.2 At the end of the investigation planning stage, and with results obtained from the preliminary walkthrough, the RAC should be in a position to produce a risk assessment of the planned investigation for submission to the Employer.

### 2.3 Site Investigation

The RAC shall enter the premises using whatever access arrangements have been decided upon during the pre-planning and site assessment stage. The asbestos investigation should be carried out as described in the General Guidelines with the following site specific procedures:

#### External areas

- i. Because of the common occurrence of corrugated asbestos cement sheet (CACS), pipework, chimneys and ducting on external building elevations, podiums and roofs, all external surfaces of the building must be inspected. This can be difficult in congested areas with many buildings adjoining the target premises. Inspection from other buildings may have to take place.

Engineering personnel and building services drawings should be consulted for the location of existing external building services and possible locations of original/redundant services.

- ii. Flues and chimneys from boiler rooms, kitchens and laundry rooms should be checked for external and internal linings and joint gaskets. Chimney's may be difficult to identify – appearing to be part of the building wall – and consultation with hotel engineers, use of as-built drawings and thorough investigation at roof level is important to identify them.
- iii. Air conditioning plant and ducting on roofs and podium areas must be checked for flange gaskets, flexible joints and linings. External ducting is commonly weather-protected with metal cladding and insulation. ACMs may be concealed beneath the cladding and arrangements should be made for its removal for comprehensive inspection.
- iv. Roof tiles to flat roofs and podium areas can occur, but are usually concrete or terracotta. They must always be checked. Asbestos roof tiles typically have a manufacturers chop mark embedded in the top surface.

#### **Internal areas**

- v. The electricity supply in hotels is one of the most common areas to find ACMs, in the form of asbestos-containing fuse boxes and fire protection boarding or packing in and around electrical supply risers. Switch or meter rooms on each floor can have insulation/cement board lining to doors, walls and as backing to fuse boxes / meters. Main switch rooms can have ACMs – such as arc chute boxes – inside main control panels. Premises with electrical generator plant can have ACMs associated with the generator such as exhaust insulation and flexible joints to air intakes. Asbestos containing fuse boxes can occur in common area meter rooms, corridors, staircases, plant rooms, function rooms and in guest rooms. The RAC should ensure that all fuse boxes are inspected and opened up if necessary. Cable and electric cable/ducting should be opened for inspection. This may require attendance of registered electrical workers and/or re-investigation at a time when they can be thoroughly inspected, eg. during the 5 yearly electrical inspection.
- vi. Lift machine rooms commonly contain ACMs in the form of CACS canopies to entrances/roofs, ACM fuse boxes, ACM coatings to electrical wiring in control panels and as friction gaskets to lift brakes. Pump rooms for fresh/salt water and fire services commonly contain ACM fuse boxes and ACM plant flange gaskets. Asbestos cement pipes and/or asbestos pipe insulation may be present.
- vii. Vinyl floor tiles/sheeting and their underlying adhesive are common ACM occurrences and investigation of hotels can be complicated by the large number of different floor coverings present of widely differing age of installation. The ACM Identification & Abatement Library sheet for these materials should be consulted for advice on investigation and the problems of remnant asbestos adhesive and concealment beneath furniture.
- viii. Asbestos insulation is common to buried hot water pipework in Hong Kong, including asbestos rope/cloth and plaster. Hotels can have both current and redundant hot water pipes supplies inside kitchens, restaurants, laundry and guest and staff bathroom/toilets/changing rooms. Provision of hot water can be from central boiler and calorifier rooms or from wall mounted gas or electric water heaters. If the existing hot water supply is visible, the RAC

must carry out checks to ensure that a redundant buried supply is not missed during the investigation. Steam pipes are a common method for provision of hot water in hotels and these require special care for investigation and sampling to avoid burns. Liaison with site engineers should be made for investigation of steam supply plant and safety instructions followed. Buried pipes can be identified from a desk study of as-built drawings, from discussion with any maintenance staff employed by the hotel, and from evidence of water valves visible in walls, cut-off pipe ends etc. Metal detectors are recommended for use during checking for buried pipes and for identifying areas to break open for investigation. The investigation of pipework must trace both current and any redundant pipes from their source to their outlets. The AIR should confirm that this investigation has taken place or indicate – using drawings - any areas of uncertainty. Duct panels and bathtub panels and access hatches should all be checked since they may be asbestos cement sheet.

- ix. Air conditioning systems are a common location for ACMs in hotels – in A/C Plant rooms, supply ducting throughout corridors, functions rooms and to air handling units (AHU) and fan coil units sited in various locations throughout the hotel. All ceiling voids should be accessed and inspected. Checks for flexible joints, flange gaskets and ACM linings to heater boxes should be made. A/C ducting should be checked for internal/external linings and traced from source to outlet checking flange gaskets. Each different size ducting should be checked – ACM flange gaskets can occur in larger size ducting but not in smaller or vice-versa. Fire dampers – typically located in wall and floor slabs - can contain ACM flange gaskets. Even when original ducting has been replaced, the original fire dampers may still be in-situ and should be checked.
- x. There are extensive regulations for prevention of fires in hotels and guest houses, and ACMs have been commonly used for this purpose, as well as for acoustic insulation. Checks should be made for sprayed coatings to ceilings and walls – particularly in fire escape routes or noisy plant rooms or function rooms – and as internal and external linings to fire doors. Investigations in guest rooms should include an inspection of wall surfaces that may necessitate intrusive inspection through existing finishes. Asbestos plaster coatings, sheet linings and packing to tops/sides of wall partitions may all occur.
- xi. Refer to module no. 3 for Restaurants/kitchens and to module no. 4 for Plant Rooms for further advice on inspecting all these areas. Laundry rooms are similar to restaurants and kitchens in the type of ACMs that may be present. Checks should be made of specialist laundry plant – such as steam presses – for ACM linings and pipe insulation.
- xii. Asbestos ceiling and wall partitions may occur in hotels and the RAC should inspect all these fixtures – gentle knocking on walls and ceilings with a metallic item such as key/coin and listening for the sound produced can be a good initial indicator that these materials are present. A comprehensive check in all rooms/areas must be carried out. Random checks are not sufficient as different materials may have been used in different areas. All ceiling and roof voids must be entered and checks made for multiple layers of ceiling sheeting.

## Section 3 - ACM Identification

- 3.1 The ACMs that may be present in hotels and guest houses depends on the construction of the building, the age of the plant and associated equipment, and whether previous renovations have taken place. The ACM Identification and Abatement Library should be referenced for details of associated ACMs that may occur. The RAC should bear in mind that this is not a definitive list of ACMs in Hong Kong and they must use their knowledge, experience and a thorough investigation to identify all ACMs on site.

### Associated ACMs

- 3.2 The following external ACMs can occur:

- asbestos concrete roof tiles to main roofs and podium levels
- bituminous roof coverings
- asbestos cement vent pipes to rubbish/linen chutes
- corrugated asbestos cement canopies and roof/wall sheeting
- asbestos concrete wall grille, louvre panels and balcony grille panels
- asbestos cement wall sheeting, cladding and sight screens
- asbestos cement drainage gutters, drain pipes and soil pipes
- asbestos cement underground water mains
- asbestos pipe insulation
- asbestos insulation and gaskets to flues and chimneys
- asbestos gaskets or flexible joints to external air conditioning/extract systems
- linings to condenser pipe support brackets
- packing materials to cable/pipe exit points
- coatings to cables exiting/entering building
- asbestos containing fuse boxes to external plant
- asbestos packing inside building expansion joints

- 3.3 Common internal occurrences can include the following ACMs:

- sprayed coatings – both to ceilings, walls and support beams – particularly to common areas, fire escape areas, plant rooms and noisy function rooms
- asbestos cement partition wall sheeting and cladding
- asbestos cement bathtub and duct panels
- asbestos ceiling tiles and sheeting (to both ceilings and walls)
- asbestos cement drain pipes
- asbestos cement soil pipes to toilet pans
- asbestos cement refuse/linen chutes (and ACM gaskets to access hatches)
- asbestos insulation to hot water system pipework (buried and surface-run), and boilers and calorifiers
- asbestos sheet linings to cooking benches as base boards, work surfaces and as wall backing boards
- asbestos cloth, rope, board and plaster seals and linings inside kitchen and laundry equipment
- asbestos cloth, rope, board and plaster to standalone water heaters and sanitary incinerators and asbestos flues to the latter occurrence
- asbestos cloth fire blankets
- asbestos packing to tops of partition walls

- asbestos cloth flexible joints and flange gaskets to ventilation extract systems and air conditioning systems
- linings to air conditioning condenser pipe support brackets
- asbestos sheet internal and external lining to fire doors
- packing materials (cloth, rope, plaster, mastic) to cable/pipe exit/entry points
- coatings (cloth, plaster and paint) to cables in building
- asbestos packing or sheeting to bus bar, cables and cable trays through floor and wall slabs
- asbestos containing fuse boxes
- asbestos vinyl floor tiles/sheet and adhesive
- Hard non-woven asbestos gaskets to pipe flange gaskets and plant room equipment. Can also be stored in stores and workshops.
- asbestos friction gaskets to lift motors – passenger and cargo lifts

- 3.4 The above lists are not a fully comprehensive list of possible ACMs, just the most likely. It is emphasized that it is the duty of the RAC to inspect all areas for both commonly and rarely occurring ACMs. The illustrations attached as appendix B summarises typical ACMs and their locations.
- 3.5 Since hotels can have their own electrical substations, module 6 for these type of rooms should also be consulted for details of ACMs present.
- 3.6 The ACM Identification and Abatement Library should be consulted for all the associated ACMs listed since they provide recommended best practice for ACM identification.

## Section 4 - Bulk sampling

- 4.1 Bulk sampling should be carried out as detailed in the General Guidelines with the following site specific procedures:
- Best practice advice for bulk sampling is included where necessary in individual ACM Identification and Abatement Library sheets for the associated ACMs.
  - Any sampling of elements of plant that is to be returned to working order shall require the prior permission of the owner. The RAC should use visual identification, where possible, to avoid damage. Bulk sampling of steam supply plant is best done during times when the supply can be switched off and the plant/pipes allowed cooling time.
  - Where plant replacement is to occur, all plant present in plant rooms should be dismantled as far as practical for the RAC to identify all suspect materials inside and allow access for sampling by the laboratory. The RAC should attend all dismantling of plant and stop the procedure before any suspect ACMs are disturbed. The principal shall be to totally dismantle equipment to prove no ACMs present or sufficient dismantling to prove ACMs present but not disturb them. Partially dismantled equipment with ACMs identified can be listed as having additional suspect concealed ACMs still present.
  - Where building renovation or demolition is to occur, all areas where buried or concealed services – particularly pipework - are suspected to be present, must be broken open to check for ACMs.

## Section 5 – Material and Hazard Assessment

- 5.1 The general guidelines for production of material and hazard assessments should be followed. Hotels and guest houses can contain a wide variety of ACMs, both low and high risk. Throughout the investigation the RAC should record all details necessary for a proper hazard assessment. Hotels contain many different room types with differing occupation rates and activities making hazard assessments complicated. Differing assessments for differing areas may be necessary. It may therefore be helpful for material and hazard assessments for hotels to detail assumptions made and opinions held so that the assessment is more understandable and any disputes over the assessment can be more easily discussed.
- 5.2 Should any ACMs be identified which are in a poor condition, then the RAC should immediately report these to the Employer and recommend remedial measures to avoid further disturbance to the ACMs.

## Section 6 – Format of Asbestos Investigation Report

- 6.1 The requirements of the Code of Practice and general guidelines for the expected format and contents of the AIR should be followed.
- 6.2 The AIR should include the following information specific to hotels and guest houses:
- Details of the risk assessment made prior to investigating the site and the precautions taken to access the site/plant for investigation.
  - The agreed scope of the investigation and areas not included.
  - Investigation of buried services in hotels can be difficult or unwanted by hotel management due to damage, and areas may not be fully accessed and inspected. The AIR section and drawings detailing inaccessible areas should be comprehensive. The default assumption for inaccessible areas is that ACMs exist unless as-built drawings can prove otherwise. Assumptions made should be consistent with ACM identification elsewhere as well as predicted on the type of use of the room/area.
  - If buried or concealed services are present and inspected, the AIR should include full details of the extent of breaking out including locations plans and photographs detailing the extent of investigation. Confirm that pipes have been traced from source to outlets.
  - Detail APCO requirements on asbestos reporting and removal from hotels – refer to section 7 of the general guidelines for further details.

## Section 7 Meeting Environmental Requirements and the respective Codes of Practice

- 7.1 The general guidelines for preparation of AIR & AAP should be studied for advice and recommendations for preparing the report. The guidance in this AIR/AAP module should be studied to produce a specific AIR / AMP / AAP for EPD's vetting and comment. Because larger hotels can contain numerous plant rooms and even their own electrical substations, the modules for these areas should also be consulted.

- 7.2 The RAC and owner of premises are encouraged to submit AIR to EPD even if the report indicates that the premises has no ACM / only exempted ACM found.
- 7.3 The RAC shall ensure that the AAW are carried out in compliance with other environmental / health and safety regulation, and shall include such measures in the submitted AAP / AMP.

## **PART TWO: PREPARATION OF ASBESTOS ABATEMENT PLAN**

### **Section 8 – General Specification Requirements**

- 8.1 The general guidelines for the preparation of Asbestos Abatement Plan all apply for the preparation of an AAP for hotels and guest houses. However, some of the general requirements may need further consideration and adjustment to make them relevant and applicable. Occupied hotel premises are a problem to access and work in, and unwanted damage to fittings can be a constraint. The common occurrence of high risk ACMs, often in difficult access locations with problems for erection of full containment work zones, can require the general specification to be expanded to include additional specifications – such as scaffolding design and erection. Asbestos abatement works should be carried out only when surrounding areas can be shut down and vacated. The RAC should consider the requested scope of asbestos abatement and liaise with the Employer to discuss options for abatement. Review the following requirements listed in the General Guidelines to ensure the removal contractors can meet the general specification for the abatement works:

- Responsibility to isolate both electric and gas supplied plant.
- Site access requirements and impact of abatement work – any particular access restrictions for vehicles, security arrangements? Any particular hotel department demands for access, notification etc. ACMs are common found in electric risers and air conditioning systems. Any work may impact on their supply. Similarly abatement of ACMs to hot water systems will impact water supply. Are arrangements for temporary supply necessary?
- Hotels, particularly common areas and function rooms, can have high ceilings. Are temporary work platforms required? Which type is suitable and what protection measures are necessary to avoid contamination during abatement?
- Storage of equipment
- Review the specification for waste handling and disposal.

### **Section 9 – Method statements for asbestos removal**

- 9.1 The method statements for asbestos removal should follow the format detailed in the General Guidelines as follows:

- Introduction and description of work
- Work zone setup
- Inspection of work zone setup
- Asbestos removal and inspection
- Air monitoring
- Waste management

9.2 **Asbestos abatement.** Procedures specific to hotels should also include:

- Details on measures for minimizing fibre release. Asbestos abatement in work zones adjacent to occupied areas of a hotel must fully consider the protection of building users. Applicable to both segregated and full containment work zones, details must be provided on how the removal contractor will sufficiently wet friable ACMs to reduce the release of fibres during waste collection, disposal and cleaning of the site.
- Detail the sequence of removal work. High level elements should usually be removed first.
- When ACMs are contained within plant, detail removal measures and cleaning of adjacent surfaces. Detail how any plant to be left in-situ can be satisfactorily cleaned and inspected. The RAC should specify the disposal or retention of all materials in the work zone - once again considering economic cost if various remedial options are available.
- Work on electric risers or in vertical pipe ducts is best carried out at the same time on all floors to ensure the entire riser is contained within the work zone. This enables easier cleaning and decontamination. However, the removal contractor may not have enough plant – such as air movers – for all work zones. A buffer system should therefore be implemented whereby the lowest work zone in a sequence is not worked in and is used to separate the abatement work from non-work areas until erection of further work zones down the building.
- If the AIR has reported any uncertainty about tracing of pipes from source to outlets, the AAP should detail any measures for further tracing and breaking out of pipes in work zones.
- Flues and chimneys are difficult to remove. Access is usually a problem and work zones can impact on adjacent buildings. The ACM Identification and Abatement Library sheet for these items should be studied for advisable abatement measures. Work procedures that need careful consideration are scaffold erection, work zone erection on the scaffold, protective measures for window openings adjacent to the work zone, whether power tools have to be used during any non-asbestos works. If asbestos flange gaskets are present and the flue needs to be dismantled, consider loading on work platforms as they are dismantled and require regular transfer out of work zone.

9.3 Reference should be made to the ACM Identification and Abatement Library for the ACMs associated with hotels and guest houses. These reference sheets provide specific advice for the preparation of AAP and inspection of abatement works that should be included in the AAP prepared.

## Section 10 – Asbestos Work Zone Plans

- 10.1 The work zone plans should follow the format detailed in the General Guidelines and any specific advice for ACMs associated with hotels and guest houses detailed in the ACM Identification and Abatement Library.

## Part 3: PREPARATION OF ASBESTOS MANAGEMENT PLAN

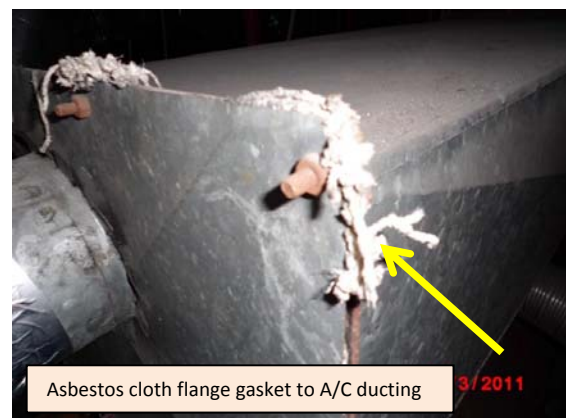
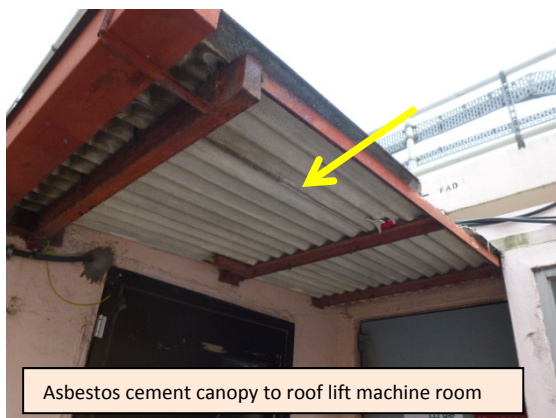
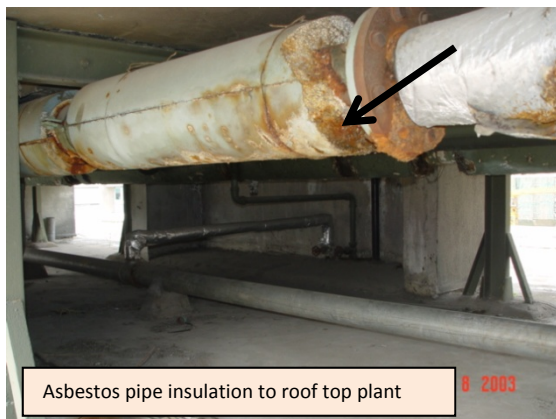
### Section 11 – Preparation of Operation and Maintenance Plan

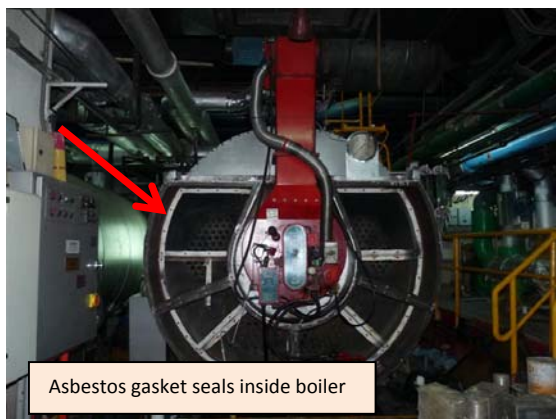
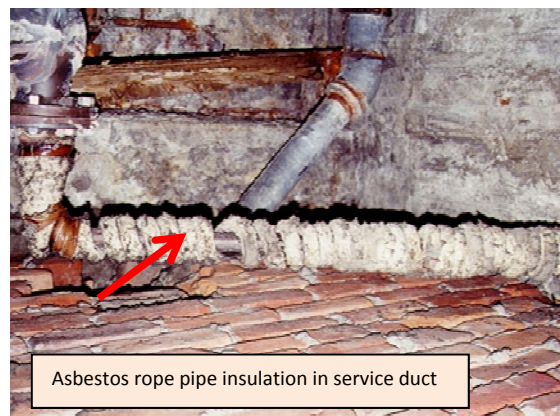
- 11.1 Following an asbestos investigation, if ACMs are to remain in-situ in a hotel or guest house, the RAC should recommend to the Employer that an operation and maintenance plan (O&MP) is prepared and implemented for the identified ACMs.
- 11.2 Section 9 and 10 of the EPD's Code of Practice on Asbestos Control "Preparation of Asbestos Investigation Report, Asbestos Management Plan and Asbestos Abatement Plan" provides details on the requirements for the production of an O&MP, and the document that the RAC prepares should comply with these requirements.
- 11.3 In addition to guidelines detailed in the CoP, the RAC is advised to consider the following further measures specific to preparation and implementation of O&MP for hotels and guest houses:
- Organization chart for implementation of the O&MP should include details of the building management for the premises. It is possible that contractors employed to renovate building exteriors or interiors could disturb ACMs. This is particularly likely during engineering works to replace electric/hot water/air conditioning supply. Any group of people who commission such works should be included in the implementation of the O&MP. Where ACMs occur in differing hotel departments/areas, a comprehensive organization structure and record keeping system will be vital to encourage proper in-situ management, arrangement of ACM abatement works and record works carried out.
  - The condition of ACMs, or assumed ACMs, concealed in electrical supply systems and other plant will be difficult to record and monitor unless investigations are synchronized with regular maintenance inspections of plant. If ACMs have only been assumed to be present – pending confirmation on future investigation – then the condition, type, quantity of ACMs will have to be amended in both the AIR and O&MP as opening-up and investigations allow. The O&MP should detail this requirement.
  - Hazard labelling of ACMs – whilst it can be done on accessible items can be difficult for external items such as canopies and roofs and internal buried services. The type of labeling and the likely most effective for the situation concerned should be carefully considered. Room-type labels – fixed to notice boards, on doors, next to light switches etc., - may be a more effective notification in some circumstances. Hotels will be reluctant for hazard labels to be visible to guests and the RAC should advise on siting of labels to allay these concerns.

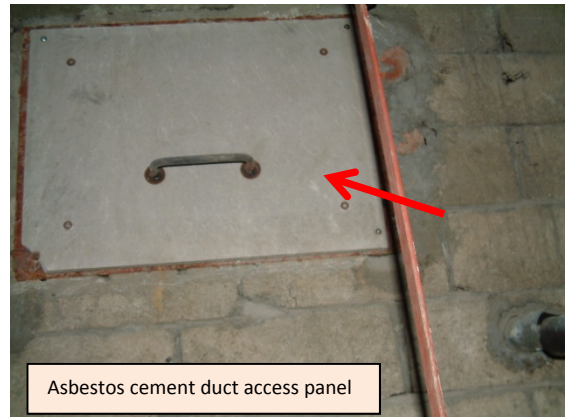
- The RAC should discuss hotel staff turnover rates with the Employer. If they are high, the implementation of further staff asbestos awareness training will need to be arranged.
- The EPD's CoP recommends a surveillance scheme of re-inspection once every two years. However, the RAC should assess the amount of ACMs in the premises, the quantity of high risk ACMs, their location and the likelihood of damage. It may be advisable to have shorter re-inspection periods.
- Introduction of any materials containing asbestos into premises is now totally banned in Hong Kong. Operators of hotels are at risk of not meeting this requirement if a monitoring and checking scheme is not implemented as part of the O&MP. This specifically applies to introduction of plant and prefabricated building products from countries that may still be using asbestos in the manufacture of these items. Also the provenance of sheeting used to produce hard non-woven plant gaskets should be checked. Electrical and engineering contractors may have stocks of asbestos-containing gasket material that could be used without the Employers knowledge. All works specifications should specify the use of non-ACM gaskets and the RAC should check the material before use. Certificates confirming no asbestos materials may not be reliable – depending on the country of manufacture – and bulk sampling and analysis is recommended in case of doubt. The O&MP should contain a section detailing the procedures for vetting new plant installation, building products and maintenance materials.
- General electrical and plumbing contractors may have to be part of the emergency response team to assist in remedial actions for disturbed and damaged ACMs in hotels. Their safety procedures for shut down and isolation of plant should be incorporated into the method statements for likely emergency action, and if necessary they should be included in training drills for use of personal protective equipment and ACM cleanup.
- Prior to the implementation of an O&MP the RAC should consider the requirement for any protective measures for ACMs. Impact damage in a busy premises, or water leaks, are always a possibility and abatement plans could include protective enclosure measures, for example timber boxing to ACM insulated pipework and flues.

## Appendix A:

### Photographs of typical ACMs in Hotels and Guest Houses

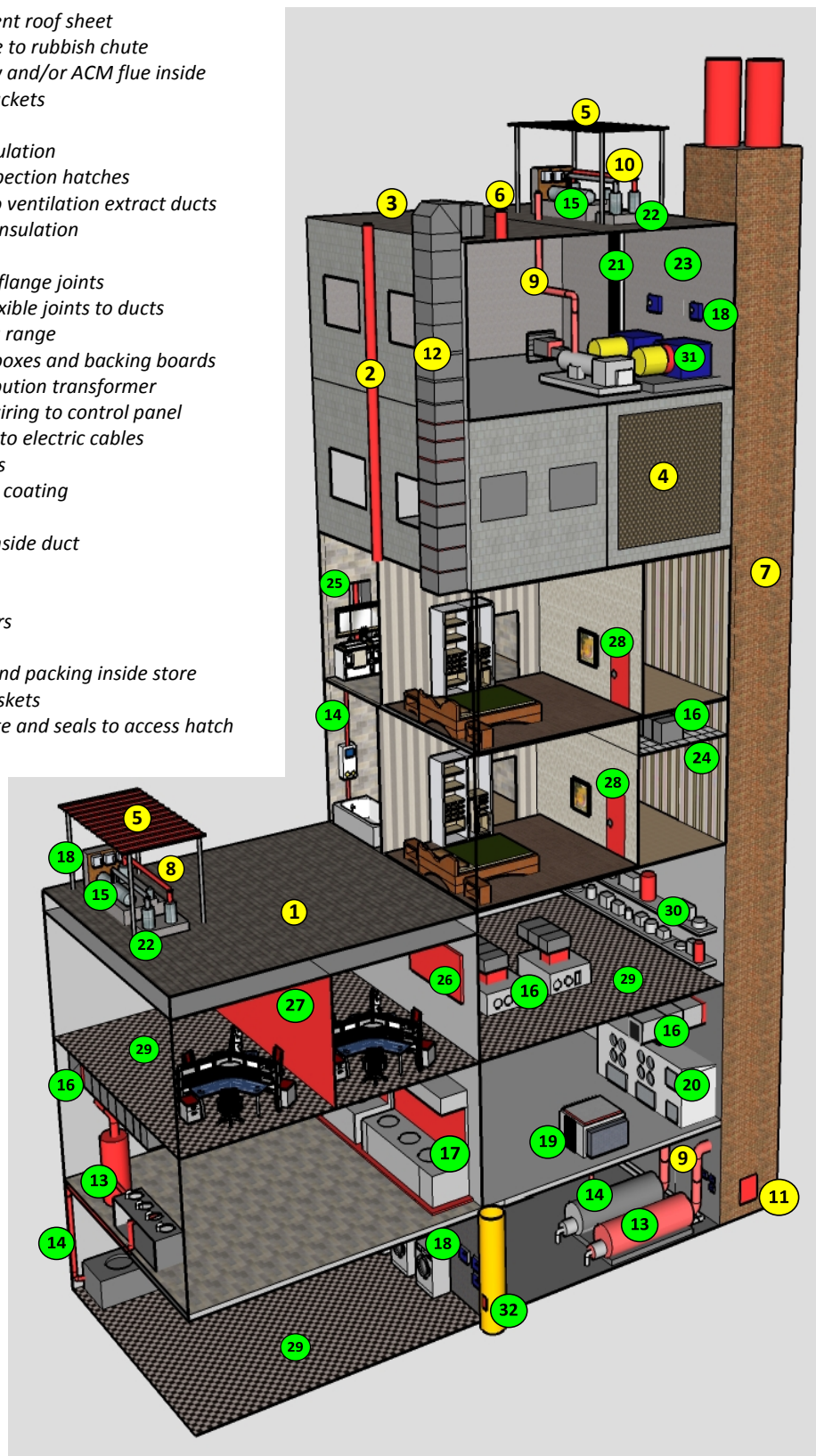






## Appendix B: Illustration of typical ACM occurrences

- (1) Asbestos concrete roof tiles
- (2) Asbestos cement soil & drain pipes
- (3) Asbestos bituminous roof felt
- (4) Asbestos wall grille panels
- (5) Corrugated asbestos cement roof sheet
- (6) Asbestos cement vent pipe to rubbish chute
- (7) Asbestos lining to chimney and/or ACM flue inside
- (8) Asbestos lining to pipe brackets
- (9) Asbestos flue insulation
- (10) External asbestos pipe insulation
- (11) Asbestos rope seals to inspection hatches
- (12) Asbestos flange gaskets to ventilation extract ducts
- (13) Asbestos boiler/calorifier insulation
- (14) Asbestos pipe insulation
- (15) Asbestos gaskets to plant flange joints
- (16) Asbestos cloth gaskets/flexible joints to ducts
- (17) Asbestos board to cooking range
- (18) Asbestos containing fuse boxes and backing boards
- (19) Asbestos gaskets to distribution transformer
- (20) Asbestos arc chutes and wiring to control panel
- (21) Asbestos packing/coating to electric cables
- (22) Asbestos gaskets to pumps
- (23) Sprayed asbestos acoustic coating
- (24) Asbestos ceiling tiles
- (25) Asbestos pipe insulation inside duct
- (26) Asbestos chalkboard
- (27) Asbestos wall partition
- (28) Asbestos lining to fire doors
- (29) Asbestos vinyl tiles
- (30) Asbestos gasket sheet/gland packing inside store
- (31) Asbestos friction brake gaskets
- (32) Asbestos linen/refuse chute and seals to access hatch



**Appendix C: Checklist for Site Investigation**

| Item   | ✓ or X | Actions required |
|--|--------|------------------|
| <b>Initial Site Assessment</b>   |        |                  |
| Has scope of investigation been agreed with building management?   |        |                  |
| Is liaison required with building management of adjacent blocks to inspect external elevations?  |        |                  |
| Are arrangements for plant shut down necessary?  |        |                  |
| Are special access notifications to hotel department's (for guest houses other parts of the building) necessary prior to carrying out investigation? |        |                  |
| Has risk assessment been carried out?  |        |                  |
| Are as-built drawings available for inspection?  |        |                  |
| Are arrangements necessary to break open buried services for investigation?  |        |                  |
| <b>Asbestos investigation</b>  |        |                  |
| Identify visible ACMs. Refer to associated ACMs in the ACM Identification & Abatement Library. List their type and quantity / condition / location.  |        |                  |
| Have all hot water pipes been traced from source to outlets? Record any uncertainty.   |        |                  |
| Closely supervise all opening up and dismantling of plant. Stop works before any ACM disturbance.  |        |                  |
| Are there any poor condition ACMs that require immediate remedial action?  |        |                  |
| Identify any inaccessible areas and list plant not opened for inspection. Assume ACM presence or provide justification for no ACM present.           |        |                  |
| Take comprehensive photographic record   |        |                  |
| Carry out material and hazard assessment of all identified or suspect ACMs   |        |                  |
| <b>Record details for AAP preparation</b>  |        |                  |
| Are phases of work zones required? Detail work sequence. Is isolation/dismantling plant required?  |        |                  |
| Are scaffold / work platforms necessary to access ACMs? Obtain scaffold design drawings for AAP.   |        |                  |
| Are measures necessary to prevent disturbance of ACMs by other parties prior to start of removal?  |        |                  |
| Assess practicality of work zone erection and ACM removal from plant. What constraints are present?  |        |                  |
| Assess the ease of air movers being exhausted to open air if full containment work zone is specified.  |        |                  |
| Assess waste quantity. What measures can be taken to reduce quantity of ACM waste?   |        |                  |
| Assess site for access constraints and storage of waste constraints  |        |                  |
| Record air monitoring locations for reassurance, leak and clearance air tests. Are environmental air tests necessary?                                |        |                  |