香 港 建 造 商 會

Hong Kong Construction Association

環保工地座談培訓講義

ENVIRONMENTAL TOOLBOX TRAINING KIT

空氣質素 AIR QUALITY

噪音 NOISE

水質 WATER QUALITY

廢物管理 WASTE MANAGEMENT

ENGLISH VERSION

製作日期： 2019 年 8 月
Production Date： August 2019

ENVIRONMENTAL TOOLBOX TRAINING KIT

INTRODUCTION

Environmental protection is normally referred to in construction contracts as a general obligations placed upon the Contractor by a reference in the contract to the requirements of the law. In order to meet the obligations, the Contractor is deemed to have identified and taken all necessary precautions to protect the environment that may be affected by the contractor's work on site. In the context, the Contractor is responsible to provide adequate environmental training to all persons directly employed on the works, and the training should be organized in such a way that it will not directly affect the normal progress of work on site. As part of the environmental training scheme, toolbox talks are thereby to be provided to the workers to reinforce their environmental protection knowledge. For this reason, the Hong Kong Construction Association (HKCA) has taken the initiative to develop this concise and user-friendly training kit to serve as handy references to help to equip Contractors and their site management teams to run effective environmental toolbox training.

The training kit is designed as a practical training toolbox kit for the construction industry. It provides practical measures for every step of construction operations to minimize nuisances and impacts to the environment. By drawing on past good and bad practices, the kit provides a basic framework for those who have direct influence over environmental performance with some useful pointers for continuous improvement.

The training kit is divided into two sections to enable readers to quickly refer to specific topics. Subsections within each provide specific guidelines for the related construction operations. The major sections include:

i) General construction works

General construction related environmental nuisances, including dust, noise, wastewater, waste, chemical waste and trees preservations are discussed. Recommendations of mitigation measures to handle various

environmental nuisances are also provided.

ii) Activity-oriented topic

Mitigation measures to tackle specific construction operations, such as ground investigation, blasting, scaffolding, percussive pilling etc, are addressed.

ACKNOWLEDGEMENTS

The preparation of this training kit has been placed under the stewardship of HKCA Environmental Committee.

The HKCA Environmental Committee would like to record acknowledgements and thanks to the following contractors (in alphabetical order) of their contribution and support to the Book:

- China State Construction Engineering (Hong Kong) Ltd. 中國建築工程（香港）有限公司
- Cheung Kee Fung Cheung Construction Co Ltd. 祥記馮祥建築有限公司
- Dragages Hong Kong Ltd. 香港寶嘉建築有限公司
- Gammon Construction Ltd. 金門建築有限公司
- Lam Geotechnics Ltd. 華益土力有限公司
- Penta-Ocean Construction Co Ltd. 五洋建設株式會社
- Sanfield Building Contractors Ltd. 新輝建築有限公司
- Shui On Construction Co Ltd. 瑞安建築有限公司
- Tysan Foundation Ltd. 泰昇地基工程有限公司
- Vibro (H.K.) Ltd. 惠保(香港)有限公司

USER GUIDE

Target of the training kit

This training kit targets at site construction personnel who are responsible for organizing and conducting environmental toolbox talk to the workers involved in the construction project.

Organization and conduct of toolbox talks

Environmental protection is everyone's responsibility on construction site. All persons directly employed on site, particularly the front-line workers, should be adequately trained with the toolbox talks. Site management should organize and conduct training sessions according to the needs of the project. An initial guidance on relevant topics applicable to different trades can be referred in the matrix in Page iv.

Track of record

Contractors should maintain the toolbox talk training record of the workers, which serves as a basis for assessing and evaluating the workers understanding of the environmental requirements in carrying out their duties.

Initial guide on relevant topics for different trades

Activities / Trade	General Construction Works											Activity-oriented Topic																							
	Construction Dust, Air Emission and Suppression	Construction Noise	Wastewater Handling, Discharge and Treatment Facilities	Waste Collection, Handling and Disposal	Handling and Storage of Chemicals / Chemical Waste and Handling of Chemical Spillage	Site Plant and Machinery (Operation and Maintenance)	Maintenance of Site Access, Site Boundary and Haul Roads	Breaking, Drilling, Cutting and Polishing	Loading, Unloading and Transfer of Material	Stockpiling	Housekeeing & Final Cleaning	Ground Investigation	Site Clearance	Formwork and Falsework	Building Demolition	Excavation	Backfilling, Deposition and Compaction of Fill Material	Scaffolding	Slope Stablization	Percussive Piling	Bored Piling	Mini Piling, Sheet Piling, H-pile and Socket H-pile	Metal Works	Concreting	Grouting	Cement Debagging and Mixing	Road Maintance	Marine Construction	Plastering and Painting	Fixing / Fixture & Glazing Installation	Environmental Abatement Facilities	Land Contamination	Protection and Preservation of Trees	Addition and Alternation
1 Ground Investigation		x	x		x	x					x	x													x						x		x	
2 Building Demolition	x	x		x		x	x	x	x	x	x			x	x			x													x	x		
3 Site Clearance	x	x	x	x		x	x		x	x	x		x			x															x	x	x	
4 Site Formation	x	x	x	x		x	x	x	x	x	x					x	x	x	x							x					x	x	x	
5 Foundation		x	x	x	x	x	x	x	x	x	x					x				x	x	x	x	x	x	x					x	x	x	
6 Steel Reinforcement		x		x							x												x											
7 Structural Steelwork		x	x	x							x												x											
8 Finishes to Concrete	x	x		x				x			x																				x			
9 Drainage Works	x	x	x	x	x	x			x	x	x			x		x								x		x					x		x	
10 Plumbing and other E&M		x		x				x	x	x																x								x
11 Concrete Work	x	x	x	x	x	x	x							x										x		x					x			x
12 Scaffolding	x	x		x														x																x
13 Brickwork, Blockwork & Masonry	x	x		x				x	x	x	x															x					x			x
14 Roofing and Waterproofing	x			x	x				x	x																	x				x			
15 Carpentry and Joinery	x	x		x	x				x	x																								
17 Metalworks	x			x	x				x	x													x								x			x
18 Architectural Finishes	x			x	x					x	x															x			x		x			x
19 Road Works	x	x		x	x	x																					x				x	x		
20 E&M Testing	x	x	x		x						x																							x
21 Marine Works		x	x		x																							x				x		
22 Tunneling Works	x	x	x	x	x		x		x	x						x															x	x		
23 Fixing / Fixture & Glazing Installation				x							x																			x				x

COPYRIGHT AND DISCLAIMER NOTICES

Every effort has been made to ensure the completion and reliability of the information provided on this publication. Nevertheless, the HKCA make no statement, representation, warranty or guarantee that the information in this publication is accurate, complete or appropriate for use in any particular circumstances. The HKCA reserves the right to make any changes and modifications to the materials from this publication.

All information in this training kit is written in good faith to provide guidance only. The fulfillment of the information in this training kit does not exempt the legal responsibility of contractors. HKCA can accept no responsibility for any claims, losses, expenses or complaints arising out of its use.

CONTENTS

General construction works

Activity-oriented topic

31. Environmental Abatement Facilities
32. Land Contamination
33. Protection and Preservation of Trees
34. Addition and Alternation

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

CONSTRUCTION DUST AND SUPPRESSION

Background Information:

Construction dust is governed by Air Pollution Control (Construction Dust) Regulation, Cap 311R. It requires the relevant contractor to adopt effective dust control measures. Through planning and implementation of appropriate construction dust control measure, deterioration of air quality by construction work could be mitigated. The regulation helps to safeguard the air quality from adversely affecting the health of personnel working on site, also safeguard air quality for sensitive receivers and the overall public.

Potential air quality impact could arise from construction includes emission from Non-Road Mobile Machinery (NRMM). NRMM includes a wide range of mobile machines or vehicles powered by internal combustion engines used primarily off-road.

Handling of dusty material is another major causes of air pollution impact arising from construction. Dusty material includes cement, earth, pulverized fuel ash, aggregates, silts, stonefines, sand, debris, sawdust and wooden chips. Mishandling of dusty material or emission from NRMM without regulation can cause environmental pollution, nuisance and adverse health effects.

Workers commonly misunderstand that water spraying for stockpile of dusty materials or unpaved haul road is the only mitigation measure for dust suppression. However water spraying may not be applicable or the most effective control measure in some occasions. Other measures including covering stockpile with impervious sheeting or hard core paving for haul road or access can be more efficient for long term control.

Any person who violates the Air Pollution Control (Construction Dust) Regulation may be prosecuted. The contractor responsible for a construction site where a regulatory work is being carried out should ensure that the work is carried out in accordance with the Schedule of the Air Pollution Control

(Construction Dust) Regulation. Any person who contravenes this requirement commits an offence and is liable to a fine at level 4 on conviction for a first offence and to a fine at level 5 on conviction for a second or subsequent offence, and in addition, if the offence is a continuing offence, to a fine of $5000 for each day during the whole or any part of which the offence continues.

Required Measures:

(i) Properly operate and maintain any air pollution control system, equipment or measures. (e.g. dust collector system for drill rig)

(ii) In the event of a malfunctioning or breakdown of any air pollution control system or equipment, stop the plant, process or activity concerned as soon as practicable until such time as the air pollution control system or equipment is restored to proper functioning.

(iii) Except for cleaning formwork or other surfaces receiving concrete prior to concreting or cleaning of slopes prior to shotcreting, do not used a compressed air jet for cleaning or clearing dust from any vehicle, equipment, other materials or person.

(iv) Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point.

(v) The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.

(vi) Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit.

(vii) Every main haul road should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet.

(viii) The portion of any road leading only to a construction site that is within 30 m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials.

(ix) Every stock of more than 20 bags of cement or dry pulverized fuel ash should be covered entirely by impervious sheeting or placed in an area

sheltered on the top and the 3 sides.

(x) Cement or dry pulverized fuel ash delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line such that, in the event of the silo approaching an overfilling condition, an audible alarm is triggered and the material filling stops within one minute.

(xi) Silos used for the storage of cement or dry pulverized fuel ash should not be overfilled.

(xii) Bulk cement or dry pulverized fuel ash; or any cement or dry pulverized fuel ash during or after the de-bagging process, should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system or equipment.

(xiii) Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.

(xiv) Cement, pulverized fuel ash or any other dusty materials collected by fabric filters or other air pollution control system or equipment should be disposed of in totally enclosed containers.

(xv) Any stockpile of dusty materials should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.

(xvi) Except for cement and pulverized fuel ash and for cases where the moisture content of the dusty materials is a matter of concern, all dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.

(xvii) Every belt conveyor used for the transfer of dusty materials should be enclosed on the top and the 2 sides.

(xviii) Every transfer point between any 2 belt conveyors should be totally enclosed.

(xix) An effective belt scraper or equivalent device should be installed at the head pulley of every belt conveyor to dislodge fine particles that may

adhere to the belt surface and to reduce carry-back of fine particles on the return belt, and the belt scraper or equivalent device should be equipped with bottom plates or other similar means to prevent falling of materials from the return belt.

(xx) Every stockpiling belt conveyor should be provided with a mechanism to adjust its level such that the vertical distance between the belt conveyor outlet and the material landing point is maintained at not more than 1 m.

(xxi) The area for the unloading of dusty materials from a belt conveyor outlet to any stockpile, storage bin, truck and barge should be enclosed on the top and the 3 sides.

(xxii) Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.

(xxiii) Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.

(xxiv) Water or a dust suppression chemical should be continuously sprayed on the surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation that causes dust emission is carried out, unless the process is accompanied by the operation of an effective dust extraction and filtering device.

(xxv) Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the 3 sides.

(xxvi) Every debris chute should be enclosed by impervious sheeting or similar materials.

(xxvii) Before debris is dumped into a debris chute, it should be sprayed with water or a dust suppression chemical so that it remains wet when it is dumped.

(xxviii) The working area of any excavation or earth moving operation should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet.

(xxix) For production of concrete or any other substances using bagged cement or dry pulverized fuel ash in a standard bag (not exceeding 50 kg), the de-bagging, batching and mixing processes should be carried out in an area sheltered on the top and the 3 sides.

(xxx) The working area for the uprooting of trees, shrubs, or vegetation or for

the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet.

(xxxi) All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition.

(xxxii) The areas within 30 m from the blasting area should be wetted with water prior to blasting.

(xxxiii) Blasting should not be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted unless prior permission of the Commissioner of Mines is obtained.

Dos & Don'ts – Reminder for Workers:

Some common good and malpractices that attention should be paid to:

- Keep sufficient stock of impervious sheeting for covering stockpiles of dusty materials or more than 20 bags of cement or dry pulverized fuel.

- Spray unpaved haul road, dusty stockpile or dusty operation with water.


- Practice proper wheel washing of vehicles before leaving the site.


- Cover the transported dusty material entirely before leaving the site.


- Carry out the de-bagging, batching and mixing processes in an area sheltered on top and the 3 sides.


- Do not use a compressed air jet for cleaning or clearing dust from any vehicle, equipment, other materials or person, except for cleaning formwork or other surfaces receiving concrete prior to concreting or cleaning of slopes prior to shotcreting.
- Provide dust screens to enclose the scaffolding of the building.

- Enclose debris chute and collection chamber by dust screen.

- Enclose material hoist by dust screen.

- Spray debris with water before it is dumped into a debris chute.
- Spray the surface of facade with water before and during grinding work.
- Equip vacuum cleaner on grinder for facade grinding work.

- Fit non-road mobile machinery (NRMMs) with valid approval/exemption label during operation.

機械種類 Machine Type :

機械商業名稱及型號 Machine Trade Name & Model :

機械序號 Machine Serial Number :

引擎廠名及型號 Engine Make & Model :

EPD-A-12Z45-20X1

根據《空氣污染管制(非道路移動機械)(排放)規例》給予的核准

Approval given under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation

Example of Approval label

Example of Exemption label

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

CONSTRUCTION NOISE

Background Information:

Different people may respond differently to the same level of noise. Noise above certain level can lead to hearing loss, mental stress and irritation. Noise control measures for construction mitigate potential noise nuisance and prevent adverse health effects.

Noise from construction site is governed by Sections 6 to 8 and 8A of Noise Control Ordinance (NCO). It stated that construction activities are classified in two categories (i.e. general construction work and percussive piling) and are controlled by Construction Noise Permits (CNP) system, as described below:

1. General construction work
    - Works using powered mechanical equipment (PME) during restricted hours (i.e. between 7 p.m. - 7 a.m. on weekdays or at any time on a general holiday) require a valid CNP
    - Use of specified powered mechanical equipment (SPME) (e.g. hand-held breakers and dump truck) and/or carrying out Prescribed Construction Work (PCW) (e.g. erection or dismantling of formwork and hammering) in Designated Areas (densely populated built up areas as defined under NCO) during restricted hours require a valid CNP with more stringent control

2. Percussive piling
    - Percussive pilling operation is prohibited during restricted hours
    - A valid CNP is required for percussive piling operation during the permitted hours (i.e. 7 a.m. - 7 p.m. on weekdays not being a general holiday)
    - Workers commonly misunderstand that any construction activities can be carried out at any construction site between 7 a.m. – 7 p.m. on weekdays not being a general holiday.

Any person who violates the NCO may be prosecuted and liable to penalty of a maximum fine of $100,000 for first-time offenders and a maximum fine of $200,000 on second or subsequent convictions.

Required Measures:

(i) Work should be carried out according to valid CNP requirement (Use approved type & number of PME, work in specified location and follow all additional requirements specified in the CNP).
(ii) Correct instruction should be followed when operating PME to minimize noise.
(iii) Non-percussive and quiet powered mechanical equipment should be used if appropriate.
(iv) Noise dampening and sound insulating material on PME should be used if appropriate.
(v) Noise barriers / screens for noisy activities should be provided.
(vi) Air compressor / hand held percussive breaker should be used with noise emission label.
(vii) Unnecessary noise should be avoided when working in construction site near residential buildings during sensitive hours to minimize complaint.
(viii) Any unnecessary PME that is not in use should be turned off to minimize noise.

Dos & Don'ts - Reminder for Workers:

Some common good and malpractices that attention should be paid to:

- Use non-percussive pile driving methods such as hydraulic hammer, vibration or jacking method for installing or extracting sheet piles.

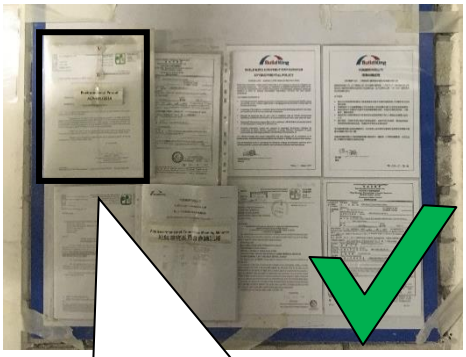
- Use non-percussive equipment such as hydraulic crusher, sawing, coring machines etc. for demolition and concrete breaking work.

- Close all hoods, cover panels and inspection hatches of PME during operation.

- Fit mufflers or silencers, and dampening layer with steel collars to hand held pneumatic breakers.
- Enclose/wrap the breaker tip with sound insulating material where percussive breakers are used.

- Provide noise barriers / screens for noisy activities.

- Ensure valid CNP covers all PME for works during restricted hours and posts at the site entrance.



FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. .....
To : .....

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

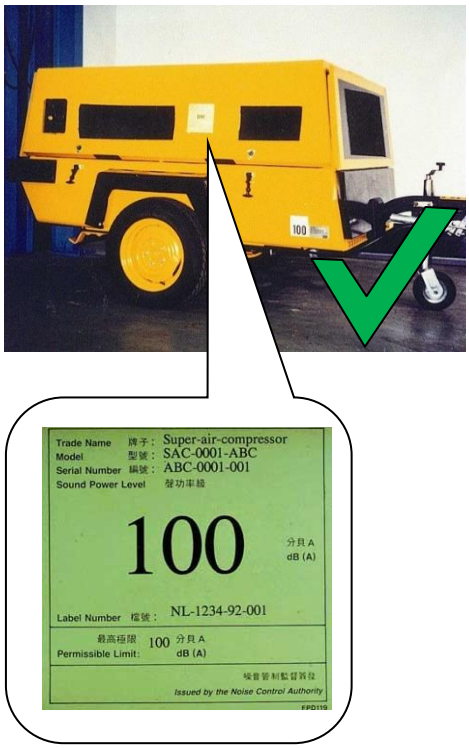
CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :
   Full address : .....
   ..... Lot No. : ———
   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.
2. *PART/~~WHOLE~~ of the site falls *WITHIN/~~OUTSIDE~~ a designated area.
3. Powered Mechanical Equipment
   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of Powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*

- Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.

- Affix Noise Emission Label (NEL) to handheld breaker and air compressor.



ENVIRONMENTAL TOOLBOX TRAINING KIT

WASTEWATER HANDLING, DISCHARGE AND TREATMENT FACILITIES

Background Information:

Effluent discharged to stormwater drain is governed by Water Pollution Control Ordinance (WPCO), Cap. 358. A licence granted under the WPCO should be obtained before a new discharge is commenced. Both the Main Contractor and the Sub-contractor can apply for a discharge license. According to S.19 of the WPCO, either the person who makes or authorizes the discharge; or the owner or occupier of the premises from which the discharge is made, can apply for the license. It should be noted however that even if the sub-contractor is the licensee, the Main Contractor cannot evade their legal liability for causing an illegal discharge, if any, as they have overall control over the site. As a best practice, Main Contractor should apply for WPCO licence for all the works and areas under his control. Discharging wastewater from construction activities into sewers or elsewhere should comply with the terms and conditions of a license issued by the EPD.

Workers commonly have not ever been noticed or misunderstand the requirement of the wastewater discharge license and discharge polluted water into sewers without any desilting treatment. However, discharging polluted water can contaminate marine water quality in which bacteria, excessive nutrients, toxic chemicals and other pollutants can make swimmers sick, contaminate or kill marine life, and give off malodor. Operating on-site wastewater treatment facility is one of the major control measures to mitigate potential water pollution impacts. Wastewater treatment facility includes an Imhoff tank, a septic tank, a cesspit and a soak-away pit which intended to bring about a change in the physical, chemical or biological characteristics of the wastewater.

Any person who violates the WPCO may be prosecuted. For example, it is an offence to make a discharge in breach of the conditions specified in the license. The maximum penalty is $200,000 for the first offence and $400,000 for any subsequent offence plus an additional $10,000 per day for a continuing offence.

In addition, the person who commits an offence may be liable to imprisonment for 6 months.

Required Measures:

(i) WPCO license should be applied from the EPD before discharging effluent from construction site.
(ii) Wastewater treatment facilities should be deployed on site treating wastewater to meet the conditions of WPCO license prior to discharging.
(iii) Drainage system and discharge point should be protected to avoid blockage.
(iv) Regular self-monitoring checks should be conducted to ensure the quality of the effluent discharged meet the prescribed standard.

Dos & Don'ts – Reminder for workers:

Some common good and malpractices that attention should be paid to:

- Provide bunding / channel to divert site runoff and wastewater to wastewater treatment facility.

- Provide perimeter channels or bunding at site boundaries to intercept surface runoff from leaking out of the site.

- Treat wastewater from all sources, e.g. groundwater, plastering, concreting etc. by proper wastewater treatment facilities before discharging.

- Provide bunding or geotextile for gullies to prevent discharging surface runoff without desilting.

- Provide de-water and proper treatment to the sludge arising from the wastewater treatment facilities.

ENVIRONMENTAL TOOLBOX TRAINING KIT

WASTE COLLECTION, HANDLING AND DISPOSAL

Background information:

Waste Disposal Ordinance (WDO) (Cap. 354) provides for legislative control on the licensing of collection services and disposal facilities for all types of waste, the control scheme on handling and disposal of waste including construction waste and chemical waste, the control on illegal dumping of waste, the control on import and export of waste, the Construction Waste Disposal Charging Scheme etc. Under the WDO, Cap. 354, it is prohibited to dump waste in public places or on Government land, or on private premises without the consent of the owner or occupier.

There are some malpractices that were observed more commonly than the other, such as curb land filling and fly-tipping activities rather than disposing construction waste at designated waste facilities and poor waste segregation on site etc.

On the other hand, pursuant to the Construction Waste Disposal Charging Scheme launched in 2005 under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N), every construction waste load needs to be delivered with a “CHIT”. CHITs are used for the purpose of enforcing waste disposal charges in respect of disposal at public fill reception facilities, sorting facilities, outlying island transfer facilities and landfills (Development Bureau, 2010).

Any person who violates the WDO may be prosecuted. For example, any person who, without lawful authority or excuse, or permission of any owner or lawful occupier of the place, deposits or causes or permits to be deposited any waste in any place. Any person who commits the offence could be liable to a maximum fine of $200,000 and 6 months imprisonment.

Required Measures:

(i) Inert materials (e.g. broken concrete and brick) and non-inert C&D wastes (e.g. waste timber and bamboo) should be handled and stored separately to avoid mixing the two types of materials; Different types of construction waste generated from the site should be segregated, stored, transported and disposed of separately in accordance with EPD's required procedures. It is important that the sorting of wastes should be done on-site. All waste materials should be segregated into categories covering:

- excavated material or construction waste suitable for reuse on-site;
- inert waste/material suitable for reclamation or public filling areas;
- good rock suitable for recycling;
- remaining non-inert waste for landfill;
- chemical waste; and
- general refuse.

(ii) Different types of waste should be segregated and stored in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.

(iii) Appropriate measures should be carried out to minimize windblown dust during transportation of waste by either covering trucks by tarpaulin/ similar material or by transporting wastes in enclosed containers. The cover should be extended over the edges of the sides and tailboards.

(iv) Stockpiles of C&D materials should be kept covered by impervious sheeting to avoid windblown dust.

(v) Temporary stockpiling areas should be provided to facilitate on-site reuse of inert C&D materials.

(vi) General refuse should be stored in enclosed bins or compaction unit separation from inert C&D material.

(vii) Sufficient waste disposal points and regular collection for disposal should be provided.

(viii) Construction waste transfer should be monitored and a trip ticket system should be implemented.

Dos & Don'ts - Reminder for workers:

Some common good and malpractices that attention should be paid to:

- Provide suitable storage areas for sorting of inert and non-inert waste. Sort and separate by waste type such as metal, bricks and wood, to facilitate further processing.

- Conduct waste sorting on site for reuse and recycling.

- Properly segregate and store C&D waste generated from the site.




- Dispose of the collected general refuse in garbage skip or bin regularly. Proper collection of site wastes is required to prevent waste materials being blown around by wind, flushed or leached into the environment, or creating an odour nuisance or pest and vermin problem.


- Collect other wastes at designated locations for subsequent disposal.


- Avoid keeping the garbage skip out of the construction area. Disposal of refuse at sites other than approved waste transfer or disposal facilities should be prohibited.


香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

HANDLING AND STORAGE OF CHEMICALS / CHEMICAL WASTES AND HANDLING OF CHEMICAL SPILLAGE

Background Information:

The Waste Disposal Ordinance (WDO) (Cap 354) enacted in 1980 is the principal law for the environmentally sound management of waste collection and disposal. It controls the handling and disposal of livestock waste and chemical waste, the import and export of wastes (including the implementation of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal) and the licensing of waste collection services and waste disposal facilities. Its subsidiary legislation, the Waste Disposal (Chemical Waste) (General) Regulation (Cap 354C), controls, through licensing requirements, the packaging, labelling, storage, collection and disposal (including treatment, reprocessing and recycling) of chemical waste, and the registration of chemical waste producers. Chemical waste is defined under Cap 354C in a schedule of specific substances and chemicals based on their potential risks to human health and/or pollution to the environment. Common chemical wastes generated in construction site include lubrication oil, thinner and paint. Chemical waste should not be mixed with household waste, nor delivered to the refuse collection points nor public dumping areas. It is noteworthy that where chemical waste is to be removed or transported from the site or premises where it is produced, stored or located, a waste producer or any person authorized on that behalf by the waste producer should engage the services of a waste collector.

On the other hand, Waste Disposal (Charges for Disposal of Chemical Waste) Regulation (Cap 354J) requires payment of charges for disposal of chemical waste at the Chemical Waste Treatment Centre thus creating an economic incentive towards waste minimization.

Common malpractice includes improper label affixed on the chemical waste container; inappropriate design of chemical waste storage area; material that is used to clean up spillages of contaminating material disposed as general waste.

Any person who violates the WDO may be prosecuted. For example, a waste producer who fails to comply requirement for labelling of the chemical waste container could be liable to a maximum fine of $50,000 and 6 months imprisonment.

Required Measures:

(i) Registration as a Chemical Waste Producer is required for construction sites producing chemical wastes

Environmental Protection Department
環 境 保 護 署

Waste Disposal Ordinance (Chapter 354)
香港法例第 354 章廢物處置條例
Waste Disposal (Chemical Waste)(General)Regulation
廢物處置 (化學廢物) (一般)規例
Application for Registration as a Chemical Waste Producer
化學廢物產生者登記申請表

A. Chemical Waste Producer 化學廢物產生者	Name of Applicant (English) (Chinese) (申請人或機構名稱) : (英 文) _____ (中 文) _____ Business Reg. Cert. No. (if any) (商 業 登 記 證 編 號) : (如 有 者) _____ I.D. Card No. (For application made by an individual only) (身分證編號) : (倘 由 個 人 申 請) _____ Address for Correspondence (通 訊 地 址) : _____ _____ Tel. No. Fax No. (電 話) : _____ (圖文傳真) : _____

Chemical waste producer registration form is available at online: www.epd.gov.hk/epd/sites/default/files/epd/tc_chi/application_for_licences/applic_froms/files/epd129.pdf

A waste producer should ensure that any chemical waste produced or caused to be produced by him or in his possession or custody is stored in containers which should be designed so as to be and constructed out of material which is suitable, having regard to the nature of; and resistant to corrosion or any other damage that can be caused by the, chemical waste to be stored in it; and maintained in good condition and repair and free from corrosion, contamination or any other defect which may impair its performance.

(ii) A waste producer should ensure that:

- chemical waste is not packed or stored in a manner that may render the handling of the container in which it is packed or stored unsafe or affect the effectiveness of the container;
- any container in which chemical waste is packed or stored is properly and securely closed and sealed;
- no chemical waste adheres to the external surface of the container;
- chemical waste generated from different sources or different types of chemical wastes which in the event of contact with one another are likely to produce consequences dangerous to the health or safety of any person, are not mixed, packed or stored together in a container; and
- where a container is used for the storage of liquid chemical waste, sufficient ullage is allowed so that no leakage from or permanent distortion of the container occurs as a result of the expansion of the liquid due to changes of temperature or any other condition which is likely to occur in the storage, handling or transport of chemical waste.

(iii) All chemical waste should be stored at a designated chemical storage area. General chemical waste storage requirements are:

- not be used for any purpose other than the storage of chemical waste;
- be enclosed on at least 3 sides by a wall, partition or fence with a height of not less than 2 metres or the total height of containers in stack, whichever is less.
- have adequate ventilation to prevent the formation of any dangerous or harmful concentration of vapour in the event of spillage or leakage;
- not have any connection to any surface water drains or foul sewers;
- have adequate space for the handling of the containers;
- where the storage area is located inside a multi-storey building, be so located as not to obstruct or in any way prejudice the use of any means of escape or exit from the building;
- where the storage area is not within a building, be provided with a roof or a similar covering; and
- be kept clean and dry.

(iv) Requirements for chemical waste storage in the working or processing area are:

- the quantity of chemical waste stored in a single working or processing area does not exceed 50 litres; the chemical waste so stored is packed or stored in containers and labelled as required by the legislation;
- the containers referred to in paragraph are kept in a cupboard, cabinet or receptacle which is safe and suitable having regard to the nature of the chemical waste; and
- in the case of different chemical wastes which are likely in the event of contact with one another to produce consequences dangerous to the health or safety of any person are stored, that they are separated inside the cupboard, cabinet or receptacle, as the case may be, by an impermeable partition.

(v) Warning panel

- indicate in bold legible red English words and Chinese characters not less than 6 cm in height on a white background "CHEMICAL WASTE 化學廢物";
- be securely attached to or marked, as the case may be, on a vertical plane of the storage structure;
- be durable, weather resistant and rigid or attached so as to be rigid; and
- be kept clean and free from obstruction.

(vi) A waste producer should ensure that any area in which containers of chemical waste in liquid form are stored-

- has an impermeable floor or surface;
- has a retention structure with the capacity to accommodate-
- the contents of the largest container; or 20% by volume of the chemical waste, stored in that area, whichever is the greater; and
- where such containers are stacked, is enclosed by walls or partitions constructed out of an impermeable material.

(vii) A waste producer should ensure that-

- any container with chemical waste is not stored with other wastes,

whether chemical or otherwise, if it is likely that there will be dangerous consequences to the health or safety of any person in the event of its contact with such other wastes;

- any stacks of containers of chemical waste are made secure so as to prevent their falling down.

(viii) Containers which contain residues of chemical waste and have not been cleaned, should be handled in the same manner as filled containers.

(ix) A licensed waste collector should be engaged to remove, transport or collect the chemical waste.

A list of licensed chemical waste collector is available at:
https://cd.epic.epd.gov.hk/EPICDI/chemicalwaste/download/?lang=en

(x) Written procedures should be prepared and made available to be observed in the event of emergencies due to spillage, leakage or accidents arising in the course of or from the handling and the storage of chemical waste; and ensure that his employees or agents have received adequate instructions and training for implementing such procedures.

Dos & Don'ts – Reminder for Workers:

Some common good and malpractices that attention should be paid to:

- Provide compatible secondary container or drip trays for chemicals containers.


- Ensure that designated chemical storage and chemical waste container be enclosed on at least 3 sides by a wall, partition or fence with a height of not less than 2 metres or the total height of containers in stack, whichever is less.



- Securely attach a warning panel to or mark on a vertical plane of the chemical storage structure.

- Ensure that any area in which containers of chemical waste in liquid form are stored has an impermeable floor or surface and has a retention structure with adequate capacity to accommodate the contents of the largest container; or 20% by volume of the chemical waste, stored in that area, whichever is the greater; and properly label all chemical waste container.

- Prepare written procedures and made available to be observed in the event of emergencies due to spillage, leakage or accidents arising in the course of or from the handling and the storage of chemical waste; and ensure that employees or agents have received adequate instructions and training for implementing such procedures.

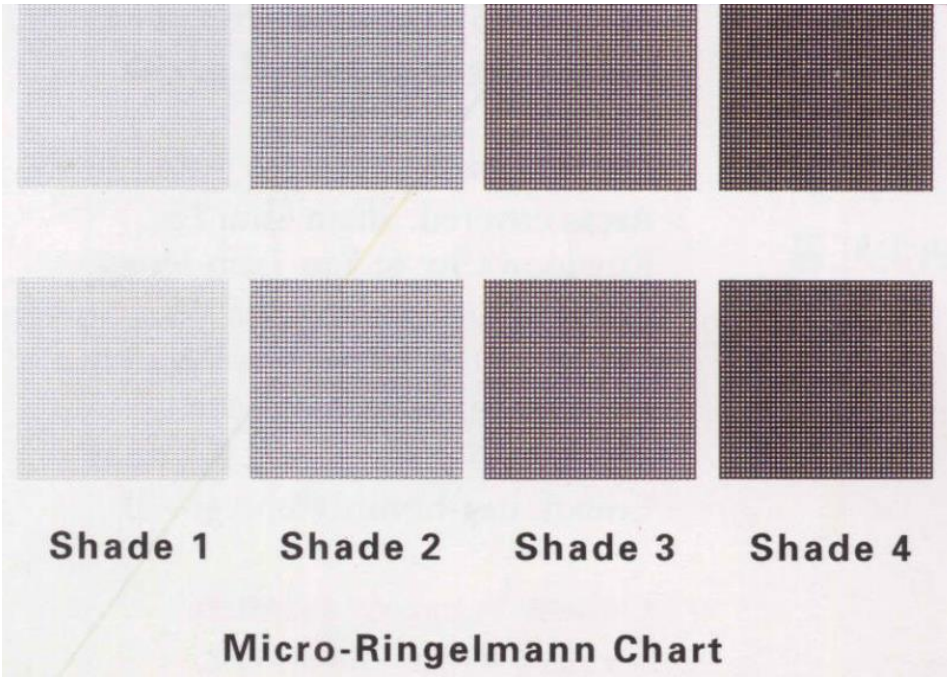
ENVIRONMENTAL TOOLBOX TRAINING KIT

SITE PLANT AND MACHINERY (OPERATION AND MAINTENANCE)

Background Information:

Site plant and machinery are essential for carrying out construction works. Machines which lacking regular maintenance may emit dark smoke or leak fuels which cause air pollution and soil / water contamination.

According to Air Pollution Control (Smoke) Regulations, “Dark smoke” means smoke which, if compared in the appropriate manner with the Ringelmann Chart or an approved device, would appear to be as dark as or darker than shade 1 on the Ringelmann Chart.



Under the regulation, anyone who is responsible for the operation of any plant that dark smoke emission exceeds either 6 minutes in any period of 4 hours or 3 minutes continuously at any one time commits an offence. The person convicted is liable to a fine of $20,000, for repeated offenders, 3 months' imprisonment, and an additional fine of $100 for every one quarter of an hour during the whole or any part of which such offence is knowingly and willfully continued.

Air Pollution Control Measures:

(i) Trial run the plant or machinery to check whether dark smoke is emitted and / or any oil leakage.

(ii) Do not use the plant or machinery if it is continuously emitting dark smoke during operation.

(iii) Fit non-road mobile machinery (NRMMs) with valid approval/exemption label during operation.

機械種類 Machine Type:
機械商業名稱及型號 Machine Trade Name & Model:
機械序號 Machine Serial Number:
引擎廠名及型號 Engine Make & Model:
EPD-A-12Z45-20X1
根據《空氣污染管制(非道路移動機械)(排放)規例》給予的核准 **Approval given under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation**

Example of Approval label

Example of Exemption label

Noise Control Measures:

(iv) Avoid making unnecessary noise during maintenance.

Water Control Measures:

(v) Treat and ensure the effluent discharge must be in accordance with discharge license.

(vi) Place sand bags or earth bunds to prevent any wastewater generated from plant or machinery operation and / or maintenance to enter public drains.

Chemical Leakage Control Measures:

(vii) Do not use the plant or machinery if oil leakage is observed.

(viii) Place the machinery on a paved area to avoid oil leakage or spillage on ground when carrying out the maintenance work.

Chemical Waste Control Measures:

(ix) Handle the spilled oil or spent lubricating oil as chemical wastes.

ENVIRONMENTAL TOOLBOX TRAINING KIT

MAINTENANCE OF SITE ACCESS, SITE BOUNDARY AND HAUL ROADS

Background Information:

Site access, site boundary and haul roads are very common on construction sites. Good maintenance may reduce the dust and water quality impact to the surrounding environment.

Air Pollution Control Measures:

(i) Spray any dusty materials remaining after a stockpile is removed with water and clear it from the surface of roads or streets.

(ii) Do not extend a stockpile of dusty materials beyond the pedestrian barriers, fencing or traffic cones for road opening or resurfacing work.

(iii) Properly maintain the paved main haul road and keep it clear of dusty materials.

(iv) Spray every main haul road with water or a dust suppression chemical so as to maintain the entire road surface wet.

(v) Wash every vehicle to remove dusty materials from its body and wheels by high pressure water jet immediately before leaving construction site.

(vi) Cover the load of the vehicle which is carrying a load of dusty materials and leaving a construction site entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.

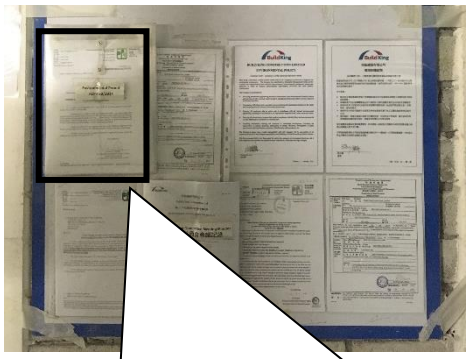
(vii) Properly treat and seal a stockpile of dusty materials with latex, vinyl, bitumen or other suitable surface stabilizer, if it is more than 1.2 m high and lies within 50 m from any site boundary that adjoins a road, street, service lane or other area accessible to the public.

(viii) Properly maintain the paved area where vehicle washing takes place and the section of the road between the washing facility and the exit.

(ix) Properly maintain the 2.4m high site hoarding adjoining the boundary to a road, street, service lane or other area accessible to the public.

Noise Control Measures:

(x) Properly maintain copies of valid Construction Noise Permit (CNP) at site entrance / exit.



FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. .....
To : .....

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :
   Full address : .....
   ..... Lot No. : ———
   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.
2. *PART/~~WHOLE~~ of the site falls *WITHIN/~~OUTSIDE~~ a designated area.
3. Powered Mechanical Equipment
   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of Powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*

Water Control Measures:

(xi) Provide perimeter channels or bunding at site boundaries to intercept storm runoff leaking out of the site area and direct surface runoff to the wastewater treatment facility.

(xii) Seal the footing of hoarding to avoid seepage of surface run-off out of construction site.

ENVIRONMENTAL TOOLBOX TRAINING KIT

BREAKING, DRILLING, CUTTING AND POLISHING

Background Information:

The processes of breaking, drilling, cutting and polishing may generate fugitive dust and involve the use of noisy machines which may cause air pollution impacts and noise nuisance without proper control measures.

Air Pollution Control Measures:

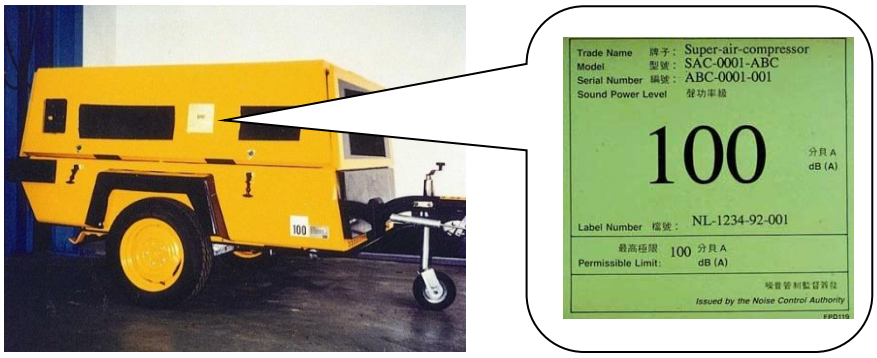
(i) Continuously spray the surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation with water or a dust suppression chemical.

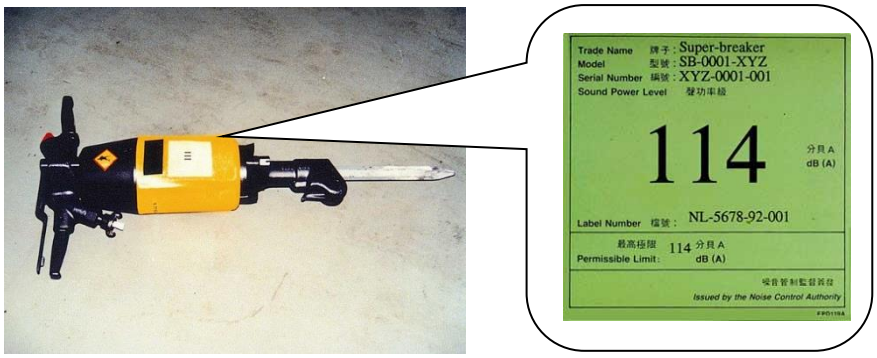
(ii) Provide an effective dust extraction and filtering device for the process.

(iii) Provide screen to reduce dispersion of fugitive dust and particles.

Noise Control Measures:

(iv) Affix Noise Emission Label (NEL) to handheld breaker and air compressor.



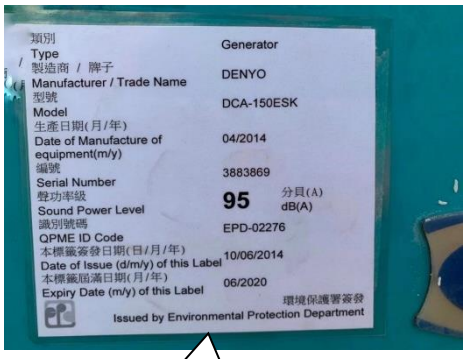


(v) Erect noise screen to alleviate breaking or drilling noise.

(vi) Avoid prolonged breaking or drilling work to minimize noise nuisance.

(vii) Restrict the noisy breaking work to less sensitive hours of the day.

(viii) Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.



ENVIRONMENTAL TOOLBOX TRAINING KIT

LOADING, UNLOADING AND TRANSFER OF MATERIAL

Background Information:

Most of the construction works involve the use of dusty materials which is one of the major concerns of air pollution impact. Improper loading, unloading and transferring of dusty materials may lead to generation of fugitive dust.

Apart from air pollution, noise nuisance may also be caused by handling other construction materials. As stated in Sections 6 to 8 and 8A of Noise Control Ordinance (NCO), loading, unloading and handling of rubble, wooden boards, steel bars, wood or scaffolding materials are classified as Prescribed Construction Work (PCW). Carrying out of PCW in Designated Areas (densely populated built up areas as defined under NCO) during restricted hours (i.e. between 7 p.m. - 7 a.m. on weekdays or at any time on a general holiday) require a valid Construction Noise Permit (CNP) with more stringent control.

Air Pollution Control Measures:

(i) Spray all dusty materials with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet except for cement and pulverized fuel ash.

(ii) Control the height from which materials are dropped to a minimum practical height to limit fugitive dust generation.

(iii) Do not load the materials to a level higher than the side and tail boards of the vehicles.

(iv) Cover the load on vehicles entirely by clean impervious sheeting or mechanical cover.

Noise Control Measures:

(v) Obtain a CNP for carrying out PCW if the work is carried out during restricted hours and the site falls within a Designated Area.

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of Prescribed construction work*
PCW 002	Loading, unloading or handling of rubble

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : _____ at 0000 hours

Days and hours : 0000-2400 hours on general holiday (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 4.d.1 below for the operating hours within which the carrying out of the above listed prescribed construction work is allowed].

This part of the permit expires on : _____ at 2400 hours

ENVIRONMENTAL TOOLBOX TRAINING KIT

STOCKPILING

Background Information:

Most of the construction works involve the use of dusty materials including dry cement, sand and debris, which is one of the major concerns of air pollution impact. Improper stockpiling of dusty materials may lead to generation of fugitive dust.

Air Pollution Control Measures:

(i) Cover stockpile of dusty materials entirely by impervious sheeting.

(ii) Spray stockpile of dusty materials with water or a dust suppression chemical so as to maintain the entire surface wet.

(iii) Compact large stockpile for prolonged storage.

(iv) Hydroseed large stockpile for prolonged storage.

ENVIRONMENTAL TOOLBOX TRAINING KIT

HOUSEKEEPING AND FINAL CLEANING

Background Information:

Inadequate on-site housekeeping may lead to generation of fugitive dust, excessive wastes and hygienic problem. Good housekeeping and hygiene control may maintain a good working environment and minimize environmental impacts.

Air Pollution Control Measures:

(i) Properly maintain the paved main haul road and keep it clear of dusty materials.

Waste Control Measures:

(ii) Maintain good housekeeping to minimize waste production.


(iii) Conduct waste sorting on site for reuse and recycling.

(iv) Segregate construction wastes as inert materials (e.g. broken concrete and brick) and non-inert C&D wastes (e.g. waste timber and bamboo).




(v) Dispose of the collected general refuse in garbage skip or bin regularly. Proper collection of site wastes is required to prevent waste materials being blown around by wind, flushed or leached into the environment, or creating an odour nuisance or pest and vermin problem.

Chemical Waste Control Measures

(vi) Store chemical waste properly in a designated chemical waste storage area to prevent accidental leakage.

Hygiene Control Measures:

(vii) Keep the working area and access clean and tidy.

(viii) Provide receptacles for sorting and segregating general refuse and construction wastes on site at convenient locations and transport off site regularly.

(ix) Provide and maintain efficient hygienic toilet facilities on-site.

(x) Remove stagnant water or apply larvicidal oil to prevent mosquito breeding.

(xi) Store or cover construction plant and other items which may retain water to prevent mosquito breeding.

ENVIRONMENTAL TOOLBOX TRAINING KIT

GROUND INVESTIGATION

Background Information:

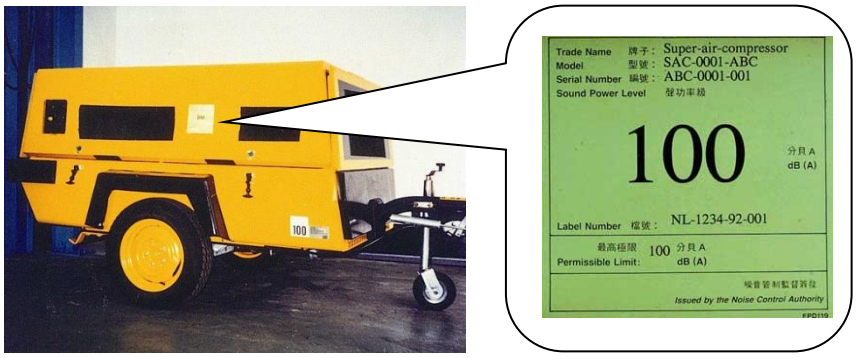
Plant and machinery are always involved in ground investigation work and therefore noise and water quality impact as well as chemical waste may be the key environmental concerns.

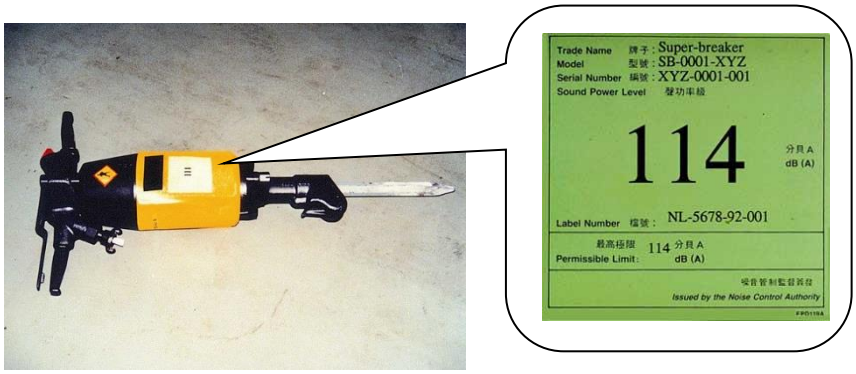
Noise Control Measures:

(i) Erect barrier to reduce noise impact if necessary.

(ii) Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.

(iii) Affix Noise Emission Label (NEL) to handheld breaker and air compressor.





Water Control Measures:

(iv) Provide bunding to confine the wastewater within the G.I. site.

(v) Recycle the water as far as possible.

(vi) Treat wastewater properly according to the discharge license by wastewater treatment facilities before discharging.

Chemical Leakage Control Measures:

(vii) Provide drip tray to prevent oil spillage.

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

SITE CLEARANCE

Background Information:

Site clearance activities will generate waste, dust, and cause noise impact. Proper measures should be undertaken to maintain good environment.

Air Pollution Control Measures:

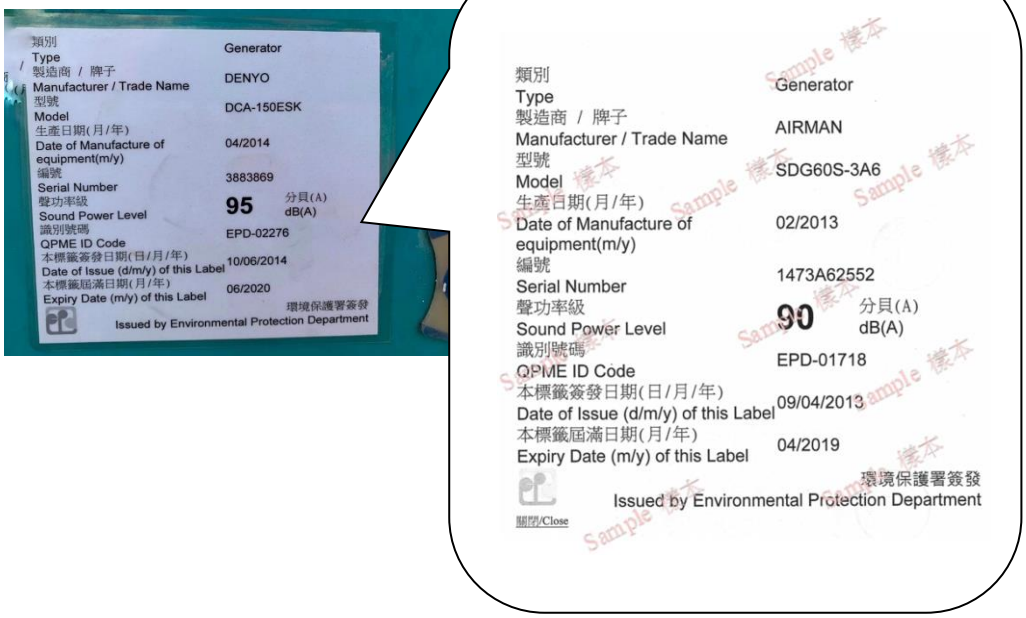
(i) Open burning is strictly prohibited.

(ii) Spray the working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet.

(iii) Entirely cover all demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles by impervious sheeting.

Noise Control Measures:

(iv) Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.



(v) Fit muffler and silencer to noisy machines.

Waste Control Measures:

(vi) Segregate surplus demolition materials as inert materials (e.g. broken concrete and brick) and non-inert C&D wastes (e.g. waste timber and bamboo).

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

FORMWORK AND FALSEWORK

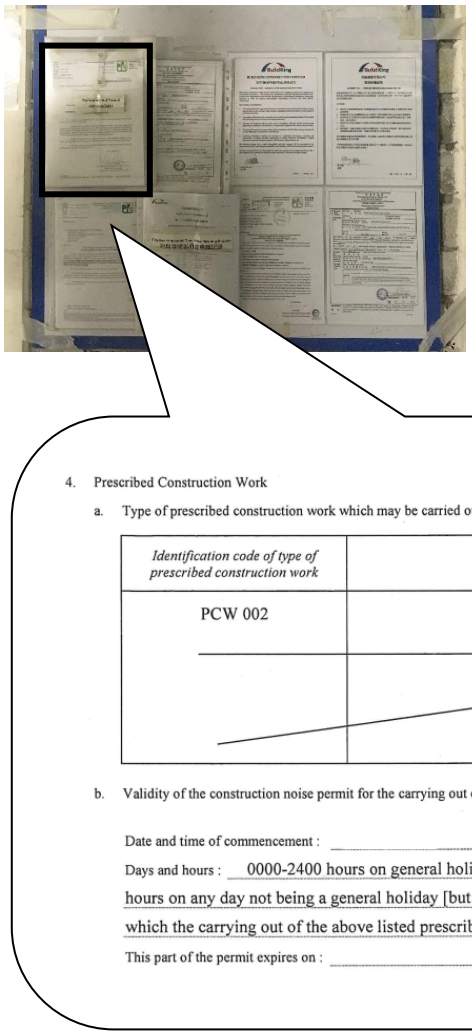
Background Information:

Erection and dismantling of formwork are construction works that may cause noise nuisance without proper handling of materials. As stated in Sections 6 to 8 and 8A of Noise Control Ordinance (NCO), erection and dismantling of formwork are classified as Prescribed Construction Work (PCW). Carrying out of PCW in Designated Areas (densely populated built up areas as defined under NCO) during restricted hours (i.e. between 7 p.m. - 7 a.m. on weekdays or at any time on a general holiday) required a valid Construction Noise Permit (CNP) with more stringent control.

Noise Control Measures:

(i) Carry out the work during day time on any day not being a general holiday as far as possible.

(ii) Obtain a CNP for carrying out PCW if the work is carried out during restricted hours and within Designated Areas.



4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of Prescribed construction work*
PCW 002	Loading, unloading or handling of rubble

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : _____ at 0000 hours

Days and hours : 0000-2400 hours on general holiday (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 4.d.1 below for the operating hours within which the carrying out of the above listed prescribed construction work is allowed].

This part of the permit expires on : _____ at 2400 hours

Waste Control Measures:

(iii) Maximize the re-using of timber for formwork and falsework.

(iv) Segregate timber waste and steel waste for reuse or recycling.

ENVIRONMENTAL TOOLBOX TRAINING KIT

BUILDING DEMOLITION

Background Information:

Demolition work involves the use of noisy machines including breakers. During the breaking process, fugitive dust, noise and a large amount of construction wastes will be generated. Appropriate control measures are required for dust suppression, reducing noise impact and waste generated.

Air Pollution Control Measures:

(i) Enclose the building with impervious dust screens to a height of at least 1 m higher.

(ii) Wet the working area prior to, during and immediately after demolition.

(iii) Cover all demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition.

Noise Control Measures:

(iv) Use hydraulic crushers for concrete breaking work.

(v) Restrict noisy work and use of noisy equipment, e.g. concrete breaking by excavator-mounted breaker, to less sensitive hours of the day.

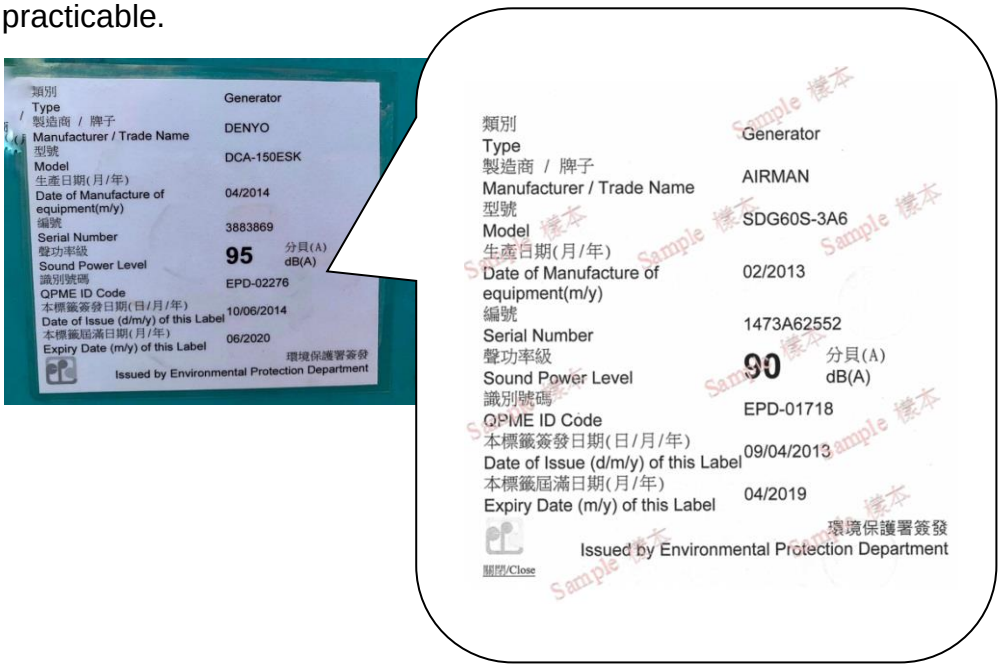
(vi) Use non-percussive equipment for demolition and concrete breaking works.

(vii) Use wire saw for concrete cutting.

(viii) Fit muffler and silencer to noisy machines.

(ix) Wrap excavator-mounted hydraulic breaker with noise absorbent.

(x) Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.



Waste Control Measures:

(xi) Carry out waste sorting on site (e.g. concrete debris, reinforcement).

(xii) Implement Trip Ticket System to track dump truck delivering excavated material.

Chemical Waste Control Measures:

(xiii) Remove asbestos material by registered asbestos contractors with proper personal protection equipment.

ENVIRONMENTAL TOOLBOX TRAINING KIT

EXCAVATION

Background Information:

Excavation is an essential work in construction of manhole, underground utility, hand dig tunnel, etc. It involves a large amount of dusty materials which potentially causes environmental impacts with inappropriate handling. Air quality and the nearby water bodies may be polluted without sufficient dust suppression and surface runoff control measures.

Air Pollution Control Measures:

(i) Spray all dusty materials with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet except for cement and pulverized fuel ash.

(ii) Spray water over the excavated material immediately before and during loading onto the dump truck.

(iii) Control the height from which materials are dropped to a minimum practical height to limit fugitive dust generation.

(iv) Do not load the materials to a level higher than the side and tail boards of the vehicles.

(v) Avoid dripping from the vehicle.

(vi) Cover the load on vehicles entirely by clean impervious sheeting or mechanical cover.

(vii) Wash vehicle to remove any dusty materials before leaving a site.

Noise Control Measures:

(viii) Erect noise screen to alleviate noise generated from the excavator.

(ix) Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.

Water Control Measures:

(x) Treat all wastewater collected from the excavation by properly wastewater treatment facilities before discharging.

Waste Control Measures:

(xi) Reuse excavated material for on-site backfilling.

(xii) Reuse surplus excavated material for backfilling in other construction sites.

(xiii) Dispose of surplus excavated material to government approved public filling reception facilities.

(xiv) Implement Trip Ticket System to track dump truck delivering excavated material.

ENVIRONMENTAL TOOLBOX TRAINING KIT

BACKFILLING, DEPOSITION AND COMPACTION OF FILL MATERIAL

Background Information:

Generation of fugitive dust is the major environmental concern during the processes of backfilling, deposition and compaction of fill materials. Improper handling of dusty materials may cause air pollution impacts.

Air Pollution Control Measures:

(i) Spray all dusty materials with water or a dust suppression chemical immediately prior to handling of dusty materials.

(ii) Cover stockpiles of dusty materials for backfilling with impervious sheeting when not in use.

(iii) Spray the working area with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet during compaction.

(iv) Treat exposed earth properly by compaction, turfing, hydroseeding, vegetation planting or suitable surface stabilizer.

Waste Control Measures:

(v) Reuse excavated materials on-site for backfilling.

(vi) Reuse surplus excavated material for backfilling in other construction sites.

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

SCAFFOLDING

Background Information:

Scaffolding erection, alternation and dismantling are construction works that may cause noise nuisance without proper handling of materials. As stated in Sections 6 to 8 and 8A of Noise Control Ordinance (NCO), scaffolding and loading, unloading and handling of scaffolding materials are classified as Prescribed Construction Work (PCW). Carrying out of PCW in Designated Areas (densely populated built up areas as defined under NCO) during restricted hours (i.e. between 7 p.m. - 7 a.m. on weekdays or at any time on a general holiday) required a valid Construction Noise Permit (CNP) with more stringent control.

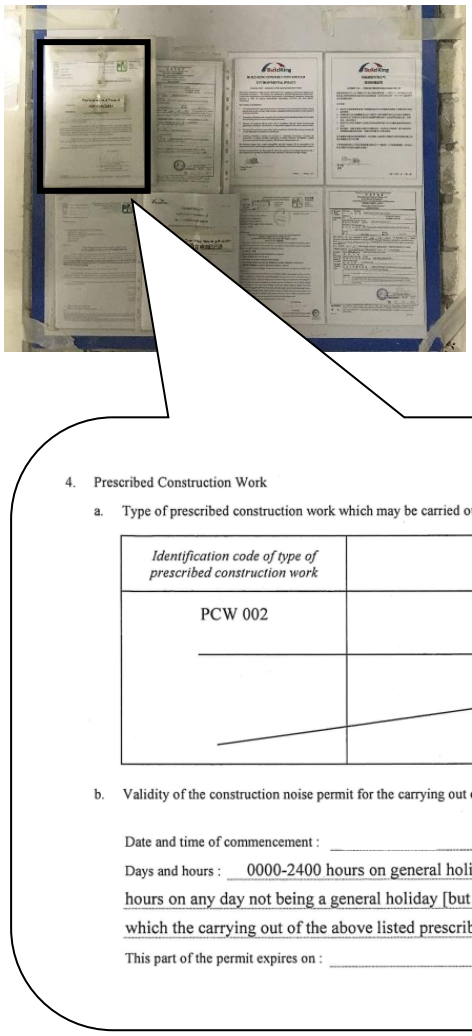
Air Pollution Control Measures:

(i) Provide dust screens to enclose the scaffolding of the building.

Noise Control Measures:

(ii) Carry out the work during day time on any day not being a general holiday as far as possible.

(iii) Obtain a CNP for carrying out PCW if the work is carried out during restricted hours and within Designated Areas.



4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of Prescribed construction work*
PCW 002	Loading, unloading or handling of rubble

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : _____ at 0000 hours

Days and hours : 0000-2400 hours on general holiday (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 4.d.1 below for the operating hours within which the carrying out of the above listed prescribed construction work is allowed].

This part of the permit expires on : _____ at 2400 hours

(iv) Avoid dropping materials from height and use refuse or collection chute with noise dampening materials to minimize noise nuisance during transfer of material.

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

SLOPE STABILIZATION

Background Information:

Installation of rock bolts and rock dowels, soil nailing and shotcreting are commonly involved in slop stabilization work. The processes of stabilization work may generate fugitive dust and involve the use of noisy machines which may cause air pollution impacts and noise nuisance without proper control measures.

Air Pollution Control Measures:

(i) Erect dust screen around the working area to reduce dust emission.

(ii) Entirely cover every stock of more than 20 bags of cement by impervious sheeting.

(iii) Carry out the de-bagging, batching and mixing processes in an area sheltered on the top and the 3 sides.

(iv) Continuously spray the surface where rock bolts, rock dowels and soil nailing operation with water or a dust suppression chemical.

(v) Erect dust screen around the working area to reduce dust emission.

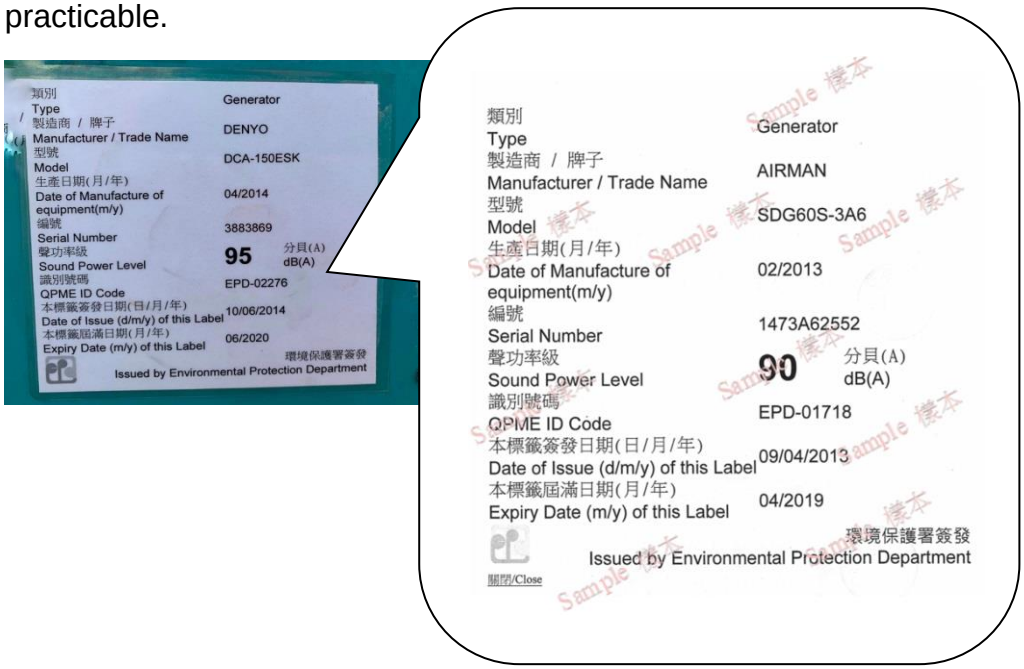
(vi) Fit non-road mobile machinery (NRMMs) with valid approval/exemption label during operation.

Example of Approval label

Example of Exemption label

Noise Control Measures:

(vii) Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.



(viii) Erect noise barriers / screens for noisy activities.

ENVIRONMENTAL TOOLBOX TRAINING KIT

PERCUSSIVE PILING

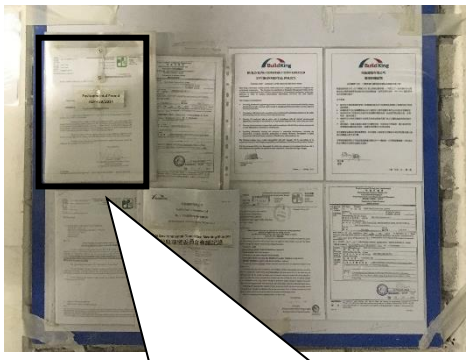
Background Information:

Since percussive piling operation may cause severe noise impact, it is controlled under legislation. As stated in Sections 6 to 8 and 8A of Noise Control Ordinance (NCO), percussive piling operation is prohibited during restricted hours. A valid Construction Noise Permit (CNP) is required for percussive piling operation during the permitted hours (i.e. 7 a.m. - 7 p.m. on weekdays not being a general holiday).

Noise Control Measures:

(i) No percussive piling is allowed if no CNP is obtained.

(ii) Strictly follow the conditions of CNP.



FORM 4
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE CARRYING OUT OF PERCUSSIVE PILING

CONSTRUCTION NOISE PERMIT NO. .....

To: .....

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the carrying out of percussive piling, subject to the conditions set out below. The carrying out of percussive piling otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where percussive piling may be carried out:

   Full street address: .....

   ..... Lot No.: ---

   The piling zone, that is, the area within which percussive piling may take place is delineated on the attached plan which forms part of this construction noise permit.

2. Percussive piling method and pile type which may be used in the piling zone:

Piling method and pile type	*No. of units*
Excavator-mounted hydraulic hammer driving steel sheet pile	One

ENVIRONMENTAL TOOLBOX TRAINING KIT

BORED PILING

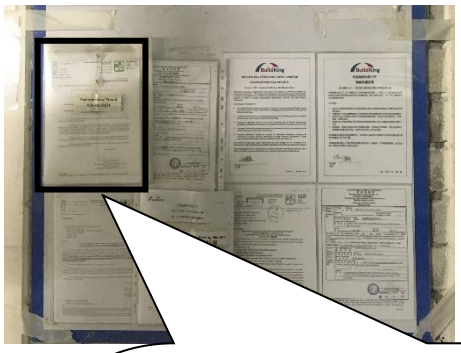
Background Information:

Bored piling involves the use of a large amount of water. Proper handling and treating of wastewater can avoid contaminating the water bodies.

Noise Control Measures:

(i) Provide noise barriers / screens for noisy activities.

(ii) Obtain a Construction Noise Permit (CNP) covers all powered mechanical equipment (PME) for works during restricted hours.



FORM 3 [reg. 5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. _____

To : _____

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :

   Full address : _____

   _____ Lot No. ------

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. ~~PART~~/WHOLE of the site falls *~~WITHIN~~/OUTSIDE a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary:

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*
	Refer to the attached sheet	

3.a. Items of powered mechanical equipment which may be used inside the site boundary:

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group A	CNP 166	Piling, large diameter bored, reverse circulation drill	One
	---	Air compressor, with Noise Emission Label showing a sound power level of ≦ 101 dB(A)	One
	---	Generator, with Quality Powered Mechanical Equipment Label showing a sound power level of ≦ 95 dB(A)	One
Group B	CNP 166	Piling, large diameter bored, reverse circulation drill	One
	---	Air compressor, with Noise Emission Label showing a sound power level of ≦ 101 dB(A)	One
	---	Power pack (diesel)	One
Group C	---	Crane, mobile, with Quality Powered Mechanical Equipment Label showing a sound power level of ≦ 106 dB(A)	One
Group D	---	Generator, with Quality Powered Mechanical Equipment Label showing a sound power level of ≦ 95 dB(A)	One
	CNP 283	Water pump, submersible (electric)	One

Water Control Measures:

(iii) Recycle the water as far as possible.

(iv) Treat wastewater arising from bored piling operation to proper wastewater treatment facilities before discharging.

(v) Provide bunding to confine the wastewater within bored piling areas.

ENVIRONMENTAL TOOLBOX TRAINING KIT

MINI PILING, SHEET PILING, H-PILE AND SOCKET H-PILE

Background Information:

Non-percussive pile driving methods include vibration or jacking method for installing or extracting sheet piles, etc. It causes less noise nuisance than percussive piling operation. However, it may also generate fugitive dust and wastewater which should be controlled properly to prevent adverse environmental impacts.

For unavoidable percussive piling operation, it is controlled under legislation. As stated in Sections 6 to 8 and 8A of Noise Control Ordinance (NCO), percussive piling operation is prohibited during restricted hours. A valid Construction Noise Permit (CNP) is required for percussive piling operation during the permitted hours (i.e. 7 a.m. - 7 p.m. on weekdays not being a general holiday).

Air Pollution Control Measures:

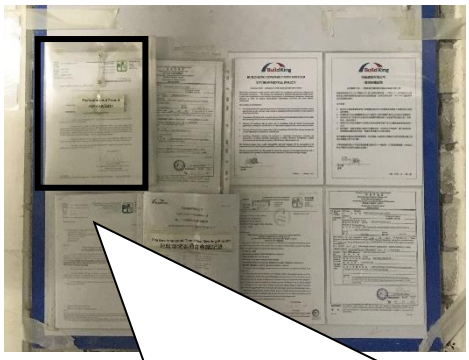
(i) Provide screening to prevent dust emission and spreading of slurry.

Noise Control Measures:

(ii) Erect noise barrier to screen out noise generated from the piling rig.

(iii) Use non-percussive pile driving methods such as vibration or jacking method for installing or extracting sheet piles.

(iv) Carry out percussive piling operation only when a valid CNP is available.



FORM 4
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE CARRYING OUT OF PERCUSSIVE PILING

CONSTRUCTION NOISE PERMIT NO. .....

To: .....

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the carrying out of percussive piling, subject to the conditions set out below. The carrying out of percussive piling otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where percussive piling may be carried out:

   Full street address: .....

   ..... Lot No.: .....

   The piling zone, that is, the area within which percussive piling may take place is delineated on the attached plan which forms part of this construction noise permit.

2. Percussive piling method and pile type which may be used in the piling zone:

Piling method and pile type	*No. of units*
Excavator-mounted hydraulic hammer driving steel sheet pile	One

3. Validity of the construction noise permit:

   Date of commencement: .....

   Days and hours: 0700-1900 hours on all days except general holidays (including Sundays) [but note "Other Conditions" below for the operating hours within which the carrying out of the above listed percussive piling is allowed].

Water Control Measures:

(v) Provide bunding to control wastewater within the piling site.

(vi) Treat wastewater properly according to the discharge license by wastewater treatment facilities before discharge.

Chemical Leakage Control Measures:

(vii) Provide regular maintenance to prevent leaking of oil from the machinery.

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

METAL WORKS

Background Information:

Metal works include the installation of handrail, cladding, steel bracket, window frame, fencing, welding and steel fixing work. Improper handling of steel materials may cause noise nuisance. As stated in Sections 6 to 8 and 8A of Noise Control Ordinance (NCO), loading, unloading and handling of steel bars and hammering are classified as Prescribed Construction Work (PCW). Carrying out of PCW in Designated Areas (densely populated built up areas as defined under NCO) during restricted hours (i.e. between 7 p.m. - 7 a.m. on weekdays or at any time on a general holiday) require a valid Construction Noise Permit (CNP) with more stringent control. Waste may be generated from the installation or handling process which should be properly segregated.

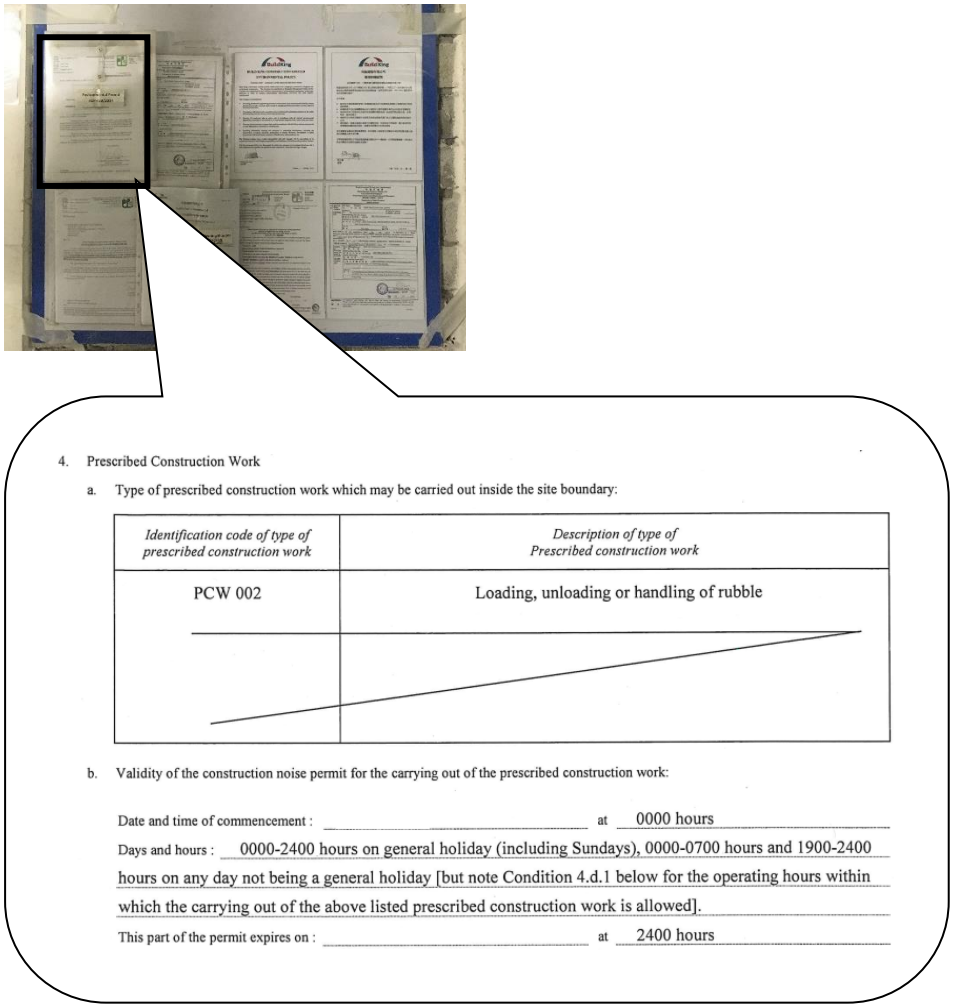
Air Pollution Control Measures:

(i) Shield exhaust fumes or smoke emission by an incombustible screen with at least 1.8m in height.

Noise Control Measures:

(ii) Carry out the work during day time on any day not being a general holiday on as far as possible.

(iii) Obtain a CNP for carrying out PCW if the handling of steel bars or hammering is carried out within Designated Areas during restricted hours.



4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of Prescribed construction work*
PCW 002	Loading, unloading or handling of rubble

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : _____ at 0000 hours

Days and hours : 0000-2400 hours on general holiday (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 4.d.1 below for the operating hours within which the carrying out of the above listed prescribed construction work is allowed].

This part of the permit expires on : _____ at 2400 hours

Waste Control Measures:

(iv) Segregate steel waste for reuse or recycling.

ENVIRONMENTAL TOOLBOX TRAINING KIT

CONCRETING

Background Information:

Concreting is one of the major construction processes in development. During the concrete batching process, the use of dry pulverized fuel ash may generate fugitive dust without proper control in stockpiling or mixing. Moreover, water used during concreting may contaminate the water bodies without proper treatment before discharging.

Air Pollution Control Measures:

(i) Entirely cover every stock of more than 20 bags of cement by impervious sheeting.

(ii) Carry out the de-bagging, batching and mixing processes in an area sheltered on the top and the 3 sides.

(iii) Avoid using percussive equipment for concrete breaking.

Noise Control Measures:

(iv) Carry out the work during day time of any day not being a general holiday as far as possible.

(v) Avoid using percussive equipment for concrete breaking.

(vi) Use the quiet type poker vibrator.

Water Quality Control Measures:

(vii) Designate a concrete lorry mixer washing area, which should be located away from Tree Protection Zone (TPZ) to avoid alkaline contaminating the soil and damaging the roots of trees, to collect and divert wastewater and washing slurry to wastewater treatment facility.

(viii) Adjust the pH values of the wastewater arising from concreting before discharge according to the discharge license.

Waste Control Measures:

(ix) Sort and segregate concrete on-site for reuse or recycle.

ENVIRONMENTAL TOOLBOX TRAINING KIT

GROUTING

Background Information:

Grouting involves the use of dusty materials including cement and sand, etc. Fugitive dust may be generated without proper control in stockpiling or mixing process. Moreover, water used during grouting may contaminate the water bodies without proper treatment before discharging.

Air Pollution Control Measures:

(i) Entirely cover every stock of grouting material by impervious sheeting.

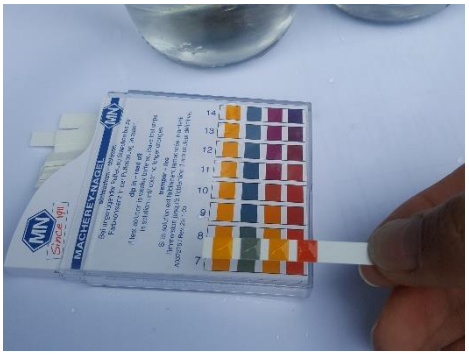
(ii) Carry out the de-bagging, batching and mixing processes in an area sheltered on the top and the 3 sides.

Water Control Measures:

(iii) Provide bunding around the grouting site to control wastewater.


(iv) Provide perimeter channel to direct wastewater from grouting site to wastewater treatment facilities before discharging.

(v) Adjust the pH values of the wastewater arising from grouting before discharging according to the discharge license.



香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

CEMENT DEBAGGING AND MIXING

Background Information:

Dry cement is one of the dusty materials that commonly used in many construction processes. Improper handling of dry cement during debagging and mixing process may generate fugitive dust. Proper control measures reduce air pollution impact.

Air Pollution Control Measures:

(i) Entirely cover every stock of more than 20 bags of cement by impervious sheeting.

(ii) Carry out the de-bagging, batching and mixing processes in an area sheltered on the top and the 3 sides.

(iii) Damp and gather the waste cement bags for proper disposal.

ENVIRONMENTAL TOOLBOX TRAINING KIT

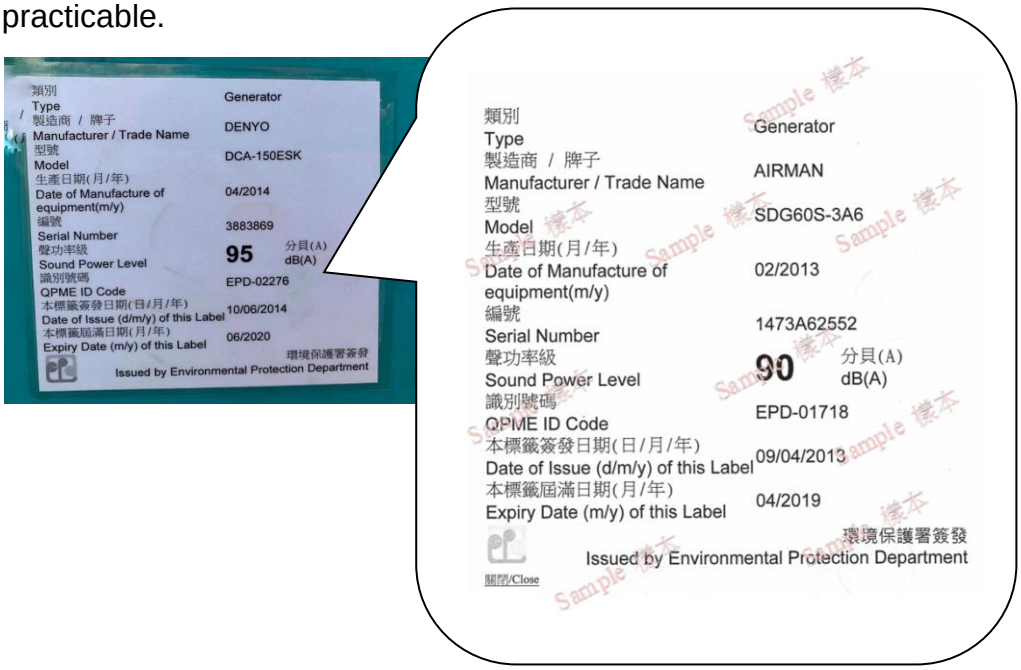
ROAD MAINTENANCE

Background Information:

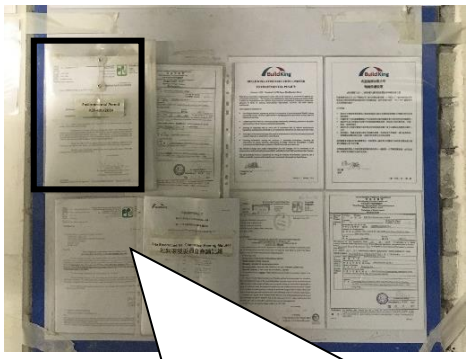
Road maintenance work always involves the use of Powered Mechanical Equipment (PME) which may cause noise nuisance without proper control measures. Moreover, road maintenance may also be scheduled at night to reduce the inconvenience caused to the public during peak hours. As stated in Sections 6 to 8 and 8A of Noise Control Ordinance (NCO), works using PME during restricted hours (i.e. between 7 p.m. - 7 a.m. on weekdays or at any time on a general holiday) require a valid Construction Noise Permit (CNP) with more stringent control.

Noise Control Measures:

(i) Adopt Quality Powered Mechanical Equipment (QPME) as far as practicable.



(ii) Obtain a CNP if the work is carried out during restricted hours and strictly follow the conditions of CNP.



3. Powered Mechanical Equipment

a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of Powered mechanical equipment*	*No. of units*
	Refer to attached sheet	

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of Prescribed construction work*
PCW 002	Loading, unloading or handling of rubble

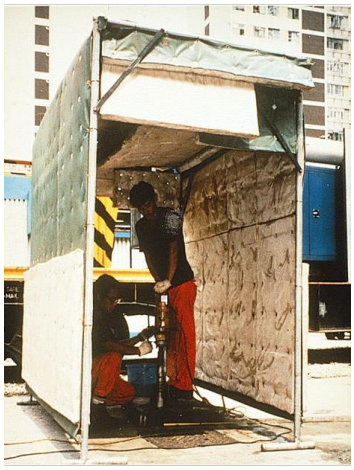
b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : _____ at 0000 hours

Days and hours : 0000-2400 hours on general holiday (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 4.d.1 below for the operating hours within which the carrying out of the above listed prescribed construction work is allowed].

This part of the permit expires on : _____ at 2400 hours

(iii) Use noise enclosure to reduce noise impact.



Waste Control Measures:

(iv) Sort and segregate asphalt or concrete on-site for reuse or recycle, if asphalt or concrete paving is carried out.

ENVIRONMENTAL TOOLBOX TRAINING KIT

MARINE CONSTRUCTION

Background Information:

Major marine construction works include seawall construction and reclamation by dredging, filling, piling and concreting. One of the main environmental concerns is water quality pollution, which affects the marine ecosystem directly. Serious environmental impacts may be caused without appropriate environmental control measures during handling of silt, concrete, chemical, construction wastes, etc.

Air Pollution Control Measures:

(i) Avoid dark smoke emission from barge.

Water Control Measures:

(ii) Equip every dumping vessel with an automatic self-monitoring system which records their position, loading and dumping operations.

(iii) Use a tug boat and winch for positioning of the work barge to avoid stirring up of sediment by thrusters at shallow area.

(iv) Use tightly closed grabs during dredging and bored pilling works to restrict the loss of fine sediment to suspension.


(v) Handle the dredged material with care to avoid splashing into surrounding waters during loading. Ensure the filling material is released below the water level.

(vi) Use silt curtain to screen the marine work to control sediment suspension. The silt curtain should be fabricated from permeable, durable, abrasion resistant membrane like geotextiles and be mounted on a floating boom structure surrounding the grab and should extend to the sea bottom.



(vii) Prevent oil spillage from the barge to the sea by using drip trays.

(viii) Ensure no gap is on the working platform.


(ix) Prevent spillage of concrete to the sea during concreting.

(x) Ensure sufficient impervious sheeting for prevention of leakage.


(xi) Provide spillage control on vessel to avoid spillage of chemical or filling material.




(xii) Recycle the water used for bored piling as far as possible.

(xiii) Prevent construction vessels from entering the marine park.

(xiv) Treat wastewater arising from bored piling operation properly by wastewater treatment facilities before discharging.

Waste Control Measures:

(xv) Obtain a valid permit from the EPD before marine dumping and related loading operations.

香港特別行政區政府
The Government of the Hong Kong Special Administrative Region
環 境 保 護 署
Environmental Protection Department

職 員 專 用
FOR OFFICIAL USE
許可證編號：EP/MD/
Permit No.

在一般情況下，本署會在 18 天內將申請的結果告訴你
Under normal circumstances, you will be informed of the result of the application within 18 days

根據海上傾倒物料條例
申請海上傾倒許可證
APPLICATION FOR A PERMIT TO DUMP MATERIAL AT SEA UNDER THE DUMPING AT SEA ORDINANCE
（填寫表格前請先閱讀第 4 頁的資料）
(Please read the information on page 4 before you complete the form)

A 部： 提出申請
PART A : APPLICATION

就下述的作業申請許可證：
This is an application for a permit for the following operations:

*☐ 裝載物質傾倒，及將物質傾倒入香港水域：
loading of substances for dumping, and dumping the substances in Hong Kong waters;

☐ 裝載物質以便在香港水域以外傾倒，及／或由香港船隻傾倒物料：
loading of substances for dumping outside Hong Kong waters, and/or dumping substances from a Hong Kong vessel;

☐ 其他作業情況。請註明
other operations. Please specify

B 部： 申請人資料
PART B : DETAILS OF APPLICANT

ENVIRONMENTAL TOOLBOX TRAINING KIT

PLASTERING AND PAINTING

Background Information:

Plastering involves the use of dusty materials which may cause air quality impacts without proper handling. Painting involves the use of various chemicals, in which Volatile Organic Compound (VOC) is one of the major environmental concerns. Long-term exposed to polluted air may potentially lead to chronic diseases.

Air Pollution Control Measures:

(i) Use paints and relevant VOC-containing product which complied the prescribed VOC content limit.
(ii) Replace solvent-based paints (e.g. thinners) by water-based paints.
(iii) Apply solvent-based products with hand brushes or rollers instead of sprayers.
(iv) Store VOC-containing products in air-tight containers.
(v) Minimize overspray and wastage.
(vi) Cover any plaster / cement / sands entirely with impervious sheeting when not being use.

(vii) Carry out de-bagging, batching and mixing processes in sheltered areas.

(viii) Clean all loose plaster and paint finish thoroughly.

Water Control Measures:

(ix) Treat all wastewater arising from plastering by proper wastewater treatment facilities before discharging.

Waste Control Measures:

(x) Properly store the materials to avoid being damaged and creating wastes.

(xi) Collect wastes including packaging waste and segregate it from other wastes for recycling.




Chemicals Leakage Control Measures:

(xii) Store paints in a sheltered and paved area.

Chemical Waste Control Measures:

(xiii) Store paint wastes properly in a designated chemical wastes storage area and dispose of as chemical waste.

香 港 建 造 商 會
Hong Kong Construction Association

ENVIRONMENTAL TOOLBOX TRAINING KIT

FIXING / FIXTURE & GLAZING INSTALLATION

Background Information:

Fixing / fixture and glazing installation work may involve storage, loading and unloading material. Noise impact and waste problem are the two major concern during these operation. Proper control should be implemented to minimize the nuisance to the surrounding environment.

Noise Control Measures:

(i) Carry out the work during day time of any day not being a general holiday as far as possible.

(ii) Restrict noisy work and use of noisy equipment to less sensitive hours of the day.

Waste Control Measures:

(iii) Collect wastes arising from fixing or fixture & glazing installation including packaging waste and segregate it from other wastes for recycling.


marlit


GERSON
GERSON

ENVIRONMENTAL TOOLBOX TRAINING KIT

ENVIRONMENTAL ABATEMENT FACILITIES

Background Information:

In order to minimize the impact to the environment, various environmental abatement facilities are always provided on construction sites.

Noise Barrier and Noise Enclosure:

(i) Properly maintain all noise barriers and noise enclosures.

(ii) Fully utilize noise barriers / enclosure for noisy construction activities.

Vehicle Washing Facility:

(iii) Reuse water for vehicle washing facilities for wheel washing as far as possible.

(iv) Regularly remove sludge accumulate inside the wheel washing facilities.

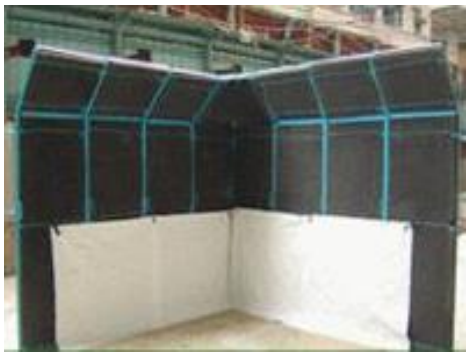
Mechanical Dump Truck Covers or Alternative Measures:

(v) Keep the mechanical cover closed during transportation.

(vi) Frequently maintain the mechanical cover.

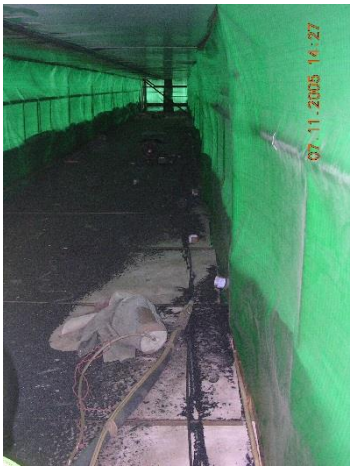
Dust / Smoke Screen and Enclosure:

(vii) Shield exhaust fumes or smoke emission by an incombustible screen with at least 1.8m in height.



(viii) Provide screen to reduce dispersion of fugitive dust and particles.

(ix) Totally enclose operation which emits dust and fine particles.



Wastewater Treatment Facility:

(x) Regularly check the facility and carry out desludging if necessary.

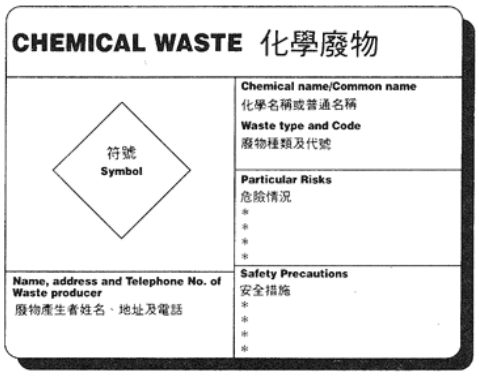
(xi) Frequently add chemicals to maintain efficiency of the treatment facility.

Chemical Waste Storage Area:

(xii) Ensure the chemical waste storage area is provided with a shelter if it is placed on an open area.

(xiii) Ensure the chemical waste storage area is properly labeled.

(xiv) Ensure the chemical waste storage container is properly labeled.



(xv) Ensure the chemical waste storage area is only used for storing chemical wastes.

On-site Aerobic Wastewater Treatment System (for Toilet Waste)

(xvi) Do not dispose of anything other than toilet waste to the aerobic wastewater treatment system.

(xvii) Do not use excessive bleach to clean the aerobic wastewater treatment system.

ENVIRONMENTAL TOOLBOX TRAINING KIT

LAND CONTAMINATION

Background Information:

Soil contamination should be handled properly to minimize further contamination or other environmental impacts. Chemicals or chemical wastes should be handled properly so as to avoid land contamination or even water contamination.

Waste Control Measures:

(i) Store contaminated marine mud at designated areas.

(ii) Provide proper treatment to the contaminated marine mud before disposal e.g. solidification.

Chemical Leakage Control Measures:

(iii) Store chemical containers with secondary containment to prevent accidental leakage and contaminating the soil.

(iv) Store chemical waste properly in a designated chemical waste storage area to prevent accidental leakage and contaminating the soil.

(v) Maintain plants and vehicles in a good condition to prevent fuel leakage and contaminating the soil.

ENVIRONMENTAL TOOLBOX TRAINING KIT

PROTECTION AND PRESERVATION OF TREES

Background Information:

Some valuable trees are located inside a proposed construction site and selected to be retained. The retained trees are required to be well protected and preserved to ensure their health conditions would not be adversely affected by the construction activities.

Tree Protection Measures:

(i) Do not fall any tree unless it is allowed.

(ii) Install strong protective fence at Tree Protection Zone (TPZ).

(iii) Do not store heavy machinery, equipment and material in TPZ to prevent petroleum spillage, soil compaction and mechanical injury.

(iv) Do not store chemicals near TPZ to prevent spillage.

(v) Install warning signs and notices at the fences.

(vi) Designate vehicular or pedestrian access and designating storage areas away from TPZ.

(vii) Do not ignite near the trees.

(viii) Avoid damage to trees outside site boundary by construction activities.

(ix) Properly irrigate the trees and remove accumulated construction dust during dry season in order to lessen the chances of decline and to maintain the vigor of trees.

ENVIRONMENTAL TOOLBOX TRAINING KIT

ADDITION AND ALTERNATION

Background Information:

Addition and alternation work are always carried out within existing buildings. Noise is a major nuisance of the existing users of the buildings. In addition, dust, wastewater and waste are also generated from the operation. Proper control should be implemented to minimize the impacts.

Air Pollution Control Measures:

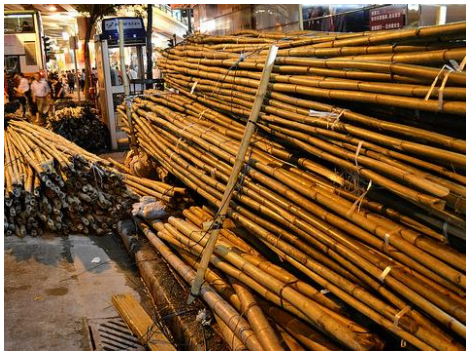
(i) Cover stockpiles of dusty materials with impervious sheeting properly.

Noise Control Measures:

(ii) Use non-percussive equipment such as hydraulic crusher, sawing, coring machines etc. for demolition and concrete breaking work.

Waste Control Measures:

(iii) Reuse the scaffolding bamboo as far as possible.



(iv) Separate and recycle the C&D waste as far as practicable.