




Asbestos: Investigation, Abatement & Management



Reporting Guidelines Module No. 6: Transformer Rooms & Electrical Sub-Station

*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

Transformer Rooms, Switch Rooms and Distribution Substations are part of the electrical distribution system within an area/estate or individual building. Transformer rooms contain transformer used to step down high voltages used in transmission to the lower voltages for supply to consumers. Switch rooms and Distribution substations contain the switching, protection and control equipment used to distribute electricity to consumers, and a number of sub-stations may be present to an area/estate or building, each operating at different voltage levels dependent on the requirements of the consumer. In some cases, distribution substations may also contain transformers. Transformer Rooms tend to be the property of the utility company. Switch rooms and distribution substations can either be the property of the utility company or belong to the area/estate or individual building. Depending on electrical requirement, the rooms can be either stand-alone buildings or incorporated as part of a building. Transformer and distribution substations tend to be at ground or basement levels but they can also be found at all floor levels of a building dependent on the power supply requirements of building users.

Transformer rooms and substations tend to be unoccupied and usually restricted or locked. Liaison with management office or utility companies is usually required prior to the investigation. Major components include transformer, multi-circuit board, insulated switchgear and other electrical components and wiring. With those components in operation, it is difficult to conduct a comprehensive Asbestos Investigation due to the problems of inspecting live electrical equipment.

Asbestos products have been used extensively in the manufacture of electrical components due to its fire resistance and insulation properties. ACMs in transformer rooms and substations are a common occurrence throughout Hong Kong – not only in the electrical supply system but also the associated HVAC and Fire Services (FS) systems.

Whilst the procedures and advice detailed in the EPD's Code of Practices on Asbestos Control should be followed, these additional guidelines have been produced for preparation of asbestos investigation reports (AIR) and asbestos abatement plans (AAP) which are suitable for transformers room, switch rooms and distribution substations. Implementation of asbestos management plans (AMP) are considered good practice for these rooms - due to regular maintenance activities and replacement of equipment - and specific guidelines for AMP are included.

PART ONE: PREPARATION OF ASBESTOS INVESTIGATION REPORT

Section 1 – Investigation Planning

1.1 Planning for the asbestos investigation of transformer rooms and substations can involve additional procedures to those described in the General Guidelines, including:

- Determine whether the site is safe for access. Asbestos Investigation of any electrical equipment entails risk unless all proper procedures are followed. In all rooms owned by a utility company, the Registered Asbestos Consultant (RAC) should seek permission to inspect their property, which requires prior notification and submission of access request forms. In Government managed buildings, access arrangement may have to be discussed with the Electrical and Mechanical Services Department. The RAC or Employer shall check at the Investigation planning stage if the area or building being inspected contains transformer rooms, switch rooms or substations, and shall make arrangements for access with the relevant authorities.
- The only way to carry out a comprehensive Investigation is to arrange for all electrical equipment to be isolated and made safe for investigation. However this can be difficult to arrange during the Investigation period. Therefore the RAC shall try to conduct the asbestos investigation when the plant was shut-down for routine maintenance/ other operations. The RAC should explore options with the Employer to return once dates for any electrical plant shut down are known.
- Check with the Employer if previous asbestos investigation has already taken place – asbestos hazard labels may have been fixed to ACMs within the plant. The RAC can make reference to previous asbestos investigations, however they should bear in mind that these previous investigations are for reference only, and shall conduct a comprehensive investigation using the RAC's own professional judgement.
- As standard good practice for investigation of rooms containing electrical plant the RAC should agree the use of permit to work procedures with the Employer. A registered electrical worker may have to be employed to assist the investigation and this should be discussed with the Employer.
- Some transformer rooms and substations have inert gas fire-fighting systems or other specialized installations requiring special access provisions, this should be checked and arrangements made if necessary. High voltage distribution substations may have additional safety measures that have to be followed during access.
- The RAC shall request the Employer to provide detailed layout drawing and schematics on E&M / HVAC system for preliminary planning and preparing the AIR. Another useful reference is the drawings contained in CLP Hong Kong Code of Practice 101 'Distribution Substation Design' which is available online.

Section 2 – Site Investigation

2.1 **Preliminary site walkthrough and assessment**

The initial phase of investigation of a site shall be a brief walkthrough and shall include an inspection of the transformer and substations to confirm whether all procedures for

inspection agreed at the investigation planning stage are suitable and can be implemented. These should include the following:

- Check if plant has been isolated and that permit to work forms are available. If plant is still live check which areas of the rooms are safe to access for inspection.
- Check if any inert gas fire-fighting systems are in operation, they shall be bypassed during asbestos investigation.
- Electric cable entry points are often pits in the floor covered by metal plates. Rubber matting is often provided around switch gear and control panels. Note the presence of all trip and fall hazards and insist on remedial actions prior to asbestos investigation if dangerous conditions are present.
- The utility companies may have their own asbestos inspection programmes. Check if any plant already has asbestos hazard labels attached but such information should be treated by the RAC for reference only.
- The rooms often have a high ceiling height, and arrangement for ladders or work platforms may be necessary for the walkthrough and subsequent investigation.

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. The risk assessment should detail the following:

- Confirm access arrangements to the rooms. The aim is to ensure that access to the site for inspection by the RAC and any other parties is safe and that all health and safety requirements for working with electrical plant have been complied with.
- Detail all communication and responses from utility companies for access,
- Identify any preliminary areas of concern for access, e.g., suspected to be a trip, fall or electrocution hazard, and proposed actions for inspection.
- Check site restriction, and request the Employer to gain access to rooms that are not available at the preliminary site walkthrough.

2.3 Site Investigation

The RAC shall enter the rooms using whatever access precautions 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:

- Establish whether visible ACMs are present in the rooms and their condition. Establish whether utility-owned plant has already been hazard labeled.
- List out the plant present in the room and identify by type: transformer, switchgear, control panel, fuse boxes, ventilation extract, fire-fighting equipment etc.
- Classify plant by the investigation result, whether the ACM was:
 - already asbestos hazard labelled, keeping in mind that the previous Investigation MAY NOT be comprehensive.
 - opened for inspection and whether ACMs are present or not.
 - not available for inspection and ACMs are assumed to be present or not depending on its age or type of plant (note that this option is not acceptable for inspections prior to demolition).
- It is not only the plant associated with electric supply that can contain ACMs in the rooms. The HVAC and FS systems may contain ACMs as well. Larger premises may

contain air conditioning systems which can contain similar ACMs to ventilation systems.

- Access to all areas is important or ACMs may be missed. However, at all times the inspection of the electrical plant should be carried out with due regard for personal safety. Areas not inspected shall be clearly detailed and justified in a section of the AIR dedicated to listing inaccessible areas/plant, and also included on site drawings. The default action for un-inspected areas and equipment shall be to assume ACMs are present.

Section 3 - ACM Identification

- 3.1 The ACMs that may be present in transformer rooms and substations depends on the construction of the room or building and the age of the electrical plant and associated equipment. 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 inspection to identify all ACMs on site.

Associated ACMs

- 3.2 For stand-alone buildings specifically constructed as transformer rooms and substations the following external ACMs can commonly occur:

- asbestos concrete roof tiles
- bituminous roof coverings
- corrugated asbestos cement canopies or roof sheeting
- asbestos concrete wall grille or louvre panels
- asbestos cement wall sheeting and cladding
- asbestos cement drainage gutters and down pipes
- packing materials to cable/pipe exit points
- coatings to cables exiting/entering building
- asbestos packing to building expansion joints.

- 3.3 Common internal occurrences – both to stand-alone buildings and switch rooms – can include the following ACMs:

- sprayed coatings – both to ceilings, walls and support beams – they may be concealed behind newer acoustic wall panels
- asbestos cement wall sheeting and cladding
- asbestos cement drain pipes
- asbestos cement sheet lining to cable pits/floor ducts
- packing materials (cloth, rope, plaster, mastic) to cable/pipe exit/entry points
- coatings (cloth, plaster and paint) to cables in building
- asbestos cloth fire blankets
- asbestos cloth blankets to door and wall louvre panels
- asbestos cement lining to fire doors including main entry door
- asbestos cloth flexible joints and flange gaskets to ventilation extract systems and air conditioning systems
- asbestos containing fuse boxes

- asbestos cement arc chutes and divider boards inside control panels
 - asbestos coatings to electrical wiring inside control panels
 - asbestos washers to internal metal frame of control panel
 - asbestos paper linings to fuse boxes and control panels
 - asbestos insulation board boxing to electrical bus bars and cable trays
 - asbestos packing or sheeting to bus bar, cables and cable trays through floor and wall slabs
 - asbestos materials concealed within specialist electrical equipment, such as asbestos rope and gasket seals inside distribution transformers, asbestos coatings to winding bars in generators etc.
- 3.4 The above lists are not a fully comprehensive list of possible ACMs, just the most common type found. For example, occurrences of asbestos pipe insulation to hot water systems passing through substations have been found concealed in floor ducts. It is emphasized that it is the **duty of the RAC to inspect all areas for both commonly and rarely occurring ACMs, even previous asbestos inspection programmes were in place.** The illustration attached as appendix B summarises typical ACMs and their locations.
- 3.5 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 Taking bulk samples in transformer rooms and substations can be difficult and due regard should be given to the safety of personnel on site. Laboratory personnel should adopt the same safety measures and permit to work procedures as the RAC.
- 4.2 Insulated tool sets should be used for sampling.
- 4.3 Any sampling of elements of electrical 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.
- 4.4 Where building demolition is to occur, the electrical components should be dismantled sufficiently 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 without disturb them. Partially dismantled equipment with ACMs identified can be listed as having additional suspect concealed ACMs present.

Section 5 – Material and Hazard Assessment

- 5.1 The general guidelines for production of material and hazard assessments should be followed. If the material assessment is good, it is likely that due to the lack of occupation of these rooms and that many of the ACMs are concealed inside operating plant, which is left undisturbed for long periods of time, the hazard assessment will be moderate or low.

- 5.2 Should any ACMs be identified which are in a poor condition, then the RAC should immediately report these to the EPD and recommend remedial measures.

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 shall include the following information specific to transformer rooms and substations:
- Details of the risk assessment made prior to investigating the site and the precautions taken to access the site/plant for inspection.
 - Because operating plant in these rooms can be difficult to fully access and inspect, the AIR section and drawings detailing inaccessible areas should be comprehensive. The default assumption for inaccessible plant is that ACMs exist inside unless the items can be proved to be of recent manufacture. Many plant items contain manufacturer labels which provide such details. Assumptions made should be consistent with ACM identification elsewhere in the rooms as well as predicted on the type of use of the plant. If plant of the same model type/manufacturer/age has been fully inspected on other sites, ACM content can be extrapolated to the current site.
 - A detailed explanation of the investigation carried out to identify ACM in electrical plant. Plant should be divided into fully inspected and not accessible and the justifications and assumptions made regarding ACM content. The description of the items inspected must be supplemented by photographs and drawings detailing their location.
 - Detail APCO requirements on asbestos investigation and abatement from transformer rooms and substations – 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 primary reference material for a RAC to meet AIR preparation requirements is the CoP. The RAC should initially study this document to ensure that all required information from the CoP is included in the AIR. The general guidelines for preparation of AIR & AAP should then be studied for further advice and recommendations for preparing the report. Lastly, the specific guidance in this AIR/AAP module should be studied in order to give a site specific AIR for EPD's vetting and comment.
- 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 or if only exempted ACM is 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 guideline for the preparation of Asbestos Abatement Plan (AAP) is also applicable for the preparation of an AAP for transformer rooms and substations. However, some of the general requirements may need further consideration and adjustment to make them relevant and applicable. Functioning transformer rooms and substations are a problem to access and work in. The requirement for water use during asbestos abatement is risky in functioning rooms due to electrocution hazard. If at all possible, asbestos abatement should be carried out only when surrounding electrical components are shut down and isolated. 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:
- Do site specific decontamination procedures need to be specified? Accidental disturbance to buried/concealed ACMs is not uncommon in these premises.
 - Are the abatement works being carried out prior to demolition or engineering works? In either case establish who is to remove the electric utility-owned plant. Both utility companies have procedures for abatement of their asbestos containing plant and the Employer should liaise with them for arrangement. Abatement required prior to engineering works should be arranged when all possible plant can be shut down to avoid electrocution hazards. If this is not possible, a thorough risk assessment should be made and included in the AAP. It should detail the scope of works, identify possible hazards and detail mitigation measures. The use and control of water during abatement must be included in the risk assessment. These measures may not be applicable for demolition works, but permit to work procedures are recommended in both scenarios to reduce risk of electrocution.
 - Site access requirements – any particular access restrictions for vehicles, security arrangements for the rooms?
 - These rooms commonly have a high ceiling. 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 abatement

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 **Introduction and description of work.** The AIR should have detailed the ACMs occurrence and whether they are accessible or concealed within electrical plant. This may require the production of specific method statements for abatement, eg., segregated work zones for low risk ACMs and full containment work zones for high risk ACMs. The following criteria shall be included:

- Detail the pre-cleaning required. Is electrical plant still operating? Will this affect pre-cleaning measures?
- Detail the proposed abatement method for each work zone. If one work zone can only be done after completion of another, clearly define the phases of work. Drawings can help detail the work phases.
- Consider the practicalities of work zone erection. If adjacent plant has to be operational during abatement works how is it to be protected? Will it require a fresh air supply? Do cable pits need additional protection to prevent falls or support work platforms? Discuss with the Employer and their nominated registered electrical workers for solutions and detail them in the AAP. Provision of step by step procedures accompanied by drawings will help explain all the necessary procedures to prepare the site for abatement.

9.3 **Work Zone Set up.** For each method statement a full description of the work zone set up should be included, with accompanying drawings, to detail all the procedures the contractor has to undertake prior to commencing asbestos abatement works. Procedures to be detailed include:

- Because of the electrocution hazard in these sites, the RAC must use this section of the AAP to clearly show how the contractor will safely erect work zones;
- What personnel protection measures need to be used?
- Any work zone built in the open air needs weather protection. Specify support bracings for walls and roofs of work zones. If overhead sheeting is used it should be angled to allow rainwater runoff. Specify the measures to take, and re-inspections to carry out if the work zones are affected by bad weather;
- The abatement of ACMs may have to be divided up into a series of smaller work zones. Detail how these will fit together, do some have to be done before others, ensure that full containment areas are not too large – not only to comply with the maximum size allowed in the CoP but also to make them easier to erect, brace and maintain. Calculations on negative pressure unit (air mover) size and air flow should be included.

- Consider additional protection works to adjacent areas. Transformer rooms and substations are typically located at ground floor level and in urban areas commonly open on to public pavements. Are additional hoarding arrangements necessary?

9.4 **Asbestos abatement:** The standard general guidelines for specifying asbestos abatement inside work zones should be followed. Procedures specific to transformer rooms and substations should also include:

- Make sure that all concerned electrical equipments / transformer rooms / switch rooms / substations are shut down and completely isolated from main grid before any AAW commences.
- Details on measures for minimizing fibre release. Applicable to both segregated and full containment work zones, details must be provided on how the Registered Asbestos Contractor will sufficiently wet friable ACMs to reduce the release of fibres during waste collection, disposal and cleaning of the site. If adjacent electrical plant is still in operation, the RAC must evaluate the ACMs to be removed and advise the best wetting measures.
- Detail the sequence of abatement work. High level elements should usually be removed first.
- When ACMs are contained within electrical plant, detail abatement 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 - considering economic cost if various remedial options are available.
- The ACMs in some electrical equipment, for example the asbestos rope seals to the top plates of electrical distribution transformers, are welded closed. This makes access a problem. The ACM Identification and Abatement Library sheet for this item should be studied for advisable abatement measures. If other electrical components are encountered with similar access problems, the RAC should carefully consider the steps necessary to access the ACMs, specify what tools are required and whether power tools are necessary as part of non-asbestos work preparation. All use of power tools should be carefully considered and justified. Their use during actual asbestos abatement is not permitted. Electrical components can be very heavy. Depending on the method of asbestos abatement the RAC may have to consider the requirement for lifting gear, such as pulleys and hoists, to be able to access the ACMs. Specify how any lifting gear used will be protected or decontaminate after use.

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 transformer rooms and distribution substations detailed in the ACM Identification and Abatement Library.
- 10.2 The use of lifting gear may be required during ACM removal from plant. Detail how it is to be erected and protected from contamination if within the work zone.

Part 3: PREPARATION OF ASBESTOS MANAGEMENT PLAN

Section 11 – Preparation of Operation and Maintenance Plan

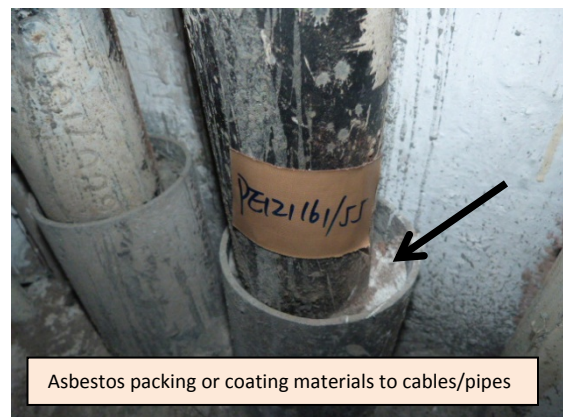
- 11.1 Following an asbestos investigation, if ACMs are to remain in-situ in a transformer room or substation, the RAC should recommend to the Employer that an operation and maintenance plan (O&MP) is prepared and implemented for the identified ACMs.
- 11.2 Section 9 and 10 of the CoP provides details 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 transformer rooms and substations:
- Organization chart for implementation of the O&MP should include details of all contractors who may work in the premises. As the group of people most likely to accidentally disturb ACMs in the premises they should be fully included in the implementation of the O&MP. The Employer or owner of the premises shall ensure that all contractors are aware of the O&MP and asbestos in the premises.
 - The condition of ACMs, or assumed ACMs, concealed in electrical plant will be difficult to record and monitor unless inspections are synchronized with regular maintenance inspections of plant. If ACMs have only been assumed to be present – pending confirmation on future inspection – then the condition, type, quantity of ACMs will have to be amended in both the AIR and O&MP as opening-up and inspections allow. The O&MP should detail this requirement.
 - Hazard labelling of ACMs – whilst it can be done on the outside of plant – should also be carried out internally where possible as electrical component is opened up for inspection. Direct labelling of internal ACM components will help prevent disturbance. Obviously, the RAC will have to use their discretion about this labelling and ensure that it does not affect the operation of the machinery or cause a fire hazard. The Employer should be consulted about advisability.
 - Similarly to inclusion in the organization chart, all the contractors / workers / personnel involved should also be informed about the presence of ACMs and take part in asbestos awareness training.
 - The EPD's CoP recommends a surveillance scheme of re-inspection once every two years. Whilst suitable for visible ACMs, this may have to be tailored to the longer, or shorter electrical inspection periods required for various plant which has internal ACM components. The RAC should establish a surveillance scheme with the Employer that meets these constraints.
 - Introduction of any materials containing asbestos into premises is now totally banned in Hong Kong. This specifically applies to introduction of plant from countries that may still be using asbestos in the manufacture of their products. 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

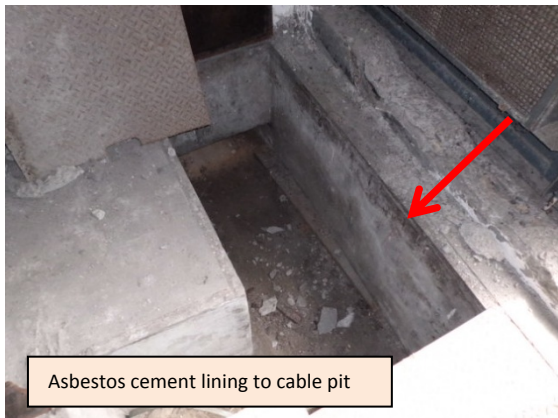
not be reliable – depending on the country of manufacture – and bulk sampling and analysis is recommended in case of doubt. The O&MP should contain a specific section on maintenance procedures which describes the procedures for vetting new plant installation and maintenance materials. This will require discussion with the Employer to look at their supply chains, sub-contractors employed etc., to make sure that all parties are included in preventing re-introduction of ACMs during regular maintenance.

- Electrical contractors may have to be part of the emergency response team to assist in remedial actions for disturbed and damaged ACMs. Their safety procedures for shut down and isolation of plant should be incorporated into the method statements for likely emergency action, and they should be included in training drills for use of personal protective equipment and ACM cleanup.

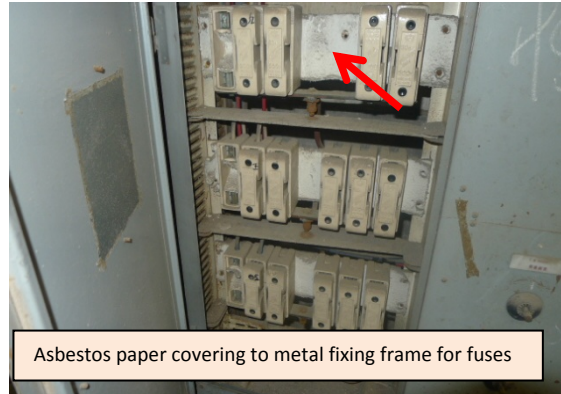
Appendix A:

Photographs of typical ACMs in Transformer Rooms and Substations





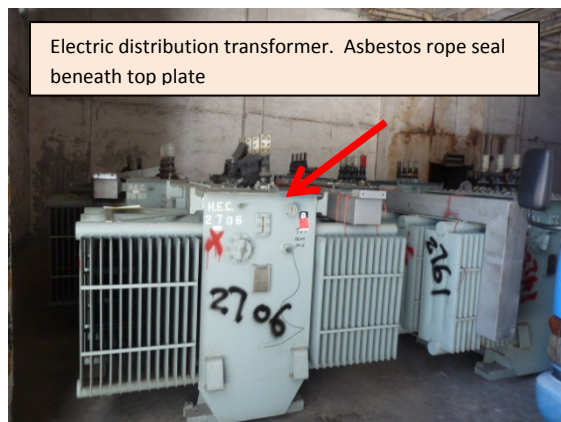
Asbestos cement lining to cable pit



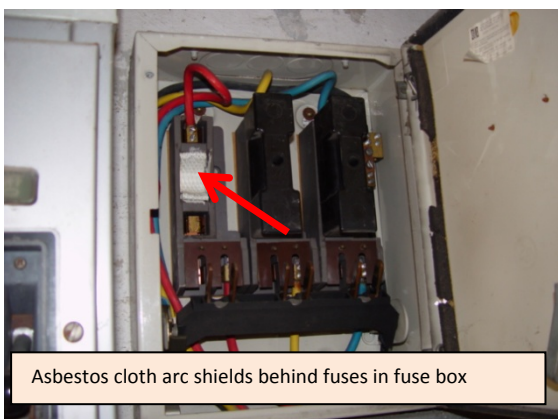
Asbestos paper covering to metal fixing frame for fuses



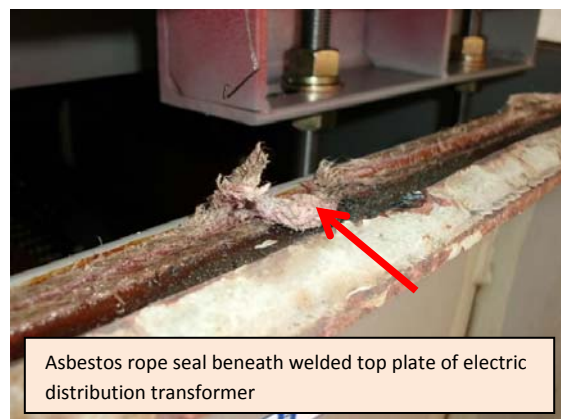
Asbestos cloth flexible joints and flange gaskets to Ventilation trunking



Electric distribution transformer. Asbestos rope seal beneath top plate



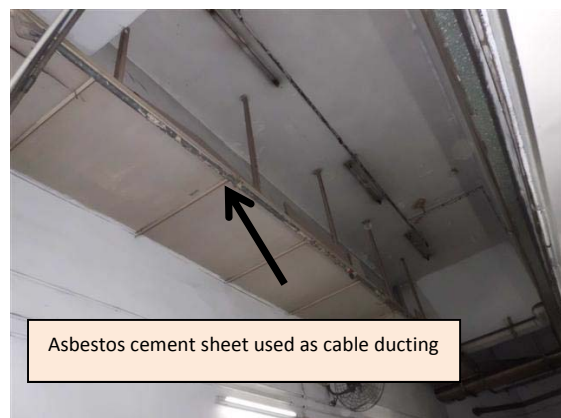
Asbestos cloth arc shields behind fuses in fuse box



Asbestos rope seal beneath welded top plate of electric distribution transformer

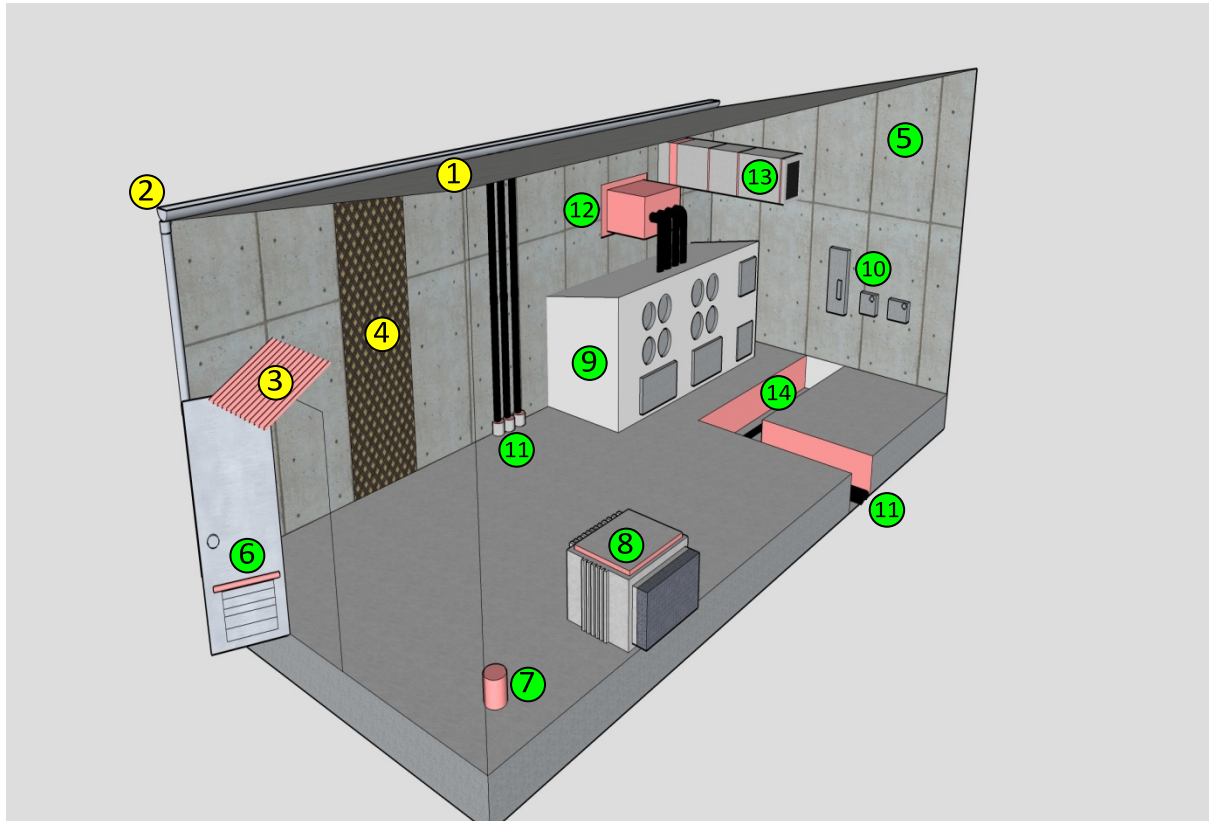


Asbestos cement arc chute boxes inside drawout type circuit breaker of main switch board



Asbestos cement sheet used as cable ducting

Appendix B: Illustration of typical ACM occurrences



- ① Asbestos roof tiles and asbestos bituminous roof coverings
- ② Asbestos cement rainwater gutters and drain pipes
- ③ Corrugated asbestos cement canopy and roof sheeting
- ④ Asbestos wall grille panels
- ⑤ Asbestos sprayed coatings to walls, ceilings and support beams
- ⑥ Asbestos cloth blankets to door and wall louvre panels
- ⑦ Asbestos cloth fire blanket
- ⑧ Asbestos rope and gaskets inside electrical distribution transformer
- ⑨ Asbestos arc chutes, gaskets, linings, divider boards and wiring coatings to control units
- ⑩ Asbestos containing fuse boxes and backing boards
- ⑪ Asbestos packing to cable sleeves and asbestos coating to cables
- ⑫ Asbestos sheet boxing to bus bar or cable trays and wall sheet/packing around cable entry/exits
- ⑬ Asbestos cloth flange gaskets and flexible joints to ventilation extract and A/C systems
- ⑭ Asbestos cement sheet lining to cable pits and other floor ducts

Another useful reference is the drawings contained in CLP Hong Kong Code of Practice 101 'Distribution Substation Design' which is available online.

Appendix C: Checklist for Site Investigation

Item	✓ or X	Actions required
Initial Site Assessment		
Is site safe for access?		
Is liaison required with Utility Companies?		
Are registered electrical workers required and arrangements for plant shut down necessary?		
Are special access provisions necessary – eg. inert gas system shut-down, supply of work platform?		
Has risk assessment for electrocution and trip/fall hazards been made and remedial action done?		
Is Utility-owned plant already ACM labelled? Is there still a requirement for inspection?		
Have permits to work been arranged?		
Asbestos investigation		
Identify visible ACMs. Refer to associated ACMs in the ACM Identification & Abatement Library. List their type and quantity / condition / location.		
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		
Record details for AAP preparation		
Are phases of work zones required? Detail work sequence. Is isolation/dismantling plant required?		
Record all site safety requirements if working in an operating site. List protective measures necessary.		
Are measures necessary to prevent disturbance of ACMs by other parties prior to start of abatement?		
Assess practicality of work zone erection and ACM abatement from plant. Are there constraints?		
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		
Assess availability of water and electricity for the contractor. Review waste water disposal.		
Record air monitoring locations for reassurance, leak and clearance air tests		