

Law and Building Services Maintenance in Hong Kong

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Abstract

In Hong Kong, statutory requirements applicable to building services maintenance activities appear in a wide variety of ordinances and regulations, which can be confusing and may be misinterpreted or overlooked. This paper reviews the key statutory requirements, common problems with complying with the requirements, and the potential liabilities consequent upon non-compliance. To help focus the analysis, the statutory requirements were categorised with reference to the involved compliance procedures, and a process model was devised to represent the procedures under each category. Attention of individuals and firms responsible for maintenance work is drawn to their liability for damages that could arise due to negligent acts to show that maintenance work shall be conducted not simply to satisfy statutory requirements, but far beyond.

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Introduction

Dried-up U-traps of bathroom floor drains were believed to be a contributing factor to the outbreak of the Atypical Pneumonia epidemic in Hong Kong in March 2003 (DoH, 2003). Whilst this dreadful occurrence highlighted the importance of proper maintenance to drainage installations, the same actually applies to all types of building services installations, such as mechanical ventilation and air-conditioning (MVAC) systems, electrical installations, lifts and escalators and fire services systems.

Although some may still regard building services operation and maintenance (O&M) as simple and routine, the increase in sophistication of services provisions in buildings necessitated by the increasingly demanding user and statutory requirements has made O&M work much more complicated than hitherto. Unfortunately, there are as yet no bachelor's degree programmes that are dedicated to training of O&M engineers (Mou, 1999); practitioners entered the field with diverse academic background and acquired their O&M knowledge and skill through on-the-job training. The emergence of facility management programmes and the establishment of the Building Services Operation and Maintenance Executives Society (BSOMES) in Hong Kong are encouraging signs that greater attention is being paid to O&M work.

Besides satisfying the occupants' demand for quality services, the O&M team shoulders the responsibility to safeguard the life-safety and health of occupants, visitors and any other passers-by. However, the relevant statutory requirements, the rationale behind and the compliance procedures, and the responsibilities beyond statutory requirements, are often not well understood. As building services maintenance embraces a wide variety of aspects,

relevant statutory requirements scatter around the body of law, which increases the difficulty for O&M personnel to acquire a holistic picture of the requirements. The Building Maintenance Guidebook (BD, 2002) issued by the Buildings Department provides guidelines on building maintenance work, which embraces also building services maintenance, but the coverage is brief and is confined to just the basic provisions, such as electrical, fire services, lift and escalator and water supply installations; guidelines on other common installations, such as MVAC systems, boilers and pressure vessels, are missing. For ensuring compliance with relevant statutory requirements in force, O&M practitioners have to refer to individual ordinances and regulations, and ad-hoc documents such as codes of practice promulgated by individual government departments from time to time.

The legal responsibilities and liabilities of individuals and firms responsible for O&M work in buildings are not limited to those stipulated in relevant ordinances and regulations; civil laws, such as the law of tort, have highly significant legal implications. It is important for the people and firms concerned to be fully aware of their legal responsibilities and liabilities. Otherwise, they may risk unbearable consequences.

This paper reviews the legal requirements in force as at 1 June 2003 that apply to building services maintenance work. The procedures involved in and the problems and difficulties associated with complying with the regulations are reviewed. The legal responsibility of building owners and O&M personnel with regard to the duty of care for others is also discussed.

Functions of Regulatory Controls

One of the social functions of imposing regulatory controls is to prevent undesirable behaviour and secure desirable behaviour (Wesley-Smith, 1998). Regulations governing building services maintenance are primarily meant to fulfil this function, in the context of safeguarding the safety, health and well being of people, and protecting the environment. The regulations include those that protect the public, e.g. the Water Pollution Control Ordinance (Cap. 358) that controls effluents from buildings; and those that govern behaviours and activities within private premises, e.g. the Electricity (Wiring) Regulation (Cap. 406E) that controls safety of electrical installations in buildings. Such regulations, in essence, require the owner of an existing installation to cause the installation to be continuously and regularly maintained, although regulations specific to different types of installations may vary in the details. Failing to comply with a regulatory requirement means commission of an offence and the owner will be subject to penalty, which can be a fine and/or imprisonment.

To provide an enforcement framework, many regulations define a set of administrative procedures and mechanisms, such as licensing, inspection, testing, examination and certification. Regulatory requirements include prescribing certain work be undertaken only by a qualified person or firm, which may be referred to as a competent person, a competent worker, a competent examiner, a registered specialist engineer, a registered specialist contractor etc. Such requirements apply to work that requires specialist knowledge and skills for making judgements or decisions and/or may be dangerous for non-specialist to conduct. Failing to observe the statutory requirements will render the qualified person/firm disqualified or subject to a fine or imprisonment.

Origins of Regulatory Controls

In Hong Kong, the power to make law is vested in the Legislative Council, and it enacts ordinances that form the skeleton of statutory laws. The Legislative Council delegates its lawmaking authority, usually to members of executive branches of the government, to fill-in the provisions of the ordinances with details. The delegates make rules, regulations or by-laws, referred to as ‘subordinate’, ‘delegated’ or ‘subsidiary’ legislations, which are confined to the judicial territory within which their respective ‘parent’ ordinances apply (Figure 1).

In many countries, regulations often make reference to codes of practice and national standards to provide clear criteria of and guidance for satisfying the regulatory requirements (Johansson, 2000). In Hong Kong, provision is made in many regulations to empower the Director of the relevant government department to prescribe, by notice in the Gazette, codes of practice from time to time, to provide guidance and make changes to the statutory requirements to maintain the timeliness of the controls. For instance, Regulation 10(1) in the Fire Service (Installations and Equipment) Regulations (Cap. 95B) provides the Director of Fire Services with the power to prescribe a Code of Practice that governs the inspection and testing of fire service equipment. For some ordinances, e.g. the Factories and Industrial Undertakings Ordinance (Cap. 59), compliance with the related code of practice does not, of itself, confer immunity from legal obligations. Although failure to observe any advice given in the code is not, in itself, an offence, the failure may be taken by a court in criminal proceedings as a relevant factor in determining whether or not a person has breached any of the provisions of the regulations (LD, 1999).

Regulations typically stipulate that regular maintenance of building services installations shall be carried out in accordance with the explicit requirements, including the time frames. Table 1 summarises the major ordinances and regulations governing building services maintenance activities, but the list is by no means exhaustive; whether or not a specific regulation within the body of law is applicable to a particular building services installation needs to be considered based on relevance.

Apart from the rules or requirements documented in the statutes, government departments issue statutory orders, directions or abatement or improvement notices as when and where installation defects or nuisance develop to such a stage that public health or safety is likely to be jeopardised, or the environment is threatened. Statutory orders and the like that are related to building services installations are listed in Table 2. In contrast to statutory orders, directions or notices require ad-hoc but prompt remedial actions. Introduction of new ordinances, amendment of existing ordinances, and service of any new/amended statutory orders or notices may demand retrofits or improvement work, which are parts of building services maintenance work.

Compliance Procedures and Processes, and Problems and Difficulties with Compliance

Variations exist among the sets of procedures for demonstrating compliance with the regulations that are applicable to various building services maintenance activities; generally, the more serious the consequences of system failure, the more stringent the procedures. To help elucidate their differences and the problems and difficulties with complying with the regulations, five process models, referred to here as Process Models A to E, have been

devised to represent the typical sets of compliance procedures. The processes involved in the five Process Models are as shown in Figures 2 to 6, and compared in Table 3.

Electrical installations

Process Model A ([Figure 2](#)) depicts the general workflow of Periodic Inspection, Testing and Certification (PITC) for electrical installations, as required by the Electricity (Wiring) Regulations (Cap. 406E). The Regulations require maintenance work be executed by registered electrical contractor or worker once every one or five years, depending on the type of premises and the capacity of installations. For instance, Regulation 20 of Cap. 406E requires annual PITC for a place of public entertainment (as defined by the Places of Public Entertainment Ordinance (Cap. 172)) or premises with fixed electrical installation fed directly from a high voltage supply. PITC is required only once in five years for low voltage fixed electrical installations in a school (as defined in Section 3 of the Education Ordinance (Cap. 279)) or a child care centre registered under the Child Care Services Ordinance (Cap. 243).

The registered electrical contractor/worker shall sign a prescribed certificate, to confirm test results conformed to required standards, and issue the signed certificate to the building owner who shall then send it, together with the prescribed fee, to the Electrical and Mechanical Services Department (EMSD) for endorsement. EMSD will return the endorsed certificate to the building owner for retention, but may require it to be produced for inspection at any time. Note that although the Electricity (Wiring) Regulations do not explicitly specify under what circumstances the registered worker should not sign on the certificate, guidelines are given in the related Code of Practice ([EMSD, 1997](#)). Note also that this set of procedures does not make provisions for contingency for cases where unsatisfactory test results are found.

Code 21E in the Code of Practice requires that a registered electrical worker, while certifying the results of tests and inspections are satisfactory, must ensure that final inspections, insulation resistance tests and functional tests of protective and control devices were carried out as close to the date of certification as possible; and in any case, no more than two weeks in advance. This may present a practical difficulty to large estates comprising many buildings. The numerous installations to be inspected and tested require many registered electrical workers to be deployed simultaneously to perform the job to meet this requirement. Problems arise as when and where components essential to building operation are found defective, which require a long time for rectification of the defects or for a replacement to be delivered.

Fire services installations

According to the Fire Service (Installations and Equipment) Regulations (Cap. 95B), owners of any fire services installations shall keep them in efficient working order at all times, and registered contractor shall be employed to inspect each installation at least once in every 12 months. Additionally, whenever an installation is maintained, repaired or inspected, including those conducted in the interim, the registered contractor shall, within 14 days after completion of the work, issue a certificate to the owner. The owner shall keep the certificate and shall forward a copy to the Director of Fire Services. The general procedures can be represented by Process Model B (Figure 3). The maintenance requirements of individual fire services installations are specified in the corresponding Code of Practice (FSD, 1998) published in accordance with Regulation 10 of Cap. 95B.

However, when an inspection reveals that there are defective components which require a high replacement cost, the owner may take more than 14 days to make a decision on whether and how the replacement work should proceed. The time for the repair or replacement work could even be unpredictable if the installation is found malfunctioning but the cause is not immediately evident. Note should be taken that Regulation 9(2) of Cap. 95B only stipulates that the certificate shall state *whether or not* the fire service installation is in efficient working order but sets no time limit for rectification of the defects. As long as the registered contractor issued the maintenance certificate stating clearly any defects found in the inspection, the liability for any consequences will then rest with the owner of the installation, but some owners may not be aware of this serious liability. This regulatory mechanism is less than satisfactory because, during the period the fire service installation remains defective, the life-safety of occupants is less well safeguarded while the liability for any consequences of a fire occurring can be sky high.

Lifts and Escalators

Since malfunctioning of lifts and escalators can lead to disastrous consequences, owners are bound by law to ensure lifts and escalators are in proper working order whenever they are in use. Section 19(1) of the Lifts and Escalators (Safety) Ordinance (Cap. 327) requires them to be regularly maintained by a registered contractor at least once a month, in addition to the periodic examination and testing of the safety devices. Section 11J(2) requires that the registered contractor shall, within 14 days, notify the Director of Electrical and Mechanical Services Department (EMSD) when he ceases to carry out periodic maintenance for any lifts or escalators.

The statutory requirement on maintenance of lifts and escalators follows Process Model C (Figure 4). Instead of requiring a certificate to be issued after the maintenance work is conducted each month, the owner of the installation is required to keep a logbook and to produce it for inspection on demand by the Director of EMSD. The owner shall cause the registered contractor or registered engineer to record details of any maintenance work carried out. However, the logbook is often regarded as a concluding report rather than a diary of events, often with entries made only several days or weeks later. The contents may not be true records of the actual work performed, as they are often incomplete or vague, which could be due to a lack of standardised terminology, and corrections made by means of correction fluid/tape or strikethroughs without counter-signatures can often be found.

Process Model D (Figure 5) mimics the procedures for periodic examination and testing of safety devices of lifts and escalators. This set of procedures differs from the others in that Section 26(2)(b)(i) of the Ordinance prescribes a grace period of 14 days for carrying out any rectifications of faulty components, if so identified during the examination or test. As the manufacturer or its agent, who keeps stocks of lift and escalator components, is usually the registered contractor undertaking the maintenance work, complying with this requirement is apparently not a problem. Furthermore, rates for replacement work are normally well defined in maintenance contracts leaving little room for disputes on the incurred costs, despite that owners often complain about unreasonably high maintenance costs for lifts and escalators (HM, 1999). In case rectification of the defects extends beyond the grace period, the registered engineer shall report to the Director of EMSD that the lift/escalator concerned is still not in safe working order. Section 27(1) of the Ordinance further provides that the Director may, by servicing order upon the owner of the lift/escalator, prohibit its use and operation.

Ventilating Systems

The statutory requirement on maintenance of ventilating systems did not originate from concerns about indoor air quality or health of occupants; rather, it concerns fire safety. As required by Regulation 3(1) in the Building (Ventilating Systems) Regulations (Cap. 123J), where the ducting or trunking of a ventilating system passes through an opening in a wall, floor or ceiling between two fire compartments, a fire damper shall be installed at the opening to maintain the integrity of the fire compartments. The owner of the installation shall cause every fire damper, filter and precipitator in such ventilating system to be inspected by a registered specialist contractor at intervals not exceeding 12 months.

The required set of procedures is similar to that depicted by Process Model B, i.e. the contractor shall issue a certificate stating whether or not the inspected installation is in safe and efficient working order, with a copy of the certificate sent to the Director of Fire Services. For buildings with large scale ventilation systems, complying with the regulatory requirements is generally not a problem because competent maintenance contractors are employed to maintain the systems. However, the requirements could be overlooked for buildings that are equipped with only a few tiny scale ventilation systems.

Boilers and Pressure Vessels

Pursuant to Section 27 (1) (a) of the Boilers and Pressure Vessels Ordinance (Cap. 56), a boiler or a pressure vessel shall be examined by an appointed examiner within 14 months or 26 months, after the date of any certificate of fitness issued in respect thereof, depending on

the period after it was first taken into use and whether it is a boiler, an air receiver or a steam receiver. Upon completion of the examination, the appointed examiner shall issue the owner with three copies of the certificate of fitness stating if he is satisfied with the examination result. The owner shall, within 7 days from the date that the copies are delivered to him, deliver two copies of the certificate to the Boilers and Pressure Vessels Division of the Labour Department (LD, 2002). Section 33 (7) requires that if the examiner refuses to issue a certificate of fitness, he shall notify the Authority in writing as soon as practicable of the circumstances that caused denial of issuing a certificate. However, the meaning of “as soon as practicable” is vague. The compliance procedures generally are similar to Process Model A, with the exception that there is no certificate endorsement fee and the endorsed certificate will not be returned to the owner.

Suspended Working Platforms

Suspended working platforms will only be used as when and where required, mostly for maintenance access or construction activities at height. Gondola systems belong to this category of installations. Sections 20(1) and (2) in the Factories and Industrial Undertakings (Suspended Working Platforms) Regulations (Cap. 59AC) require the owner of a suspended working platform to ensure that at any time the platform is used for carrying any persons, it has been thoroughly examined before by a competent examiner by no longer than six months, or load tested and thoroughly examined by no longer than 12 months, and has obtained a certificate in the approved form showing that the examiner has found it in safe working order.

Section 19(1) requires inspection by a competent person within seven days before a suspended working platform is used to carry any persons, and the competent person has

certified that it is in safe working order. Section 19(2) further requires all suspension ropes and safety ropes be inspected by a competent person and found to be in safe working condition prior to commencement of daily work. Similar to the requirement on keeping logbooks for lifts and escalators, Section 24 requires the owner of a suspended working platform to keep records of maintenance for inspection by an occupational safety officer at all reasonable times. Such records shall be kept in a safe place for a period of at least 6 years after the date on which the platform was taken out of use [LD, 1999b].

Unlike lifts and escalators, there is no statutory requirement for monthly maintenance or for rectification of any defects within a prescribed period. The certificate issued by the examiner does not need endorsement by the relevant Authority. In case the examiner discovers that use of the suspended working platform can be unsafe, he shall immediately inform and deliver a report to the owner, and send a copy of the report to the Commissioner for Labour within 14 days. However, there is no mention whether an order will be serviced upon the owner to prohibit the use and operation of the platform. Process Model E (Figure 6) depicts the compliance procedures of this type.

Lifting Appliances and Lifting Gear

The regulatory controls over maintenance of lifting appliances and lifting gear, such as davit arms and hydraulic working platforms, are similar to suspended working platforms (Process Model E). Relevant to this type of appliances are Regulations 5(1) and 7A of the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations (Cap. 59J), and the corresponding practical guidance is detailed in a Code of Practice (LD, 1997a) issued by Labour Department. The requirement on maximum durations of prior thorough

examination and inspection, both with certification, by a competent examiner and a competent person are 12 months and 7 days respectively. The required actions to be taken by the competent examiner upon finding the lifting appliance unsafe to use are also similar. Section 6A(2) in the Regulations further requires the owner to ensure that the lifting appliance is not used until the repairs have been effected.

Goods lifts and service lifts

The Factories and Industrial Undertakings (Goods Lifts) Regulations (Cap. 59O) generally apply to any lift used in an industrial undertaking, which is a goods or service lift to which the Lifts and Escalators (Safety) Ordinance (Cap. 327) does not apply (see Sections 3 and 44A in that Ordinance (Cap. 327)).

Note should be taken that “service lift”, as defined in Section 2 of the Ordinance (Cap. 327), means a lift with a rated load of not more than 250kg, and a car in which the area of the floor is not more than 1m² and the height is not more than 1.2m. Dumb-waiters in restaurants are an example of such service lifts, which should not be confused with passenger lifts designated as “service lifts” for material/goods delivery. Whilst the definition of “goods lift” is not laid down in Section 2, a definition is given at the end of Section 44A as: “a lift used or intended to be used exclusively for the movement of goods or materials”. It is also stated in Regulation 9(1)(b) of Cap. 59O that the carriage of persons in goods lifts is prohibited.

Regulation 6 in the Ordinance (Cap. 59O) requires a competent examiner be deployed by the owner to thoroughly examine a lift at least once annually, and a report of the examination be entered in the register kept in the office of the Authority. The examiner shall, not later than

28 days after the examination, send a copy of the report to the Commissioner for Labour if the examination shows that use of the lift is unsafe, unless certain repairs are carried out immediately, or within a specified time. The workflow of the procedures is similar to that of Process Model E.

Regulation 10 of Cap. 590 further requires a defect-reporting mechanism under which every person engaged in the operation of a goods or service lift shall report to the owner any defect in the operation mechanism or safety devices fitted to the lift or liftway. However, no pre-requisite skill or competence required of such person is defined in the Regulations, apart from the general requirement that all personnel working on a lift/escalator installation should be instructed of appropriate basic safety procedures (1997b).

Goods, service and passenger lifts are all vertical transportation equipment but, whether a lift is intended for carrying passengers makes a huge difference in the severity of the consequences of any accident, which explains for the significantly different stringency of the regulatory controls over their maintenance.

Liabilities of Building Owners and O&M Personnel

Regulatory requirements, such as those described above, compel building owners to take measures to ensure services installations are adequately maintained, which are meant primarily to protect the life-safety of people, including those who work on them. Actions against violations, once found, will be taken in accordance with the provisions made in the relevant Regulations. The consequential penalties, however, accounts for just a small part of the cost to be paid by a building owner for not implementing proper maintenance; the owner

can be held liable to much more serious consequences of improper maintenance. Proper maintenance in fact involves requirements far exceeding the regulatory requirements.

Most building owners engage contractors to provide maintenance services. Besides the obligation to deliver service with due diligence, a contractor will effectively assume a part of the owner's legal responsibilities. Breaching of the contract due to faults of the contractor's part could lead to repudiation of the contract and make the contractor liable to the damages. Such damages, which typically involve monetary compensations, may include damages to others arising from the contractor's fault.

Under the Common Law, the purpose of damages is *restitutio in integrum*, not punishment (Stone, 2000). Other discretionary remedies, developed by the courts of equity, include specific performance, injunction, rectification of documents, and rescission of contract. However, if the contractor's fault also violates a regulatory requirement, the contractor will be subject to prosecution under the regulation, and when proved to have committed the offence, be sued subsequently in a civil law court for the damages so caused.

At present, other than those "qualified persons" defined in relevant Regulations for inspections, certifications or the conduct of specific types of work, there is no statutory requirement for people engaged in general O&M work to be licensed or registered, irrespective of whether they are independent consultants or employees of a maintenance service contractor; nor is there qualification or level of competence required of maintenance professionals. They are, however, expected to be experienced in the field. Recently, more building management companies appoint or require the contractor to deploy qualified building services engineers (members of professional institutes) to manage maintenance work.

Note, however, should be taken that the law of tort does not distinguish between professionals and others; the applicable test is whether the defendant acted with the skill and competence to be expected from a professional undertaking that particular task, as in *Whilsher v Essex Area Health Authority (1988)*. Maintenance professionals, if employed as the agent for monitoring or administering maintenance work or contract, have the responsibility to ensure that legal requirements are complied with. Seeking advice from legal experts may help but observing such legal advices does not remove the onus of responsibility from the building owner and the maintenance professional.

Duty of Care and Negligence

Serious damages to which building owners and maintenance personnel may be held liable often arise from breaching of the duties of care that they are required to exercise under the Common Law. The concept of duty of care originated from the precedent case: *Donoghue v Stevenson (1932)*, in which it was held that a reasonable man must take reasonable care to avoid acts or omissions that would be likely to injure his neighbour, which he can reasonably foresee. The purpose of the tort of negligence is to compensate someone for personal injury, or damage to property, which arises from breach of the duty of care by someone else, despite it is well established that for pure economic losses, compensations should be sought through contract provisions.

The element – “duty of care” is one of the criteria in proving someone’s negligence (Blakemore, 2000). Unfortunately, negligence is a highly indeterminate tort (Glofcheski, 2002), as judgments are not always predictable, but depend upon the judges’ own sense of

fairness in arriving at what were believed to be correct. As Lord Denning criticised in *Lamb v Camden London Borough Council (1981)*: “the truth is that ... duty, remoteness, and causation – are all devices by which the courts limit the range of liability ... ultimately it is a question of policy for the judge to decide ...”. Moreover, the court will consider the question of contributing fault on the part of the plaintiff (see also *Hsu Li Yun v Incorporated Owners of Yuen Fat Building (2000)* described below).

The general duties on employers and their employees, in respect of the health and safety at work in industrial undertakings, are governed by Sections 6A and 6B of the Factories and Industrial Undertakings Ordinance (Cap. 59). In essence, the employer must ensure, so far as it is reasonably practicable, the health and safety of all employees at work are safeguarded. This requires proper maintenance of plant and systems at work; safe use, handling, storage and transport of articles and substances; provision of information, instruction, training and supervision; maintenance of safe means of access and egress; and maintaining a safe and healthy work environment. An employee must take reasonable care for the safety and health of himself and of others who may be affected by his acts or omissions at work; and he must cooperate with the employer or any other person to enable compliance with the duties or requirements imposed on them (LD, 1999a).

The Occupiers’ Liability Ordinance (Cap. 314) (OLO) imposes a “common duty of care” on the occupier of premises in respect of all lawful visitors. The common duty of care is: “... *a duty to take such care as in all the circumstances of the case is reasonable to see that the visitor is reasonably safe in using the premises for the purposes for which he is invited or permitted to be there*”.

In *Wheat v Lacon and Co (1966)*, Lord Denning said that the occupier is the person who: “... had a sufficient degree of control over premises to put him under a duty of care towards those who came lawfully on to the premises”. Where a premises owner hires independent contractors to conduct maintenance work on his premises, the owner is generally still sufficiently in control to be an occupier. The following precedent case illustrates this point, and spells out the seriousness of legal consequence and the importance of avoiding negligent acts.

In *Ta Xuong v Incorporated Owners of Sun Hing Building (1997)*, the incorporated owners of the building (the defendants), were held responsible as occupiers for injuries to *Ta* (the plaintiff who was a workman) who had relied on the scaffolding in investigating a leak in a water pipe and had eventually fallen down from a fractured piece of bamboo scaffold. It was held that there was no good reason why the incorporated owners, being the occupiers under the OLO and responsible for the maintenance and repair of the scaffolding, should not have required the erecting contractors to remove it or have it removed themselves. The incorporated owners owed a duty of care to *Ta* and were in breach of that duty and negligent. Their liability under the OLO was clear. Having deducted the award under the Employees Compensation Ordinance (Cap. 282) from the past loss of earnings, the plaintiff was entitled to a compensation of HK\$25,878,372.

Under OLO, the common duty of care to safeguard visitors was considered in *Hsu Li Yun v Incorporated Owners of Yuen Fat Building (2000)* by the Court of First Instance. In carrying out maintenance work, *Hsu* stood on the fibreglass cover to access the switch box, with the result that the cover collapsed and submerged into the water tank. The water became charged with electricity and *Hsu* was electrocuted and died. Given that it was *Hsu* who had

designed and installed the unsafe system, the court held that the fact that **Hsu** was the creator of the dangerous state was only relevant to considering contributory negligence, but did not relieve the defendant of its common duty in seeing that the premises were reasonably safe to its visitors, including **Hsu** himself. It was held that the defendant was liable, but **Hsu** was held to be 75% contributory negligent – for his negligent design and for knowingly failing to take reasonable care for his own safety.

Under OLO, Section 3(1), an occupier may try to exclude his liability by a notice or contractual term. However, the occupier should take extreme care in noting the effect of the Control of Exemption Clauses Ordinance (Cap. 71), in which Section 7(2) provides that an exclusion of liability for loss or damage (other than death or personal injury) resulting from negligence will only be valid if it is reasonable.

How much Statutory Control is needed?

One may argue that as long as building owners and O&M personnel are fully aware of their responsibilities over the life-safety, health and well being of any person who may come onto the premises for which they are responsible, there is no need for statutory control over building services maintenance activities. Furthermore, it is to the benefits of the building owners to always maintain the building services installations in good working order. “Prevention is better than cure” is the essence of preventive maintenance, which helps extend the lifespan of equipment, minimise repairs and replacements and optimise energy efficiency, all contributing to lowering of operating costs. Unfortunately, under situations like an economic recession, decisions to cut maintenance budgets will often be made at the sacrifice of longer term benefits and quality of services to occupants.

Although building owners are legally liable for the consequences of their negligent acts that caused damages to others, occurrence of any serious accidents incurs an economic loss to the society as a whole, which should be avoided as far as possible. Imposing regulatory requirements is a policy tool that sets a minimum standard of performance and arouses the concerned parties in the society of their responsibility, which helps minimise damages from arising due to negligent acts. However, imposing any regulatory controls involves institutional costs, including on the government's part those for setting up the administrative arms for their implementation, for surveillance of violations and for prosecuting offenders; and on the part of the parties under control costs for measures to meet the requirements. Therefore, a proper balance needs to be sought, with the objective to minimise the cost to the society (Figure 7).

The stringency of statutory control should be commensurate with the anticipated risk that could result if precautions to meet the level of control are not taken; the higher the risk, the more stringent the control. Table 3 attempts to map the process models with the severity levels of the potential consequences. For instance, Process Model C, which only requires the qualified person to execute the maintenance work, is adequate for maintenance activities of relatively low risks. For situations associated with high risks, Process Model D is more appropriate – it requires execution of the maintenance work by qualified persons; periodic inspection, testing, examination and certification; rectification of identified defects and reporting unsatisfactory test/examination result to relevant authorities.

Voluntary schemes can be a cost-effective alternative policy instrument to regulatory controls. For instance, the Fresh Water Plumbing Quality Maintenance Recognition Scheme (WSD,

2002), launched by the Water Authority in July 2002, is a voluntary scheme intended to encourage building owners to properly maintain plumbing systems, as a measure to maintain tap water quality. A building owner will be awarded a certificate by following the guidelines given in the Consumer Guide Book, which include having potable water storage tanks cleansed once every three months (WSD, 1999). As at 31 March 2003, 193 buildings have been awarded the certificate (WSD, 2003).

The Fresh Water Plumbing Quality Maintenance Recognition Scheme is a good illustration of encouraging maintenance practice beyond regulatory requirements. Adherence to the maintenance guidelines is at the sole discretion of the owner, who is recommended to seek professional advices on practices that suit his building. Note, however, should be taken that there is a mandatory requirement concerning work in confined space, stipulated under the Factories and Industrial Undertakings (Confined Spaces) Regulation (Cap. 59AE), which needs to be observed during cleansing of water tank. The relevant guidance and technical information are given in the Code of Practice (LD, 2000) issued by Labour Department.

Conclusions

In general, statutory requirements impose onto the owners of installations the responsibility to cause the installations to be properly maintained, and onto qualified persons to perform according to the relevant rules and regulations in executing maintenance work. In addition to the statutory requirements, maintenance practitioners should be aware of the common duty of reasonable care and the liability to damages arisen from negligence. Raising awareness in this relation is essential.

Statutory maintenance requirements are installation-specific. In devising a maintenance plan, requirements stipulated in the relevant regulations should be carefully scrutinised and mandatory requirements should be distinguished from common-practices. Seeking advice from maintenance experts with adequate legal knowledge is recommendable, especially when consideration is given to cut maintenance cost. Maintenance practitioners should continuously update their knowledge and be abreast with any amendments in regulatory controls.

Table 1 Major Ordinances/Regulations Governing Building Services Maintenance Activities

Ordinance/Regulation	Building Services Maintenance Activities
Electricity (Wiring) Regulations (Chapter 406E)	Periodic inspection, testing and certification of electrical installations
Fire Service (Installations and Equipment) Regulations (Chapter 95B)	Annual inspection of fire services installations
Lifts and Escalators (Safety) Ordinance (Chapter 327)	Periodic maintenance, examination and testing of safety equipment of lifts and escalators
Building (Ventilating Systems) Regulations (Chapter 123J)	Annual inspection of ventilating systems
Boilers and Pressure Vessels Ordinance (Chapter 56)	Periodic examination of boilers and pressure vessels
Factories and Industrial Undertakings (Suspended Working Platforms) Regulations (Chapter 59AC)	Periodic testing and examination of gondola system
Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations (Chapter 59J)	Periodic testing and examination of davit arms, hydraulic working platforms
Factories and Industrial Undertakings (Goods Lifts) Regulations (Chapter 59O)	Periodic examination of goods lifts and service lifts
Factories and Industrial Undertakings (Confined Spaces) Regulations (Chapter 59AE)	Conditions for working within confined spaces to be observed during cleansing of water storage tanks

Table 2 Common Statutory Orders, Notices and Directions

Issuing Authority/Department	Statutory Order/Notice/Direction
Buildings Department	Drainage works – Order served under Section 28 of Buildings Ordinance (Cap. 123)
	Buried services – Order served under Section 27C of Buildings Ordinance (Cap. 123)
Electrical and Mechanical Services Department	Electrical installation - Notice served under Section 5 of Electricity Ordinance (Cap. 406)
	Lifts and escalators – Order served under Section 27 of Lifts and Escalators (Safety) Ordinance (Cap. 327)
Environmental Protection Department	Drainage discharge – Direction given under Section 3 of Water Pollution Control Ordinance (Cap. 358)
Fire Services Department	Fire Hazard Abatement Notice served under Section 9 of Fire Services Ordinance (Cap. 95)
Gas Authority	Gas installation - Notice served under Section 13 of Gas Safety Ordinance (Cap. 51)
Water Supplies Department	Waterworks - Notice served under Section 16 of Waterworks Ordinance (Cap. 102)

Table 3 Mapping the Process Models with different Consequence Levels

Processes	Process Model				
	A	B	C	D	E
Work undertaken by qualified person?	Yes	Yes	Yes	Yes	Yes
Qualified person to issue certificate?	Yes	Yes	-	Yes	Yes
Prescribed grace period for defects rectification?	-	-	-	Yes	-
Unsatisfactory test/exam result, qualified person to report: "cannot be used"?	-	-	-	Yes	Yes
Endorsement and return of Certificate by government department?	Yes	-	-	Yes	-
Recommended applications for consequence levels of non-compliance	Medium	Low	Very Low	Very High	High

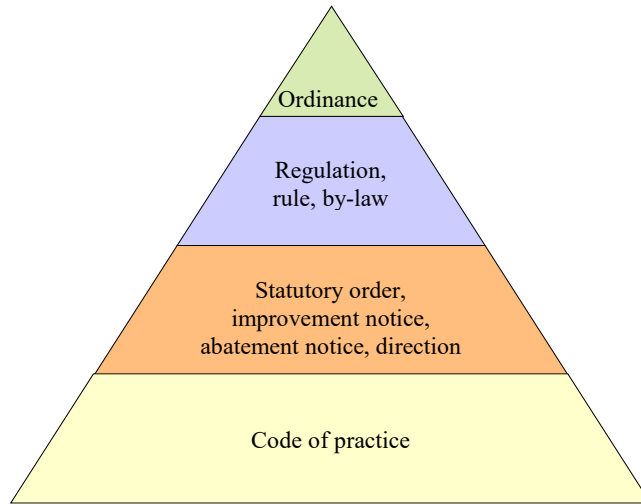


Figure 1 Pyramid of Statutory Requirements

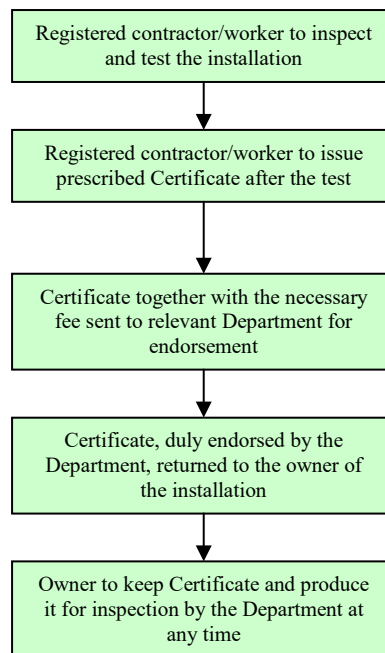


Figure 2 Process Model A

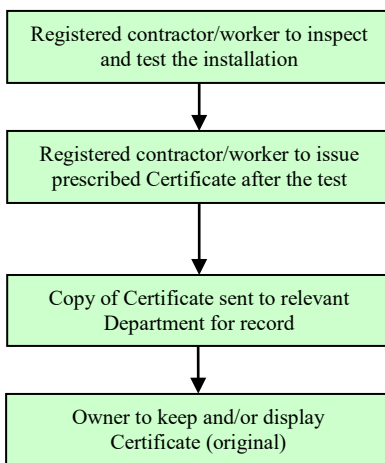


Figure 3 Process Model B

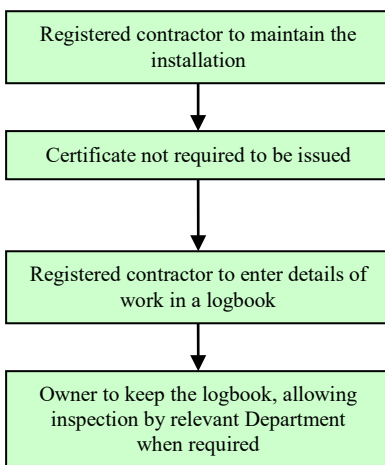
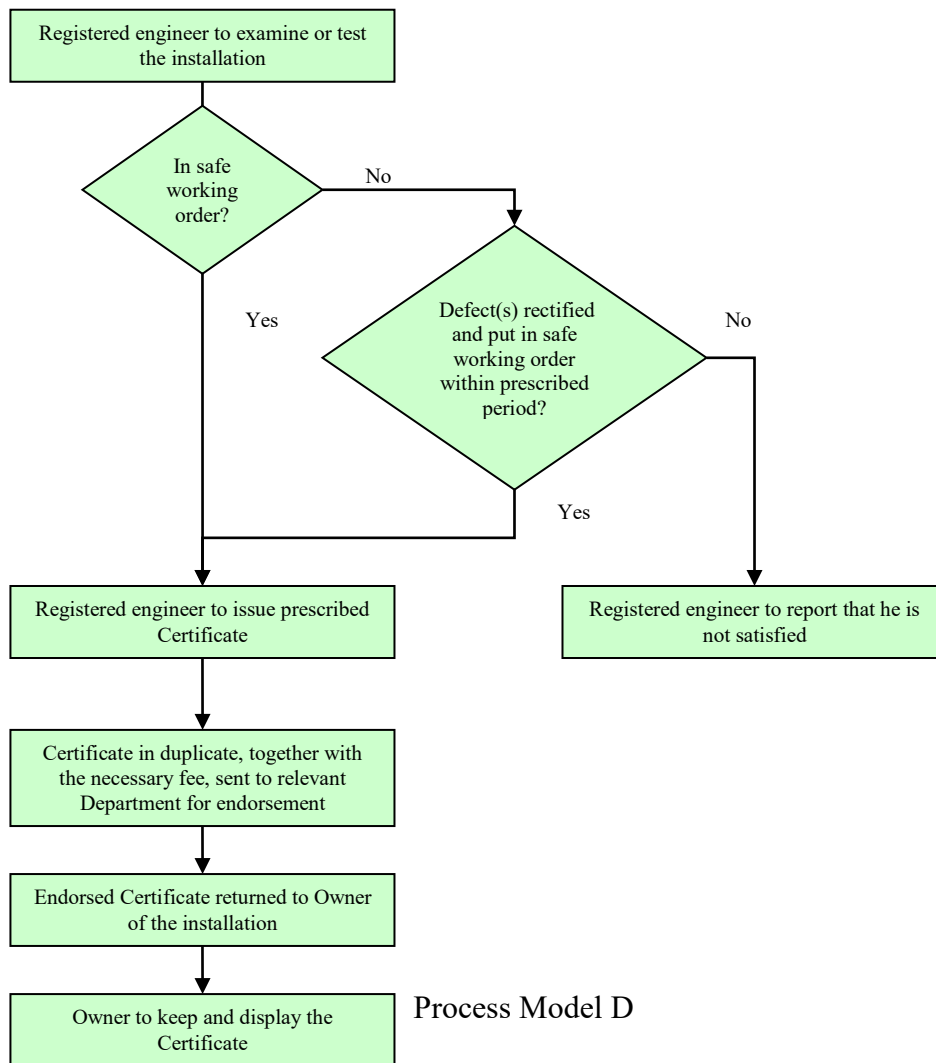


Figure 4 Process Model C



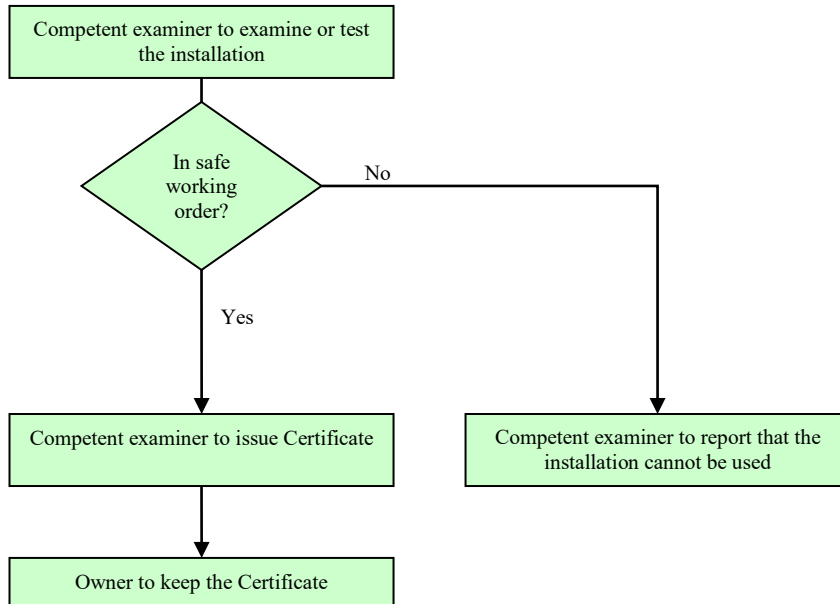


Figure 6 Process Model E

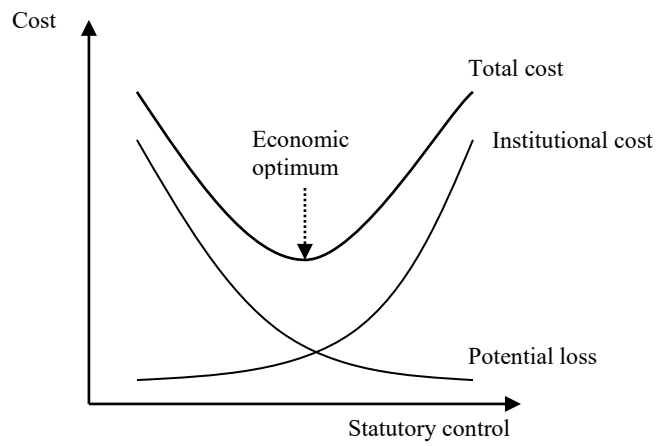


Figure 7 Costs of Statutory Control

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56	Boilers and Pressure Vessels Ordinance (Chapter 56), Hong Kong.
59	Factories and Industrial Undertakings Ordinance (Chapter 59), Hong Kong.
59AC	Factories and Industrial Undertakings (Suspended working platforms) Regulations (Chapter 59AC), Hong Kong.
59AE	Factories and Industrial Undertakings (Confined Spaces) Regulations (Chapter 59AE), Hong Kong.
59J	Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations (Chapter 59J), Hong Kong.
59O	Factories and Industrial Undertakings (Goods Lifts) Regulations (Chapter 59O), Hong Kong.
71	Control of Exemption Clauses Ordinance (Chapter 71), Hong Kong.
95	Fire Services Ordinance (Chapter 95), Hong Kong.
95B	Fire Service (Installations and Equipment) Regulations (Chapter 95B), Hong Kong.
102	Waterworks Ordinance (Chapter 102), Hong Kong.
123	Buildings Ordinance (Chapter 123), Hong Kong.
123J	Building (Ventilating Systems) Regulations (Chapter 123J), Hong Kong.
172	Places of Public Entertainment Ordinance (Chapter 172), Hong Kong.
243	Child Care Services Ordinance (Chapter 243), Hong Kong.
279	Education Ordinance (Chapter 279), Hong Kong.
282	Employees' Compensation Ordinance (Chapter 282), Hong Kong.
314	Occupiers' Liability Ordinance (Chapter 314), Hong Kong.
327	Lifts and Escalators (Safety) Ordinance (Chapter 327), Hong Kong.
358	Water Pollution Control Ordinance (Chapter 358), Hong Kong.
406	Electricity Ordinance (Chapter 406), Hong Kong.
406E	Electricity (Wiring) Regulation (Chapter 406E), Hong Kong.
