FOREWORD

This Food Hygiene Code (the "Code") is the first of its kind ever published by the Government of the Hong Kong Special Administrative Region. It is dedicated to operators of food business and law enforcement officers of the Food and Environmental Hygiene Department (FEHD), the Licensing Authority of food premises. Its main purpose is to help food business understand the ways and means to meet the standards and objectives identified in the provisions made under section 56 of the Public Health and Municipal Services Ordinance, Chapter 132. It also helps law enforcement officers determine if compliance with these standards and objectives has been achieved, with a view to enhancing consistency in the interpretation and enforcement of these standards.

In developing this Code, reference has been made to similar Codes issued by the Food Standards Australia New Zealand, the Canadian Food Inspection System Implementation Group, and the United States Food and Drug Administration.

We will be revising this Code from time to time, and revisions will be issued either as a supplement or a new edition having regard to the extent of revision. An up-to-date version will be posted on FEHD's website: http://www.info.gov.hk/fehd. We welcome comments or suggestions from all interested parties and individuals, which may be addressed to us by letter, facsimile or e-mail as follows:

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Nov 2021

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CHAPTER 1 INTRODUCTION

1.1 Purpose

The objective of this Code is to provide a set of model requirements to help food business achieve a higher degree of compliance with the food regulations as enshrined in the Public Health and Municipal Services Ordinance, Chapter 132, and its subsidiary legislation, and attain a higher standard of food hygiene and food safety through adoption of good practices. It also provides law enforcement officers of the Food and Environmental Hygiene Department and persons engaged in food business a common set of comprehensive advice and guidance on the application of the relevant regulations and recommended ways for compliance, with a view to improving consistency in the interpretation and application of the food regulations by all stakeholders.

To all intents and purposes, this Code is not a substitute for the food regulations and the licensing requirements and conditions imposed to individual licences. It is also not a stand-alone document, but rather to be used in association with the food regulations as well as the applicable licensing requirements and conditions, so that adherence to the provisions in the Code will make compliance easier and the standard of enforcement more consistent. Furthermore, the Code is not a rigid and inflexible document, as it is not intended to prescribe the exact ways that a food business must do in order to comply with the requirements of specific regulations, licensing requirements or conditions. It may be possible for a food business to demonstrate to a law enforcement officer that it has achieved the same objective a particular provision of the Code is intended to achieve in other ways. Also, failure to observe any provisions of the Code by a food business will not itself render it liable to any criminal proceedings of any kind, but any such failure may, in any proceedings whether civil or criminal including proceedings for an offence under the Public Health and Municipal Services Ordinance, Chapter 132, be relied upon by any party to the proceedings as tending to establish or to negative any liability which is in question to those proceedings.

1.2 Scope of Application

This Code applies to all food premises licensable under the Food Business Regulation, the Milk Regulation and the Frozen Confections Regulation including, but are not limited to, the following:

(a) restaurants;
(b) factory canteens;
(c) food factories;
(d) milk factories;
(e) frozen confection factories;
(f) siu mei and lo mei shops;
(g) fresh provision shops;
(h) cold stores; and
(i) composite food shops.

1.3 Definitions

Definitions of common terms contained in this Code are listed as follows:

Clean	free from dirt, dust, grease, waste, food residues and all other foreign visible materials as well as objectionable odour.
Contamination	foods exposed to conditions which permit: (a) introduction of foreign matters including dust, dirt, chemicals and pests, or (b) introduction or multiplication of disease-causing micro-organisms or parasites, or (c) introduction or production of toxins.
Cross-contamination	transfer of micro-organisms or contaminants from one food (usually raw) to another food either directly when one food touches another, or indirectly through hands or equipment.
Equipment	apparatus, vessels, containers, utensils, machines, instruments or appliances used for storing, handling, cooking and cleaning of food.
Food contact surfaces	surfaces that will come into contact with food in a food premises.

Food handler	any person who engages in the handling of food, equipment or utensils that will come into contact with food for a food business.
Food premises	any place where food is supplied, prepared, processed, handled, stored, packaged, displayed, served or offered for sale for human consumption.
Open food	uncooked perishable food and food not contained in containers as to exclude risks of contamination.
Pathogen	a disease-causing micro-organism.
Pest	any animal or insect that may contaminate food or a food contact surface. This includes rats, mice, cockroaches and flies.
Potable	suitable for human to drink or ingest.
Potentially hazardous food	food that requires temperature control to minimize the growth of any pathogenic micro-organisms that may be present or to prevent the formation of toxin.
Poultry	any domesticated bird whether live or dead (chickens, ducks, geese, quails, etc.) commonly used for human consumption.
Ready-to-eat food	food that is ready for immediate consumption at the point of sale. It could be raw or cooked, hot or chilled, and can be consumed without further heat-treatment.
Refuse	any solid waste not carried by water through the sewage system.
Sanitize	apply heat and / or chemicals to destroy micro-organisms including all pathogens.

Temperature abuse	potentially hazardous food not stored, displayed or transported under proper temperature control for a prolonged period of time.
Utensils	articles, vessels, containers or equipment used in the handling, preparation, processing, packaging, displaying, serving, dispensing, storing, containing or consumption of food.
Ventilating system	a system which is either mechanical or electrical, or both, for introducing or exhausting air, which also means an air-conditioning plant.

CHAPTER 2 GENERAL DESIGN AND CONSTRUCTION OF FOOD PREMISES

2.1 Licensing of Food Premises

Under the Food Business Regulation, the Milk Regulation and the Frozen Confections Regulation, operators of all those food premises mentioned in paragraph 1.2 of Chapter 1 are required to obtain licences from the Food and Environmental Hygiene Department before operation of their business. In obtaining their licences, they have to comply with specific licensing requirements pertaining to health, fire and building safety, as appropriate.

Note :	(1)	Failure to operate a food business mentioned in paragraph 1.2 of Chapter 1 with a licence is an offence under **section 31(1) of the Food Business Regulation.**
	(2)	Failure to operate a milk factory with a licence is an offence under **section 14 of the Milk Regulation.**
	(3)	Failure to operate a frozen confection factory with a licence is an offence under **section 17 of the Frozen Confections Regulation.**

2.2 Layout

(a) Food premises should be designed and constructed in such a way that they:
   (i) are appropriate to the activities they are used for;
   (ii) provide adequate spaces for food production and other ancillary facilities and equipment;
   (iii) minimize the likelihood of food contamination;
   (iv) facilitate easy cleaning, sanitizing and maintenance;
   (v) prevent access or harbourage of pests ;
   (vi) keep out dust, dirt, fumes, smoke or other contaminants; and
   (vii) provide a safe environment for workers and customers.

(b) The layout of food premises should be designed in such a manner that:
   (i) food flow is in one direction as far as possible (i.e. receiving → storage → preparation → packaging / serving → transportation → retailing);
   (ii) adequate spaces are provided for food preparation, food storage, scullery, storage of equipment / utensils and installation of

sanitary fitments;

(iii) food or clean eating utensils are not conveyed through an open space or open yard;

(iv) incompatible areas (such as cloakrooms or toilets) are completely segregated from food rooms; and

(v) customers do not have to pass through a food room in going to the toilet.

Rationale

Properly designed and constructed food premises minimize the likelihood of contamination of food arising from unnecessary movement of food and personnel within the premises, or the likelihood of insanitary operations being in close proximity to sanitary operations.

2.3 Kitchens and Food Rooms

Minimum Area for Kitchens and Food Rooms

The total area of kitchens, food preparation rooms and scullery accommodations in every restaurant and factory canteen should not be less than the minimum requirement as stated in either Schedule 4 (licences granted before 1.2.1974) or Schedule 5 (licences granted between 1.2.1974 and 31.7.2010) or Schedule 5A (licences granted on or after 1.8.2010) of the Food Business Regulation. The general rule is that food premises with larger gross floor area should provide more space for food preparation.

Rationale

Adequate space for food preparation is essential to effective and hygienic food preparation having regard to the number of customers to be served. Too small a kitchen or food room may cause congestion and insanitary food operation that increases the risk of food contamination.

2.4 Walls and Ceilings

(a) Walls

(i) Walls should be designed and constructed in such a way that they are capable of being easily kept clean but not providing harbourage for pests.

(ii) Internal surfaces of walls and partitions in kitchens and food rooms should be surfaced with smooth, durable, non-absorbent and easily cleaned materials (e.g. glazed tiles or stainless steel)

to a height of not less than 2 m. The rest may be limewashed or painted. Junctions between walls, partitions and floors should be coved (rounded).

(b) Ceilings

Ceilings should be of continuous construction so that there are no empty spaces or joints. Although ceilings are less likely to require frequent cleaning, the surfaces should allow ease of cleaning. Ceilings in kitchens and food rooms should be limewashed or painted.

(c) False Ceilings

False ceilings in food rooms should have smooth, easily cleaned and impervious surfaces. Access openings to the space above false ceilings should be provided to facilitate cleaning and detection of signs of pest infestation. False ceilings in kitchens should be avoided.

Rationale

Walls and ceilings with durable, impervious and easily cleaned surfaces facilitate cleaning work.

2.5 Floors

(a) Floors in kitchens and food rooms should:

(i) be surfaced with non-slippery, light coloured, non-absorbent and easily cleaned and durable materials (e.g. mosaic tiles);

(ii) be coved at the junctions with walls; and

(iii) be sloped towards a floor drain.

(b) Carpets and mats made of absorbent materials should not be provided in food rooms, food storage areas, toilets and other wet areas. Use of duckboards is not allowed.

Rationale

Non-absorbent materials prevent absorption of water and grease. Suitable sloping enables excess water to be drained away to avoid ponding. Properly constructed floor surfaces are easier to clean and sanitize. All these minimize the risk of contamination of food from environmental sources.

2.6 Floor Drains

Floor drains in kitchens and food rooms should:

(a) be so constructed as to prevent accumulation of waste water;

(b) be easily accessible for cleaning and clearing of chokage; and

(c) be properly trapped, vented and connected to a proper drainage system.

Rationale

Accumulation of waste water on the floor of food premises increases the risk of food contamination. Properly designed and constructed floor drains can eliminate water accumulation and prevent entry of pests to food premises.

2.7 Water Supply

(a) Adequate potable water either obtained from public mains or a source approved by the Food and Environmental Hygiene Department should be installed on the food premises for cleaning and food preparation purposes.

(b) Adequate supply of hot water should be provided for all activities conducted on the food premises as far as possible. The hot water should be of sufficient temperature to achieve effective cleaning and sanitizing purposes.

(c) Water storage tanks for potable water should be designed and constructed in such a manner as to prevent contamination. To prevent the access by animals, birds and other extraneous matters, they should be provided with covers. Overflows should be screened as well.

Rationale

Use of public mains water or water obtained from an approved source ensures that the water is clean and safe to drink and can avoid contamination of food or equipment. Adequate supply of water is necessary to facilitate effective cleaning and safe food processing operations.

2.8 Handwashing Facilities

(a) Every food room, kitchen and scullery area should be equipped with at least one wash hand basin for use by the staff. The standard of provision is one basin for every 20 staff.

(b) Wash hand basins should:
   (i) be of permanent fixture, located where they can be easily accessible for use. For those provided for toilets, they should be located either inside the toilet or immediately adjacent to the toilet;
   (ii) be of glazed earthenware or other materials that are smooth, durable, non-absorbent and easily cleaned, with a size of not less than 350 mm in length (measured between the top inner rims); and
   (iii) be connected to public mains water supply or a source approved by the Food and Environmental Hygiene Department, preferably with both hot and cold water supplies. They should be fitted with a waste pipe with trap before being connected to a proper drainage system.

(c) If the water tap is to supply water intermittently, water should be allowed to run continuously for at least 20 seconds for every supply.

Rationale

Improper handwashing is a major contributing factor to outbreaks of foodborne illnesses. Provision of proper and adequate handwashing facilities is essential to minimizing food contamination and maintaining personal hygiene. Handwashing with hot water can help remove grease from hands.

2.9 Scullery Facilities

(a) There should be at least one wash-up sink in every food room and kitchen.

(b) Every wash-up sink should:
   (i) be of glazed earthenware, stainless metal or other materials that are smooth, durable, non-absorbent and easily cleaned, with a size of not less than 450mm in length (measured between the top inner rims); and

(ii) be connected to public mains water or a source of supply approved by the Food and Environmental Hygiene Department, preferably with both hot and cold water supplies, and fitted with a waste pipe with trap before being connected to a proper drainage system.

(c) At least one sterilizer of not less than 23-litre capacity should be provided for sterilization of all crockery, glassware and utensils used in the preparation and service of food. Perforated metal or wire dipping trays should be provided to hold the crockery etc. being sterilized. Alternatively, a mechanical dish washer or bactericidal agent of a type approved by the Food and Environmental Hygiene Department may be used.

Rationale

Provision of scullery facilities is crucial to minimizing the risk of contamination of food by removing the debris, soil and bacterial film from utensils and crockery that may come into contact with food. Provision of hot water can help remove grease from utensils.

2.10 Toilet Facilities

(a) Food premises should have adequate toilets for the use of food handlers and customers.

(b) Unless approved by the Food and Environmental Hygiene Department, sanitary fitments should be provided to a standard of not less than that required by regulations 5 and 8 of the Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations, Chapter 123I.

(c) Toilets should:
   (i) be of adequate size, conveniently located and easily accessible, but should not communicate directly with any food room or require customers to pass through a food room to get to them;
   (ii) be well ventilated and lit; with all walls, floors and sanitary fitments made of smooth, durable and impervious materials; and
   (iii) be segregated and provided with separate entrances for persons of either sex and with self-closing doors.

Rationale

Provision of well-equipped and properly located toilet facilities prevents equipment and food from faecal contamination that may be carried by insects, hands or clothing. A properly maintained toilet can reduce the likelihood of spread of foodborne diseases.

2.11 Sewage and Waste Water Disposal

(a) All sanitary fitments and handwashing facilities should be connected to a proper sewage or waste water disposal system. Where there is no public sewer serving the premises, sewage / waste water treatment facilities (e.g. a sewage treatment plant), which meet the discharge standards required by the Water Pollution Control Ordinance, Chapter 358, should be installed.

(b) No manhole should be situated inside any kitchen or food room. All soil / waste / rainwater pipes inside any kitchen, food room or seating accommodation should be enclosed in pipe ducts constructed of impervious rust-proofing materials such as stainless steel of 1.6 mm or brickwork of 115 mm with plaster on the outside. Suitable inspection openings should be provided for the enclosures.

Rationale

Sewage and waste water are likely to contain pathogenic organisms. Proper disposal of sewage and waste water is essential to preventing transmission of pathogens in food premises.

2.12 Grease Traps

(a) All greasy waste water from food premises, especially that from sinks and cooking stove areas, should be collected and discharged to a foul water drain via a grease trap of sufficient capacity to treat a volume of waste water discharged during peak trade hours.

(b) The grease trap should be of such design and construction as to ensure effective removal of grease from entering the sewerage system and be easily accessible for cleaning and inspection (see Diagram 1). It should be fitted with cover made of light but strong material. Underground grease traps should be protected from entry of surface water by raised kerbs or surface channels.

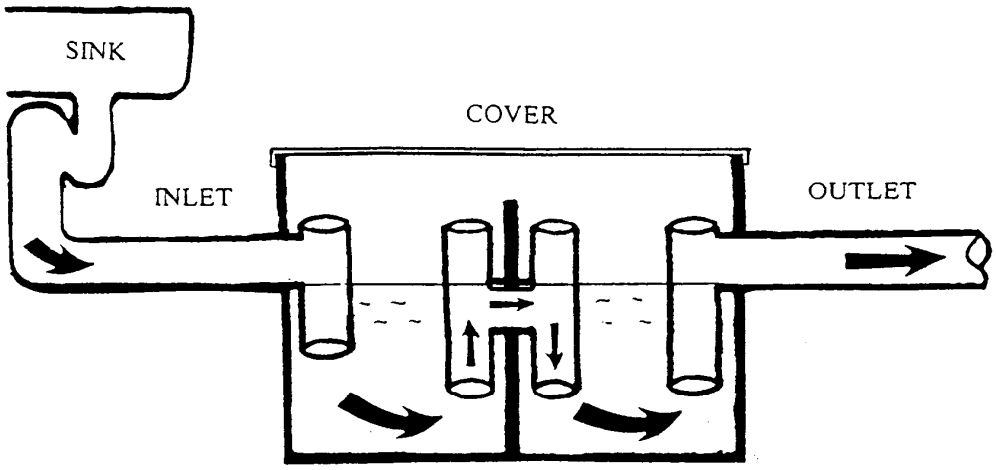

Diagram 1: Typical Construction of a Grease Trap

Rationale

A properly designed and constructed grease trap can effectively remove greasy waste from the waste water before discharged to the sewerage system, thereby minimizing the possibility of clogging of sewers due to accumulation of greasy waste, and reducing the loading of water pollutants.

2.13 Waste Storage

(a) All areas of food premises that will generate waste or refuse should be provided with at least one waste container for temporary storage of solid waste on the premises. Waste containers should possess the following features:

(i) be sufficient in number to cope with the normal waste yield generated by the food premises while awaiting next waste removal;

(ii) be constructed of strong and impervious materials;

(iii) be either cylindrical in shape or tapered towards the bottom, with smooth internal surfaces;

(iv) be provided with a close fitting cover or lid, and be fitted with handles; and

(v) be easily accessible for use.

(b) Waste storage areas / rooms should be kept away from food rooms / kitchens and be well ventilated if possible. The walls, floors and ceilings should be designed and constructed in such a way that enables them to be easily cleaned.

Rationale

Solid waste, if not properly contained, attracts pests, contaminates food and causes sanitary nuisances. Proper disposal of waste and maintenance of waste storage facilities prevent entry and harbourage of pests inside and outside food premises, and minimize the likelihood of spread of pathogens.

2.14 Ventilation

(a) Food premises should have sufficient natural or mechanical ventilation to effectively remove fumes, smoke, steam, heat and condensation arising from the food premises, and supply fresh air thereto. Adequate propulsion fans and extraction fans should be provided, with the point of intake or discharge being in the open air (a space that is vertically uncovered and unobstructed) at a height of not less than 2.5m from the ground level and in such a manner as not to cause a nuisance.

(b) Ventilating systems housed inside restaurants and factory canteens should comply with section 4(1) of the Ventilation of Scheduled Premises Regulation (Cap. 132 subsidiary legislation). A Letter of Compliance for installation of ventilating system shall be obtained from the Director of Fire Services.

2.14.1 Ventilating Systems for Seating Accommodation inside Restaurants and Factory Canteens

(a) Where natural ventilation is insufficient for the seating accommodation inside restaurants and factory canteens (i.e. where openings or windows which can be opened to the open air are less than 1/10 of the floor area), a mechanical ventilating system should be provided to give not less than $17m^3$ of outside air per hour for each person that the premises are designed to accommodate. Seating areas, kitchens / food rooms and toilets should have their own independent ventilating system.

(b) Air filters in every ventilating system should be indicated by filter gauge, filter flag indicator or differential pressure switch.

(c) Every blower fan should be fitted with a fused running hour meter connected to the load side of the fan contactor with a device for recording time in minutes and hours. Each fused running hour meter should be sited in an easily accessible and conspicuous place to

facilitate inspection.

2.14.2 Ventilating Systems for Food Rooms and Kitchens

(a) Cooking range inside kitchens and food rooms should be equipped with an exhaust system that can efficiently and effectively remove all fumes, smoke, steam or any vapour arising from food operations. The design and capacity of the system should always be based on the expected peak load conditions.

(b) The exhaust system should be installed with a metal hood properly connected to an air-duct fitted with an extraction fan of sufficient capacity. All exhaust should be arranged to pass through a grease filter and, if required, an air pollution control equipment (e.g. a water scrubber or electrostatic precipitator) before being discharged into the open air in such a manner and at such a position as not to be a nuisance.

(c) Fresh air supply system fitted with propulsion fans with adequate capacity should be installed in food rooms and kitchens.

(d) If solid fuel or diesel oil is used, all smoke should be discharged through a chimney above the roof level.

[Further details on oily fume and cooking odour problems and possible solutions can be found in the booklet "Control of Oily Fume and Cooking Odour from Restaurants and Food Business" available from the Environmental Protection Department.]

Rationale

Adequate supply of clean and quality fresh air to food premises is important for preventing contamination of food and equipment and for the good health of the employees and customers. Unclean air, dust, odours, condensation and grease are all essential sources of food and air contaminants, excessive accumulation of which will not only cause harmful effect to the health of employees and customers of food premises, but also pose a fire hazard.

2.15 Equipment

(a) Food Contact Surfaces of Equipment

(i) "Food contact surfaces" means surfaces that will come into direct contact with unprotected foods. Examples are cooking and processing equipment, knives, chopping boards, eating and drinking utensils, containers in which foods are processed or stored, drink dispensing machines, surfaces of food preparation tables, equipment used to wash food, meat mincers, meat slicers and thermometers, etc.

(ii) Food contact surfaces of equipment should:

(1) be made of materials that are corrosion resistant, smooth, non-absorbent, durable, with no toxic effect, and do not pass on colours, odours, tastes or unsafe substances to food;
(2) be impervious to grease, food particles or water;
(3) be free from cracks, crevices, open seams, chips, sharp internal angles or corners;
(4) be finished to have smooth welds and joints;
(5) be easily and effectively cleaned, sanitized; and
(6) be easily accessible for cleaning, sanitizing and inspection (capable of being disassembled if necessary).

(iii) Separate knives and chopping boards should be used for cutting up ready-to-eat food and not ready-to-eat food. They should be clearly and conspicuously distinguished, e.g. by using colour code.

(b) Non-Food Contact Surfaces of Equipment

Non-food contact surfaces of equipment should:

(i) be free from unnecessary projections and crevices; and
(ii) be designed and constructed to allow easy cleaning and maintenance.

Rationale

Food contact surfaces should not introduce into food any substance which may be harmful to the health of consumers, such as migration of copper or lead to acidic food or beverages. Properly designed food contact surfaces can facilitate effective cleaning and sanitizing.

2.16 Lighting

(a) Adequate natural and / or artificial lighting should be provided in food premises to ensure safe production of food and facilitate cleaning of premises.

(b) All lighting and light fixtures should be designed to avoid accumulation of dirt and be easily cleaned. Lighting fixtures in food preparation areas should be protected with shatter-proof covers to prevent broken glass from falling onto the food, food utensils or food equipment in the event of a breakage.

Rationale

Adequate lighting facilitates easy identification of dirt, helps maintain the hygienic condition of food premises and promotes safe food production. Protection of lights by shields is important for preventing contamination of food by glass fragments.

CHAPTER 3 CLEANING, SANITIZING AND MAINTENANCE OF FOOD PREMISES, EQUIPMENT AND UTENSILS

3.1 Premises and Physical Facilities

Food premises, their fixtures, fittings, equipment and utensils should be maintained to an acceptable standard of cleanliness, and in a good state of repair and working order having regard to their use. There should be effective systems in-place to:

(a) ensure adequate and appropriate maintenance, cleaning and sanitizing of their facilities and equipment;
(b) control pests;
(c) remove waste; and
(d) monitor and record the effectiveness of maintenance and sanitizing procedures.

3.1.1 The Premises (Other than Food Rooms and Kitchens)

(a) Walls, Floors, Doors and False Ceilings, etc.
The walls, floors, doors, false ceilings, woodwork and all other parts should be:
(i) kept clean, free of visible obnoxious matters or objectionable odours, especially that there should be no accumulation of:
(1) refuse, food waste or recycled matters except in proper containers;
(2) dirt;
(3) grease; and
(4) other visible matters that may adversely affect the standard of cleanliness of the premises, such as mould and cobwebs.

(ii) kept in such good order, repair and condition so that they are not broken, split, chipped or worn out, etc. as to enable them to be effectively cleaned and prevent, so far as reasonably practicable, the risk of infestation by pests and entry of birds.

Note : Failure to maintain the cleanliness and repair of food premises is an offence under **section 5(1) of the Food Business Regulation.**

(b) Windows, Doorways and Other Openings in Walls and Ceilings

Doors especially their handles, knobs or plates that may come into contact with food handlers' hands; windows, window frames, and window sills; and other surrounds to openings in walls and ceilings should be effectively cleaned. They should also be maintained in such a condition that they will not allow pest infestation.

(c) Adjacent Surroundings

Streets, lanes and other public places or the common part of a building, which are within 6 m of the food premises, should be kept clean and free of litter or waste.

> Note : Any person who fails to comply with a notice issued by a public officer requiring him to remove the waste or litter found in a public place or common part of a building which is within 6 m of his premises is an offence under **section 5(1) or 5(2) of the Public Cleansing and Prevention of Nuisances Regulation.**

(d) Cleaning and Sanitizing Programme

Effective cleaning and sanitizing can remove food remnants, dirt and micro-organisms, thus minimizing the risk of food contamination and food poisoning. To achieve the standard of cleanliness, a cleaning / sanitizing programme should preferably be developed to ensure that cleaning / sanitizing is conducted in a systematic and regular manner. The programme may vary according to the size of operation of food premises. A well-planned cleaning / sanitizing programme should include:

(i) areas and items of equipment and utensils to be cleaned / sanitized;
(ii) frequency of cleaning / sanitizing required for each item;
(iii) specific standard washing / cleaning / sanitizing procedures;
(iv) equipment and methods to be used;
(v) chemicals or processes to be used; and
(vi) the staff responsible for each task.

A suggested cleaning / sanitizing programme is shown at **Annex I**.

(e) Maintenance

All parts of the premises, fixtures, fittings and equipment should be maintained at all times in a state of good repair and working condition to:

(i) prevent contamination of food by plaster, paint, broken glass or leaking pipes, etc.;

(ii) enable effective cleaning and, if necessary, sanitizing;

(iii) ensure pests cannot gain access to the premises from hollow spaces in ceilings, walls, etc.; and

(iv) ensure that the equipment works as intended.

3.1.2 Kitchens and Food Rooms

(a) Floors

(i) Floors should be free from accumulation of food waste, dirt, grease or other visible obnoxious matters. They should be washed with detergents at least once daily. Hot water or steam may be used for better removal of grease. Covings between floor and wall junctions should be kept clean, in good repair and be bonded firmly to their positions.

(ii) Floor surfaces should be maintained in good condition, free of cracks, crevices or other defects. There should be no dips or hollows.

(b) Walls and Ceilings

(i) Wall materials such as tiles or stainless steel should be firmly bonded to the surfaces.

(ii) Walls of food rooms and kitchens should be cleaned frequently, about once daily or more if necessary. Wall surfaces or ceilings should be clear of unnecessary fittings or decorations such as posters or pictures as far as possible.

(iii) Any furniture or equipment, which cannot be moved by one man, should not be placed too near to any wall inside kitchens or food preparation rooms as to obstruct access to such places for cleaning. Alternatively, heavy equipment can be installed with wheels to facilitate easy removal for cleaning.

(iv) Junctions between walls, and between walls and ceilings, should be tightly sealed and maintained in good condition, and free from cracks, crevices, holes or gaps or flaking materials. Any holes or gaps that may allow access of pests to wall and ceiling cavities should be sealed up.

(v) Surfaces of ceiling should be smooth and preferably finished in washable paint to facilitate cleaning, although frequent cleaning is not necessary.

(vi) Ceilings should be maintained in a good state of repair so that there are no spaces or joints, and be kept in a clean and sanitary condition.

(c) <u>False Ceilings</u>

False ceilings should be periodically cleaned to remove accumulation of dust, particles or debris that may fall onto foods as to cause contamination.

Note :	Failure to maintain floors, walls and ceilings, etc. of food rooms clean and in good condition is an offence under **section 15(1) of the Food Business Regulation.**

Rationale

Accumulation of food waste, dirt and grease, etc. provides food for pests and enables microbial growth, which are conducive to food contamination. These dirt and waste may come from a variety of sources including food spills, food handlers' shoes, linens and food packaging, etc. brought into the premises. Accumulation of liquid on floors could provide a water source for pests and encourage their presence in the premises. It could also be a source of microbial contamination. Cracks, crevices or similar defects on walls, floors or ceilings can harbour pests or become their breeding grounds. Effective, frequent and regular cleaning, sanitizing, and maintenance of floors, walls, ceilings and equipment are thus necessary for removal of food contaminants and prevention of microbial proliferation.

3.1.3 Water Supply

(a) Only potable water can be used for:
  (i) cleaning and preparing food;
  (ii) cleaning surfaces that may come into contact with food or hands of food handlers; and
  (iii) handwashing.

(b) All ice to be used in food and drinks must be made from potable water. Ice used to cool open foods in buffet displays must also be made from potable water. Ice for drinks should not be handled with bare hands.

(c) Water pipes, either hot or cold, should be maintained in good condition and order at all times to prevent leakage or defects that would result in contamination of food.

(d) Water storage tanks for potable water should be regularly cleaned and disinfected to prevent contamination.

(e) Water drawn from wells for air-conditioning purpose should be arranged in a closed circuit system, and all pipes conveying such water should be properly distinguished by being painted in black.

Rationale

Adequate water supply is necessary to ensure effective cleaning and safe food production. Water used for food preparation, cleaning and scullery purposes should be of safe quality to avoid contamination of food or food equipment.

3.1.4 Handwashing Facilities

(a) Wash hand basins should be clean, equipped with adequate supply of cold water, preferably with hot water, and provided with liquid soap and suitable drying facilities.

Note : Failure to observe this is a breach of licensing condition.

(b) Liquid soap, which helps remove bacteria and dirt on hands, should be discharged from dispensers.

(c) Hand-drying facilities should be of single-use, such as clean paper towels, continuous cloth towel in dispensers or electric hand dryers. For continuous cloth towel in dispensers, the dispensers should be constructed in such a way that users can only retrieve the clean and unused portion of the cloth towel, which should also be dry, sanitized, unworn, of good quality and free of stains.

(d) Wash hand basins should be easily accessible for use by workers and customers. They should not be obstructed by articles to enable them to be conveniently used and cleaned.

(e) Wash hand basins should be used for the sole purpose of washing hands, arms and faces. They should be easily identified in some ways that they are used for such purpose only, say, by putting up a notice such as "For handwashing only" or "Not to be used for washing food or utensils", etc.

(f) If one compartment of a twin-sink is designated for handwashing, this compartment should be clearly indicated by a sign to such effect, and must not be used for any other purpose. Separate water taps should be provided to such twin-sinks.

(g) There should not be any draw-off taps other than wash hand basins in any yard or open space.

Rationale

Handwashing is important to maintenance of personal cleanliness and hygiene, especially for food handlers who are likely to transmit bacteria or harmful microbes onto food, food contact surfaces, or equipment if their hands are contaminated. Provision of adequate handwashing facilities is crucial to the prevention of food contamination and spread of foodborne diseases.

3.1.5 Scullery Facilities

(a) Separate sinks should be provided for food preparation and equipment washing if the volume of preparation in the kitchen demands it. All scullery and food washing activities should be done in sinks within food rooms or kitchens.

(b) Wash-up sinks should be cleaned at a frequency that prevents

accumulation of grease deposits and other residues.

(c) Sinks used for the purpose of washing ready-to-eat foods should be cleaned and sanitized before use.

(d) Wash-up sinks should not be obstructed from use by miscellaneous articles.

(e) Handwashing should not be carried out in sinks, especially in those used for washing food. Sinks should preferably be identified in some ways that they are used for such purpose only, e.g. by putting up a notice such as "For washing food or utensils only" or "Not to be used for handwashing", etc.

(f) Sterilizers and mechanical dish washers should be kept clean and in a good state of repair and working order.

Note : Failure to keep scullery facilities such as wash-up sinks and sterilizers clean, free from noxious matter and in good condition in food premises is an offence under **section 6 of the Food Business Regulation.**

Rationale

Dirty sinks or drip boards can be a source of contamination of food and equipment. A well functioned sterilizer or mechanical dish washer can effectively destroy the micro-organisms on the surfaces of equipment and utensils.

3.1.6 Toilet Facilities

(a) Sanitary Fitments

Sanitary fitments should at all times be maintained in a clean and sanitary condition, free from dirt or obnoxious smell, in good working order and repair, free from cracks or crevices, and cleared of chokage. Adequate supply of flushing water should be provided to ensure proper disposal of sewage matters.

Note : Failure to keep sanitary fitments clean and in good order is an offence under **section 15A of the Food Business Regulation.**

(b) Floor and Wall Surfaces

Floor and wall surfaces should be maintained smooth, free of cracks or crevices, and impervious to grease and moisture. They should be frequently cleaned with water and detergents, and should be kept dry at all times.

(c) Supply of Toilet Paper

Each water closet should be provided with an adequate supply of toilet paper at all times.

Note : Failure to observe this is a breach of licensing condition.

(d) Provision of Wash Hand Basins

(i) Wash hand basins in toilets should at all times be provided with adequate supply of water, liquid soap in dispensers and single-use hand-drying facilities such as clean paper towels, continuous cloth towel in dispensers or electric hand dryers.

(ii) For continuous cloth towel in dispensers, the dispensers should be constructed in such a way that users can only retrieve the clean and unused portion of the cloth towel, which should also be dry, sanitized, unworn, of good quality and free of stains.

Note : Failure to observe this is a breach of licensing condition.

(iii) For sensor-type water taps, it is preferable that adequate signs and instructions indicating how to use the taps be clearly and conspicuously displayed to ensure that users understand how to make use of the facilities.

(e) Provision of Dustbins

(i) Dustbins should be provided for storage of used paper towels.

(ii) Female toilets should be provided with covered receptacles for storing used sanitary napkins.

(f) Ventilation

Toilets should be well ventilated at all times. Ventilation facilities including extraction fans and ductings should be clean and in good working condition. They should be regularly checked and cleaned to ensure proper functioning.

(g) Use of Toilets for Other Purposes

Toilets should not be used for any other purpose. All parts of the toilets should be cleared of obstructions and be easily accessible for use. Use of toilets for storage of food or food equipment / utensils is strictly prohibited.

Rationale

Properly maintained toilet facilities, apart from maintaining personal hygiene, can protect equipment, utensils and food from faecal contamination that may be carried by pests, food handlers and customers, so that the opportunities for spread of foodborne diseases can be minimized.

3.1.7 Sewerage and Plumbing

(a) All sewage and waste water produced from food premises should be discharged to a proper foul water sewer in a sanitary manner. Waste water and food remnants should not be discharged into surface gutters or surface channels inside or outside the food premises. Food business should be temporarily suspended when there is any backflow of sewage or waste water into the kitchen / food room or in other parts of the food premises.

(b) Sewerage and plumbing systems should be maintained in good repair and in good working condition. They should be devoid of any defects, chokage, leakage or overflow; and should not allow access of pests to the food premises.

Rationale

Sewage and waste water are highly contaminated matters. Their proper disposal, apart from prevention of environmental pollution, is critical in safeguarding spread of foodborne diseases in food premises, and helping minimize pest infestation inside and outside the premises.

3.1.8 Grease Traps

(a) Grease traps should be regularly inspected, and preferably not less than once daily. A grease trap will only be functioning when:
   (i) water entering and leaving the trap takes the path as shown in Diagram 1 in paragraph 2.12 of Chapter 2;
   (ii) there is no leakage or chokage; and

(iii) only a thin layer of solidified greasy waste is accumulated on the water surface.

(b) The greasy waste should be promptly removed if the top 30% of liquid depth of the grease trap is occupied by it. Ways to remove the greasy waste are as follows:

(i) scoop the greasy waste into a plastic bag;

(ii) seal the plastic bag and put it into a container specially for this purpose for subsequent disposal; and

(iii) clean the adjoining floor surfaces thoroughly afterwards.

[Greasy waste water should be treated by grease trap or other waste water treatment facilities to meet the required licence standards before making discharge. Reference may be made to the booklet "Grease Traps for Restaurants and Food Processors" issued by the Environmental Protection Department.]

Rationale

Waste water from food premises carries a large quantity of grease, which should be removed from entering the drains or sewers to prevent clogging when it gets into them, solidifies and accumulates there. A clogged drain / sewer causes backflow of waste water and emits bad odour, posing hazard to food safety and environmental hygiene.

3.1.9 Waste Storage and Disposal

(a) Cover

Waste containers should be properly covered by close fitting lids to prevent access of pests and animals.

Note : Failure to provide a close fitting lid or cover for the dustbin is a breach of licensing condition.

(b) Cleaning and Maintenance

Waste containers should be thoroughly washed regularly with detergent and water to remove the dirt and residues. Waste containers with cracks should immediately be replaced. Use of bamboo baskets as waste containers and storage of waste in lanes or pavement are strictly prohibited. If there is a waste / refuse storage room in the food premises, its walls, floors and ceilings should be kept clean and

maintained in good condition. There should be no ponding of water on the floor after hosing.

(c) Frequency of Emptying

Waste and refuse should be removed at a frequency that will minimize the development of objectionable odour and other risk of attracting or harbouring pests or animals, but should at least be once daily.

Rationale

Waste is a potential source of pathogens and food contaminants. Proper disposal of waste is important for preventing the spread of pathogens inside food premises and contamination of food. Properly maintained waste containers can discourage the access of pests and animals.

3.1.10 Ventilating Systems in Kitchens and Food Rooms

(a) All metal hoods, ductings, extraction fans, grease filters and water scrubbers of exhaust and extraction systems should be maintained in a reasonably clean condition, i.e. free from grease and dirt. Exhaust and extraction systems should be in operation during business hours and in efficient working condition manifested by absence of accumulation of fumes or condensation in the kitchens and food preparation rooms.

Note : Failure to observe this is a breach of licensing condition.

(b) Grease filters or air pollution control equipment like water scrubbers should be:

(i) regularly washed or changed to prevent building up of grease or dirt on the filter; or forming condensation to fall on food, food contact surfaces or utensils, etc.; and

(ii) fixed in their positions unless temporarily removed for cleaning or repair.

(c) Propulsion fans for kitchens and food rooms should be maintained in good working order and clean condition, and must be in operation during business hours to ensure adequate supply of fresh air to kitchens and food rooms.

Rationale

Excessive fumes, smoke, grease or vapour pose potential hazards to health of workers and fire safety, and are potential sources of food contamination. Dripping grease or condensation can contaminate food or food contact surfaces. Provision of adequate natural and mechanical ventilation can keep the air clean and healthy by removal of excessive fumes or vapour, and introduction of fresh air.

3.1.11 Ventilating Systems in Restaurants and Factory Canteens

(a) Ventilating systems in restaurants and factory canteens should be kept fully in operation at all times when the premises are open to the public. They should be maintained in good condition and repair to ensure a supply of $17m^3$ per hour of fresh air for each person in the premises. Periodic checks to ventilating systems including their fans and guards should be conducted to ensure proper functioning.

(b) Air Filters and Filter Flag Indicators

Air filters / grilles of ventilating systems should be removable for cleaning, and be cleaned regularly to prevent accumulation of dirt and dust. Filters should be cleaned by water and detergent, or be replaced, when the filter gauge or differential pressure switch shows an increase of 50 Pascals over the designed air filter pressure drop, or when the filter flag indicator shows "dirty". Moreover, air filters should be installed in such a manner that all incoming air must pass through them before distributed within the premises. All grilles should be tightly fixed in their positions to guard against entry of rodents.

(c) Fused Running Hour Meters

Each fused running hour meter installed for ventilating systems should be checked regularly to ensure that it is functioning properly.

(d) Annual Inspection

Ventilating systems in restaurants and factory canteens should be inspected at intervals not exceeding 12 months by registered specialist contractor (ventilation works category) in accordance with the Ventilation of Scheduled Premises Regulation. A copy of the certificate proving that the ventilating system has been inspected by a registered specialist contractor should be submitted to the Food and Environmental Hygiene Department within 21 days of such an

inspection.

Note : Failure to observe this is a breach of licensing condition.

Rationale

Air supplied to food premises should be of sufficient quality and quantity to replace contaminated air for the health of workers and customers.

3.2 Equipment, Utensils and Linens

3.2.1 Equipment and Utensils

(a) Food Contact Surfaces of Equipment and Utensils

(i) Cleanliness and Maintenance

(1) Food contact surfaces of equipment and utensils, such as crockery, cutlery and tableware, should be maintained in a good state of repair and working condition. They should be smooth, free of cracks and crevices, and be kept clean and free from noxious matters by regular cleaning and sanitizing at a frequency that prevents accumulation of grease deposits, dirt and other residues, having regard to their use.

(2) A food contact surface should be cleaned and sanitized between each use for raw food and ready-to-eat food. If an equipment or utensil is used continuously at room temperature for handling potentially hazardous foods (e.g. meat slicers), it should be cleaned and sanitized at least once every 4 hours.

(3) Cutting surfaces such as chopping blocks and cutting boards which are subject to scratching and scoring should be resurfaced if they become too difficult to be effectively cleaned and sanitized, and should be discarded if resurfacing is impossible.

(4) Any part of a thermometer, especially the temperature probe, that will be inserted into the food for temperature measurement is a food contact surface, which should be

cleaned and sanitized between uses, particularly between each use for measuring the temperature of raw food and ready-to-eat food.

Note :	Any person who fails to keep all equipment and utensils used in the course of a food business clean, free from noxious matters, in proper repair, free from cracks or chipping, etc. commits an offence under **section 6 of the Food Business Regulation.**

Rationale

Food contact surfaces of equipment and utensils should be maintained in a clean and sanitary condition to prevent contamination of food. Special care should be taken to clean and sanitize the equipment and utensils that have been used for handling raw food before being used again for handling ready-to-eat food to avoid cross-contamination.

Chipped or cracked eating or drinking utensils pose food safety risk because such defects can harbour dirt and bacteria, and impair the surfaces' ability to be effectively cleaned and sanitized, thereby allowing the transmission of infectious diseases. Moreover, they may contaminate food directly if broken or chipped pieces fall into the food, and the exposed sharp edges can easily cause injuries to customers.

(ii) Cleaning and Sanitizing

Cleaning and sanitizing of equipment and utensils should be done as separate processes. A surface needs to be thoroughly cleaned before it is sanitized.

(1) Cleaning

Cleaning is a process for removal of contaminants such as food residues, dirt, grease and bacterial film from a surface, which is achieved by the use of water and proper detergent. Thorough cleaning can be achieved by:

- firstly, pre-scraping the utensils or surfaces and rinsing with clean water to remove most of the food residues, dirt and debris present;
- secondly, washing with warm water and detergent by agitation to loosen the remaining food residues and dirt;
- lastly, rinsing with clean water to remove the loosened food residues and dirt, and to get rid of the residues of detergent by clean water.

Detergents used for cleaning food contact surfaces should be appropriate for the task, and be able to effectively remove food residues on equipment and utensils.

Agitation can be done manually with the use of cloth, scrapers, scourers or brushes; or mechanically by means of mechanical dishwashers that can deliver water at such a pressure as to provide the agitation required for removing food residues and other soil from the surfaces of utensils or equipment.

(2) Sanitizing

After cleaning, food contact surfaces of equipment and utensils can be sanitized by:

- being immersed in boiling water for not less than one minute inside a sterilizer; or
- being immersed in a non-toxic solution containing a bactericidal agent of a type approved by the Food and Environmental Hygiene Department at a temperature of not less than 24°C for at least one minute; or
- mechanically washed in a mechanical dishwasher of a type approved by the Food and Environmental Hygiene Department.

Most of the bactericidal agents used in food premises are chlorine-based compounds. Instructions on how to use the agents should always be followed, especially the optimal combination of the temperature, pH and concentration of the agent. If the instructions are not clear, further advice should be sought from the supplier.

(3) Drying

All cleaned and sanitized equipment and utensils should be thoroughly dried by evaporation (air dry).

(4) Storage

Cleaned and sanitized equipment should be stored in a cupboard which has been rendered proof against the access of dust and pests, if not for immediate use.

Note : Any person who fails to clean and sterilize utensils used in the preparation or consumption of food commits an offence under **section 19 of the Food Business Regulation.**

Rationale

Utensils and equipment should be sanitized, either mechanically or manually, after cleaning to minimize the risk of food becoming contaminated with micro-organisms when coming into contact with the utensils or equipment. Bactericidal agent should be applied at the proper concentration, temperature and for the appropriate length of time to achieve desirable reduction in bacterial level, whose effectiveness is a function of the time and temperature that the utensils and equipment to be sanitized are exposed to.

Sanitized equipment and utensils should be allowed to dry as quickly as possible as most micro-organisms cannot survive in the absence of water. Drying by towels or storing on a dirty surface may lead to re-contamination of cleaned and sanitized surface.

(b) Non-Food Contact Surfaces of Equipment

(i) Cleanliness and Maintenance

Non-food contact surfaces of equipment such as cupboards, refrigerators, wet refrigerators, racks, stoves, cooking ranges and food lifts should be kept clean and in good state of repair and working condition.

(ii) Cleaning

(1) Non-food contact surfaces should be cleaned at a frequency that prevents accumulation of dirt and grease, preferably once a week or more as required.

(2) Cleaning has to be carried out in a systematic manner, for example, in the sequence from walls, non-food contact surfaces of equipment such as cupboards, refrigerators, cooking ranges and then the floors.

(3) Thorough cleaning of non-food contact surfaces can be achieved by:

- removing food debris and soil by clean wiping cloths and brushes, etc.;

- rinsing with clean water;
- applying detergent and washing, with brush or scourer to remove remaining debris or soil, if necessary;
- rinsing with clean water; and
- air dry.

Rationale

Similar to food contact surfaces, non-food contact surfaces should also be kept clean and in good repair to help minimize the possibility of food contamination.

(c) Single-Use Items

(i) A single-use item means any non-reusable instrument, apparatus, utensil or any other such thing for handling of food, such as drinking straws, disposable eating and drinking utensils, disposable food containers and disposable gloves, etc.

(ii) All single-use items should be properly protected from risk of contamination by storing inside dust and pest proof containers or cupboards until they are used, and should be discarded if they are contaminated. They should not be re-used for any other purpose that will make them come into contact with any food or the mouth of a person.

(iii) If gloves are used for handling food, only disposable gloves shall be used, which shall be used for only one task, e.g. for either handling ready-to-eat food or raw food, and for no other purpose. The same disposable gloves should never be used to handle raw food and then ready-to-eat food. They should be discarded if damaged, soiled, or when interruptions occur in the operation.

Rationale

Single-use items are not manufactured to permit effective cleaning and sanitizing. If these items are reused, food coming into contact with these items may become contaminated. Use of the same disposable gloves for handling raw and ready-to-eat food easily leads to cross-contamination.

(d) Maintenance of Refrigerators (including Chillers and Walk-in Freezers)

(i) Refrigerators for storing perishable food should be kept at a temperature not exceeding 10°C, preferably at or below 4°C. A thermometer should be provided to each refrigerator indicating the temperature at which the food is being stored.

Note : Failure to observe this is a breach of licensing condition.

(ii) Doors of refrigerators should be kept closed at all times except during use.

(iii) Overstocking of food in refrigerators, (e.g. above the loading line in open top display refrigerators) should be avoided to ensure free circulation of cold air in the refrigerator and maintenance of food at proper temperatures.

(iv) Inside surfaces of refrigerators including their rims should be cleaned regularly. Over-frosted refrigerators should be defrosted promptly.

3.2.2 Linens

Linens such as wiping towels, table cloths, aprons, clothing, uniforms, etc. may be used in food premises. They should be of light-colour, kept clean and in a sanitary condition.

(a) Cleanliness and Sterilization

(i) Clean linens should be free from food residues or other soiling matters. They should be washed if they become wet, sticky or soiled.

(ii) Linens required to be sterilized, such as dry wiping cloths for polishing dried utensils, should be washed and sterilized after each use either by immersing in boiling water for not less than one minute or using a bactericidal agent approved by the Food and Environmental Hygiene Department.

(b) Sole Use of Linens

Linens should be used for one single purpose only. For example, wiping towels used for wiping food spills on table surfaces should not

be used for any other purpose such as for polishing dried utensils.

(i) Wiping Towels

Use of cloths for drying of food contact surfaces of equipment is not recommended as the cloth is likely to contain bacteria or contaminants that would be transmitted to the equipment during the drying process. Food contact surfaces should be air dried. Dry cloth may be used for polishing dried utensils.

(ii) Aprons, Clothing and Uniforms

Aprons, clothing and uniforms should be clean and fit to wear. Buttons should preferably be avoided for those who directly handle food to prevent them from coming off and falling into food. These clothing should be washed at least once a day, or when they become soiled or sticky.

(iii) Table Cloths

Table cloths should be cleaned after each use as they have been in contact with food remnants and debris.

(c) Storage of Soiled Linens

Soiled linens should be kept in suitable receptacles or laundry bags away from food preparation areas to prevent contamination of food, food contact surfaces, food equipment and utensils.

Rationale

Linens are likely to contain foreign substances such as hair, dirty particles and micro-organisms, all of which would contaminate food and equipment. They should not be allowed to come into contact with food or food equipment / utensils unless thoroughly cleaned and sterilized. Napkins for customers may help transmit diseases from man to man, unless adequately cleaned and sterilized after each use.

3.3 Pest Control

Food premises should be kept free of pests like rats, mice and insects such as flies and cockroaches.

3.3.1 Signs of Pest Infestation

(a) Food premises and surrounding areas should be inspected regularly to look for signs of pest infestation.

(b) Presence of rats and mice can be indicated by signs left behind by their activities including droppings, holes, runways, gnawing marks, feet marks and smears.

(c) Cockroaches usually hide behind stoves, hot water pipes, sinks, in cupboards, drying rooms and anywhere which is dark and warm. Signs of cockroach infestation include presence of cockroach eggs and droppings and a disagreeable "cockroach" odour.

(d) Flies usually infest places with food attraction. Presence of faecal specks and vomitus are common signs of fly infestation.

Note :	Any person who knowingly suffers or permits the presence of rats, mice or insects in food premises shall be guilty of an offence under **section 5(3) of the Food Business Regulation**.

Rationale

Food premises are easily infested by rats, mice, cockroaches and flies because they provide them with ample food sources and numerous harbourage places. Improper handling of food and food debris, accumulation of motley articles and presence of structural defects render food premises highly susceptible to pest infestations.

Pests will not only pose food safety problems but also transmit diseases to human. They can carry pathogenic organisms to foods physically by their bodies, hair and excreta.

3.3.2 Prevention and Control of Pest Infestation

To avoid pest infestation in premises, it is necessary to maintain food premises at high standards of hygiene and immediately fix any structural defects. Proofing measures should be adopted to block entry of pests. Foods should be properly protected and waste disposed of to cut their food source.

Regular inspection should be conducted for early detection of pest and to apprehend pest situations at the premises. Whenever pests are detected, control actions should be taken promptly to rectify the situation. Private pest control services providers can be appointed to carry out pest inspection and subsequent control work.

Particular attention should be given to the following in the prevention and control of pests in food premises:

(a) Prevention of Entry of Pests

(i) Any holes or crevices at ceilings and on walls and floors should be sealed by cement or metal plates.

(ii) The threshold clearance of doors should be lowered to not more than 6 mm and metal kicking plates should be affixed at the lower edges of doors and doorframes to prevent entry of rats and mice.

(iii) Windows, ventilation openings and doors should be installed with mesh screens. Doors / screen doors should be self-closing and kept closed at all times.

(iv) Any missing or damaged gratings of drains should be installed or replaced immediately.

(b) Elimination of Harbourage for Pests

(i) False ceilings should be avoided in food preparation or storage areas as far as possible.

(ii) Any defects on walls, floors, ceilings, woodwork and all other parts of the structure of food premises should be promptly repaired.

(iii) Disused articles or equipment should not be stored in food

premises. If accumulation of articles is unavoidable, they should be moved regularly to eliminate harbourage of pests.

(c) Elimination of Food Sources to Pests

(i) All foods as well as condiments should be covered and stored properly by using sealed containers.

(ii) Floors of food premises should be kept clean and free from food remnants, especially overnight. Preparing food or cleaning utensils is strictly prohibited in yard or at rear / side lanes.

(iii) Refuse should be stored in refuse containers with well-fitted cover. Refuse bags should be tied up before disposal to prevent spilling and attraction of pests. Refuse or food remnants should not be exposed. They should be cleared at least once a day, preferably every night to avoid leaving refuse overnight.

(iv) Surface channels and gratings should be kept clean, clear of food remnants and free from chokage.

(d) Eradication of Pests

(i) Places, clothing and equipment contaminated by pests should be cleaned and disinfected as soon as possible.

(ii) Insect Electrocuting Device (IED) equipped with catch pans can be used to eliminate flying insects in food premises. IED should be placed at least 1.5m (preferably 4.5 – 6 m) away from a food handling area. Only low wall mounted type IED should be used, and ceiling-hung IED should not be used in food handling areas.

(iii) Pest infestations should be dealt with immediately but without affecting food safety. Preferably, they should be carried out by specialist pest control service providers. Rodenticides and insecticides should be applied in such a manner as not to contaminate foods – they should not be applied while food production / preparation is taking place, and all open foods should be well covered and protected.

(iv) In the event of pest infestation, any contaminated equipment, utensils and food contact surfaces should be thoroughly cleaned

and sterilized. Any food that has been contaminated by pests or pest control chemicals should be disposed of.

(e) Keeping of Records

Management of food premises should keep proper records of results of pest control inspections, surveys, maintenance and services, etc. in respect of their premises.

Rationale

Presence of pests increases the likelihood of contamination of food and may cause significant damage to food premises. The first and best line of defence is to prevent entry of pests by proper inspection and maintenance of the premises. The second line of defence is to deprive pests of food source by proper storage of food and prompt removal of refuse, food remnants and spills.

CHAPTER 4 SAFE FOOD HANDLING

4.1 Food Sources

4.1.1 Approved Sources

Food premises should obtain foods and food ingredients from approved sources (or sources that are approved by the regulatory authority having jurisdiction).

Examples of approved sources are:

(a) Local Foods Manufactured by Licensed Food Premises

(i) Siu Mei and Lo Mei

Siu mei and lo mei to be on sale in licensed siu mei and lo mei shops should be supplied from licensed food factories or other approved sources. One or more supplier certificates should be produced for inspection whenever requested by inspecting officers.

Note : Failure to observe this is a breach of licensing condition.

(ii) Bakery Products

Bakery products should be supplied from licensed food factories (bakeries) or other approved sources. One or more supplier certificates should be produced for inspection whenever requested by inspecting officers.

Note : Failure to observe this is a breach of licensing condition.

(iii) Frozen Confections and Milk

Frozen confections should be supplied from licensed frozen confection factories or other approved sources. Fresh and reconstituted milk should be supplied from licensed milk factories or other approved sources.

Note : Failure to observe this is a breach of licensing condition.

(iv) Sushi, Sashimi, Oysters / Meat to be Eaten in Raw State

Pre-prepared sushi, sashimi, oysters / meat to be eaten in raw state should be supplied from licensed food factories or other approved sources, and supplier certificates should be produced for inspection on demand by inspecting officers.

Note : Failure to observe this is a breach of licensing condition.

(v) Meat and Meat Products

All fresh meat (e.g. pork, beef, mutton, etc.) on sale in fresh provision shops / market stalls must be obtained from Government abattoirs, licensed slaughterhouses or other approved sources. All meat products (e.g. meat balls, hams and sausages, etc.) should be obtained from licensed food factories or other approved sources. Evidence (e.g. invoices) supporting that the meat or meat product is obtained from such an approved source should be produced on demand by inspecting officers.

Note : Failure to observe this is a breach of licensing condition.

(b) Imported Foods for Sale in Hong Kong

(i) Imported Meat, Game, Poultry and Eggs

Imported meat, game, poultry and eggs must be obtained from sources approved by the Food and Environmental Hygiene Department for imports with valid official health certificates issued by competent authorities of exporting countries.

Note : Any person who imports meat, game, poultry or eggs into Hong Kong without an official certificate commits an offence under **regulation 4 of the Imported Game, Meat, Poultry and Eggs Regulations.**

(ii) Imported Milk and Frozen Confections

Imported milk or milk beverage and frozen confections should be imported from a source of manufacturer which has been approved by the Food and Environmental Hygiene Department.

Note : (1) Any person who imports milk or milk beverages into Hong Kong not from an approved source commits an offence under **section 5A(1) of the Milk Regulation.**

(2) Any person who imports frozen confections into Hong Kong not from an approved source commits an offence under **section 7(1) of the Frozen Confections Regulation.**

4.1.2 Prohibited Foods

The following **Prohibited Foods** should not be sold or used in the preparation of food in food premises:

(a) Chinese dishes – Yu Sang;

(b) fresh or frozen meat of animals which have not been slaughtered in a Government slaughterhouse or in a slaughterhouse approved by the Food and Environmental Hygiene Department, except where such meat was lawfully imported into Hong Kong; and

(c) shellfish collected in the harbour or the harbour in Aberdeen.

Note : Sale of prohibited foods is an offence under **section 29 of the Food Business Regulation.**

Rationale

Safe food starts with reputable and reliable food suppliers who meet food hygiene and safety standards of the regulatory authority having jurisdiction. These suppliers operate in a manner which prevents and controls contamination of foods and ensures the foods are safe for human consumption.

4.2 Food Receiving

4.2.1 Inspection

Food products should be inspected as they are received to ensure that:

(a) they are protected from contamination;

(b) if of potentially hazardous food, they are kept at a temperature of:

  (i) 4°C or below; or

  (ii) above 60°C;

(c) if of potentially hazardous food intended to be received frozen, they should be in frozen state when they are accepted; and

(d) if of pre-packaged food, the time gap between the date of receiving and "Use By" or "Best Before" date should be sufficient to avoid expiration of stock.

Rationale

Food contaminated with pathogenic micro-organisms, chemicals and foreign matters may compromise food safety. Therefore, food premises should not accept food known (or suspected) to be contaminated with these substances.

Most pathogenic bacteria grow and multiply rapidly at temperatures between 4°C and 60°C. This range of temperatures is therefore called the TEMPERATURE DANGER ZONE. At temperatures lower than 4°C and higher than 60°C, bacterial growth slows down or stops (however, most bacteria can survive cold temperatures and resume multiplication later when conditions become suitable again). Potentially hazardous food may be contaminated by pathogenic bacteria which can multiply to dangerous levels at ambient temperatures. As such, potentially hazardous food should be kept at or below 4°C, or at above 60°C during delivery, to prevent growth of these bacteria.

Freezing is a process in which the temperature of a food is reduced below its freezing point and the majority of the water inside the food undergoes a change in state to form ice crystals. Freezing preserves food for extended period of time by preventing the growth of micro-organisms that cause food spoilage and foodborne illnesses. To maintain the quality of frozen food, a temperature of –18°C or less is preferred.

4.2.2 Product Identification

(a) A food business should ensure that all food on the food premises are clearly and properly identified and, upon request by an inspecting officer, can provide information relating to the names and business addresses of the vendors, suppliers, manufacturers, packers, or importers.

(b) Records showing the dates, descriptions, quantities and sources / destination of supply should be kept for specific foods for at least 60 days and be readily available for inspection on demand. Such foods include siu mei and lo mei, live / dressed / chilled / frozen poultry, live water birds, fresh or chilled or frozen meat, processed meat and meat products (e.g. meat balls, hams and sausages, etc.), and pre-prepared mixtures for making frozen confections in dispensing machines for retail sale (for at least 3 months).

Rationale

A food business must be able to identify the food that they have on the premises in order to facilitate tracing products in the event of a recall or a food incident. The information can be available from an invoice, receipt or the packaging of the food.

4.3 Food Storage

(a) Raw materials should be stored in a suitable place as quickly as possible after delivery:
   (i) storage places should be clean to minimize dirt and food scraps from contaminating the food to be stored; and
   (ii) storage places of dry food should be pest free and well ventilated.

(b) Raw materials should be stored and maintained under conditions that prevent spoilage, protect against contamination and minimize damage:
   (i) food should be stored in food-grade containers and covered;
   (ii) food stocks should be properly and regularly rotated to ensure that the "first-in-first-out" principle is adopted, batch labels may be used for this purpose;
   (iii) ready-to-eat food should be stored separately or away from raw food, ideally in separate refrigerators;
   (iv) raw food should be put below ready-to-eat food, if they have to be stored in the same refrigerator; and
   (v) food should be stored at least 300mm above the floor.

Note : Failure to observe (v) is a breach of licensing condition.

(c) Potentially hazardous food should be stored:
   (i) at or below 4°C or at above 60°C; and
   (ii) frozen if they are intended to be stored frozen (preferably stored at -18°C or below).

Rationale

Food starts to deteriorate as soon as the crop is harvested or the animal is slaughtered. The rate of deterioration is related to the growth of spoilage bacteria and mould. Hence food should be stored under the right environmental conditions (e.g. suitable temperature, humidity, lighting and atmosphere) to minimize the growth of these micro-organisms and to prevent food from becoming unsafe or unsuitable during their expected shelf-lives.

Proper storage preserves and prolongs shelf-lives of raw food materials and prevents them from contamination by food poisoning bacteria, chemicals and foreign bodies that may finally render the food materials or products unfit for processing or human consumption. Proper storage is one of the essential steps for preventing food from becoming contaminated.

Temperatures between 4°C and 60°C are best for multiplication of food poisoning and other foodborne pathogens. Potentially hazardous food should be stored outside these temperatures (stored at or below 4°C, or at above 60°C) to suppress these bacteria from multiplying to an unsafe level in the food.

No food can be kept indefinitely. Food that is kept for a long time is likely to become spoiled and attract pest infestation. Effective stock rotation, to ensure that first-come is used first, is essential to avoiding spoilage and preventing pest infestation. In addition, good stock rotation has the advantage of helping to keep the correct levels of stock.

4.4 Food Handling

4.4.1 Thawing

(a) Frozen potentially hazardous food should be thawed:
  (i) at a temperature that will prevent the rapid growth of bacteria that causes foodborne diseases and food spoilage; and
  (ii) for a minimum time before these bacteria multiply to a dangerous level.

(b) When thawing is carried out as an operation separated from cooking, this should be performed in:
  (i) a refrigerator or thawing cabinet maintained at 0-4°C ;
  (ii) cold running potable water; or
  (iii) a microwave oven.

(c) Unless thawed food is processed immediately, it should be held at 4°C or below until being used. Food thawed in microwave ovens should be cooked immediately.

Rationale

Freezing prevents bacteria from growing, but does not kill them. Improper thawing (e.g. thawing at room temperature) provides an opportunity for food poisoning

bacteria to grow to harmful numbers and / or produce toxins. It should be noted that the food safety risk of thawing frozen ready-to-eat potentially hazardous food is much higher than thawing frozen raw potentially hazardous food that will be cooked or subject to other pathogen-reduction steps before eating.

4.4.2 Cooking

(a) The time and temperature of cooking should be sufficient to reduce any foodborne pathogen that may be present in the food to an acceptable level.

(b) When cooking raw animal food (e.g. poultry, pork, minced meat), the centre of the food should reach a temperature of at least 75°C for 30 seconds, or an effective time / temperature combination (e.g. 65°C for 10 minutes, 70°C for 2 minutes).

(c) Microwave Cooking
Raw animal food cooked in a microwave oven should be:
(i) rotated or stirred throughout or midway during cooking to compensate for uneven distribution of heat; and
(ii) allowed to stand covered for a minimum of 2 minutes after cooking to obtain temperature equilibrium.

Rationale

It is generally recognized that cooking is to increase the palatability and to tenderize and change the character of food. Cooking, however, is also important in destroying organisms that may cause diseases. Proper cooking is often the critical control point in preventing foodborne disease outbreaks.

It is important to cook food thoroughly, especially meat and poultry, in order to ensure food safety. The centre or the thickest part of the food needs to reach 75°C for 30 seconds to kill any bacteria causing foodborne diseases, although heating food to a lower temperature for longer periods of time may be equally effective. The centre temperature of cooked food should be checked regularly with an accurate thermometer, which should always be disinfected before use. (Please refer to ***Appendix II-****How to Select and Use a Food Thermometer.)*

4.4.3 Hot Holding

Potentially hazardous food that has been prepared, cooked, and is to be served hot, should be held at a temperature of above 60°C.

Rationale

It is unlikely for pathogenic bacteria to multiply in food that is above 60°C. It is thus desirable to serve food that is held at this temperature or above.

4.4.4 Cooling after Cooking

(a) Potentially hazardous food that has been cooked, and is intended to be kept under refrigerated storage prior to serving, should be cooled:
   (i) from 60°C to 20°C within 2 hours or less; and
   (ii) from 20°C to 4°C within 4 hours or less.

(b) There are some ways that can help to cool food rapidly:
   (i) reduce the volume of the food by dividing it into smaller portions and / or placing it in shallow containers;
   (ii) cut large joints of meat and poultry into smaller chunks; and
   (iii) ensure there is space around food containers so that the cold air in the refrigerator or cool room can circulate freely.

Rationale

Temperatures achieved during cooking are usually sufficient to destroy vegetative cells of pathogens; however, some spores are unaffected. In some cases, cooking activates spores which may germinate during subsequent cooling.

Excessive time for cooling of potentially hazardous food is one of the key contributing factors to foodborne illnesses. During extended cooling, foodborne pathogens that may be present in potentially hazardous food or developed from surviving spores may grow to a sufficient number (and / or produce toxins) to cause illnesses. By reducing the cooling time, the risk for pathogenic bacteria to grow to a dangerous level (and / or producing toxin) will be minimized.

4.4.5 Reheating of Food

(a) Potentially hazardous food that has been previously cooked and cooled, when reheated, should be reheated to 75°C or above as quickly as possible. Normally, this reheating time should not exceed 2 hours.

(b) Potentially hazardous food that has been reheated should not be cooled and reheated for a second time.

Rationale

Pathogenic bacteria may be present in cooked food due to germination of surviving spores or post-contamination after cooking. These pathogens can grow during cooling and cold storage. Proper reheating will minimize the time that cooked food is exposed to the temperature danger zone, which allows pathogenic bacteria to grow during the reheating process.

It should be noted that reheating cannot make potentially hazardous food safe if it has not been cooled properly or protected from contamination. This is because some pathogenic bacteria (such as Staphylococcus aureus) may continue to multiply and produce heat stable toxins under such circumstances. Reheating such food to 75°C cannot destroy the toxins.

Potentially hazardous food that has been reheated should not be cooled and reheated for a second time to avoid it from repeatedly exposed to temperatures that can support the growth of pathogenic bacteria.

The potential for the growth of pathogenic bacteria is greater in cooked food than in raw food. This is because spoilage bacteria, which inhibit the growth of pathogenic bacteria by competition on raw products, are killed during cooking. Subsequent recontamination will allow pathogenic bacteria to grow without competition if temperature abuse occurs.

4.4.6 Preventing Food from Contamination

When processing food, adequate steps should be taken to prevent it from contamination. They include:

(a) access to food preparation areas should be restricted, as much as practically possible, to food handlers. For visitors including management and maintenance staff, all practicable measures should be taken to ensure that they will not contaminate food when visiting food preparation areas;

(b) food handlers should avoid contacting the exposed areas of ready-to-eat food with their bare hands; and use, as much as practicably possible, clean and sanitized utensils such as tongs, spatulas or other food dispensing apparatus in handling such food;

(c) raw or unprocessed food should be kept separate from ready-to-eat food;
(d) raw fruits and vegetables should be thoroughly washed in potable water to remove soil and other contaminants before being cut, mixed with other ingredients, cooked and served, or offered for human consumption in ready-to-eat form;
(e) food contact surfaces should be kept clean and, where necessary, sanitized between uses;
(f) foods should not come into contact with surfaces of utensils and equipment that have not been cleaned and sanitized in accordance with procedures described in Chapter 3 of this Code;
(g) cleaned and sanitized utensils should be used if organoleptic test is necessary. They should be immediately cleaned and sanitized after tasting or before tasting another food or the same food again;
(h) ready-to-eat food under refrigerated storage should be stored above raw meat and fish products;
(i) during thawing, drips from thawing food should be prevented from contaminating other food; and
(j) chemicals should be kept separate from food processing areas.

Rationale

Bacteria exist everywhere. Pathogenic bacteria pose the greatest danger by causing foodborne illnesses. Good policies and procedures for preventing bacterial contamination can effectively reduce their risk.

4.5 Food Displaying and Serving

Food under display should be properly protected from all risks of contamination as far as possible in the following ways:

(a) Operators of food premises should, when displaying packaged food and unpackaged ready-to-eat food:
    (i) securely wrap the packaged food; and
    (ii) cover unpackaged ready-to-eat food with lids or protect it with food guards.
(b) Operators of food premises should, when displaying unpackaged ready-to-eat food for self service:
    (i) ensure the display of the food is effectively monitored by employees trained in safe operation procedures;
    (ii) provide separate and suitable utensils (e.g. tongs, scoops, etc.), or other effective means of dispensing, for each type of food to protect the food from cross-contamination. These utensils

should be regularly replaced by clean ones;

(iii) provide display cases, food guards (e.g. salad bar sneeze guards) or other appropriate barriers that can effectively protect the food from contamination by customers; and

(iv) ensure ice used to cool open food in buffet displays be made from potable water.

(c) Operators of food premises should, when displaying potentially hazardous food:

(i) display the food at 4°C or below, or at above 60°C ; and

(ii) ensure the food intended to be displayed frozen remain frozen (preferably at –18°C or below).

(d) Food handlers serving food to consumers should observe the following hygiene practices:

(i) wash hands properly and frequently;

(ii) keep hot food at above 60°C and cold food at 4°C or below;

(iii) minimize bare-hand contact with ready-to-eat food. Whenever possible, handle such food with utensils like scoops, tongs, ladles, paper napkins and disposable gloves;

(iv) if gloves are used to handle ready-to-eat food, they should be of single-use (i.e. used for one task only, such as for preparing / handling ready-to-eat food only) and should not be used for any other purpose. They should be discarded when damaged, soiled, or when interruptions (e.g. returning to work after visiting toilet, resting, etc.) occur in operations;

(v) hands should be properly washed before putting on gloves;

(vi) ice to be used in food and drink should be dispensed only by clean utensils such as scoops, tongs, or other ice dispensing utensils and should not be handled with bare hands;

(vii) ice dispensing utensils should be stored on a clean surface or in the ice with dispensing utensil's handle extended out of the ice;

(viii) refresh food displays with completely fresh batches of food. Avoid mixing old food with fresh batches as far as possible;

(ix) keep fingers away from rims of cups, glasses, plates and dishes, etc. Make wider use of trays for conveying food;

(x) hold cutlery (i.e. knives, forks and spoons) by the handles;

(xi) avoid stacking glasses, cups or dishes on one another when serving food as far as possible;

(xii) do not wipe utensils with aprons, soiled cloths, unclean towels, or hands;
(xiii) do not blow plates or utensils to remove dust or crumbs;
(xiv) re-wash and sanitize cups, glasses or other utensils that show signs of soiling (e.g. lipstick marks) or other possible contamination (e.g. having dropped on the floor);
(xv) discard cracked or chipped dishes, utensils, glasses, etc.; and
(xvi) never re-use single-use items, such as straws, paper towels, disposable cups and plates.

(e) Once served to a consumer, portions of leftover food should not be served again. However, packaged food, other than potentially hazardous food, that is still in an unopened package and is still in sound condition, may be served again.

(f) If possible, a staff should be deployed to supervise self-service food display to discourage customers from mishandling or tampering with exposed food, and to remove contaminated food promptly from the service area.

Note : Failure to store or display for sale any open food other than uncooked perishable food in suitable containers as to prevent the access of dust, insects and vermin is an offence under **section 11(1) of the Food Business Regulation.**

(g) Customers of restaurants and factory canteens should be provided with additional chopsticks or spoons for the common serving of food.

Rationale

The most common food safety problems found during service or display of food are (a) inadequate temperature control and (b) cross-contamination.

Temperature control (i.e. hot food at above 60°C and cold food at 4°C or below) during display is essential to keeping potentially hazardous food safe and good quality. This is because bacteria including pathogens are unable to grow (or grow slowly) at these temperatures.

Cross-contamination is the transfer of bacteria from one food (usually raw) to another and is one of the major causes of foodborne illnesses. There are two ways where cross-contamination may occur. Firstly, bacteria can be transferred directly when one food touches another. Secondly, bacteria can be transferred indirectly from hands, equipment, work surfaces, or knives and other utensils to food.

People are a common source of pathogenic bacteria, so an important way to prevent food contamination is to maintain a high standard of personal hygiene and cleanliness such as frequent and thorough washing of hands. The other way is to minimize touching ready-to-eat food with bare hands to prevent pathogens that may be present on hands from transferring to the food.

Wearing gloves is one of the several acceptable ways to minimize unnecessary manual contact with ready-to-eat food. However, hands should be thoroughly washed before putting on gloves to avoid contaminating the outside of the gloves with dirty hands. Gloves should be changed at regular intervals during the day. Torn or punctured gloves should be discarded to avoid leakage of any accumulated perspiration, which will contaminate food with high number of bacteria.

Unpackaged food or drink that has been served to a consumer in a restaurant should not be resold because it is very likely to have been contaminated by consumers. However, completely wrapped packaged food, other than potentially hazardous food, that has been served and has remained completely wrapped may be resold. This includes packaged condiments such as salt, sugar, pepper and butter, etc.

4.6 Time as a Safety Control

(a) Food premises may display or hold for service potentially hazardous food that is intended for immediate consumption at temperatures between 4°C and 60°C for a period of not more than 4 hours.

(b) The food in item (a) above should, as far as possible, be identified or marked to indicate the time when it was removed from temperature control.

(c) The food in item (a) above should be discarded if it has been displayed or held for service for more than 4 hours.

Rationale

Food premises should keep potentially hazardous food at either 4°C or below, or at above 60°C, during storage, display and transportation. However, it is acceptable for ready-to-eat potentially hazardous food to be kept out of temperature control (i.e. between 4°C and 60°C) for a limited time because pathogens (and / or toxin production) need time to grow to an unsafe level. According to US Food Code, the total time that a ready-to-eat potentially hazardous food can be kept out of temperature control is 4 hours. The total time is the sum of the time the food is at temperatures between 4°C and 60°C ***after it has been cooked*** *(or processed) to make it safe. It does*

not include the time taken to cool the food after cooking provided the food has been cooled within the required time and temperatures (see "Cooling after Cooking" in paragraph 4.4.4 of this Chapter).

4.7 Food Packaging

(a) Packaging materials should be appropriate for the food to be packed and sufficiently durable to withstand the conditions of processing, storage and transportation.

(b) Packaging materials should not pose a threat to the safety of the food to be packed.

(c) Packaging materials and design should provide adequate protection for the food to be packed to minimize contamination and prevent damage.

(d) Packaging of food should be carried out under hygienic conditions to protect the food from risks of contamination. Packaging and wrapping of food should be carried out under hygienic conditions by staff with appropriate training in food hygiene and food safety.

(e) Packaging materials should be stored and handled under hygienic conditions to minimize the risks of contamination and deterioration.

Rationale

In addition to prolonging shelf-life, retaining quality and nutritional values as well as providing a water vapour / gas barrier, packaging is important for preventing food from being contaminated with chemicals, physical matters and bacteria.

Packaging materials should not endanger the safety and suitability of the food in contact with them. They should be suitable for the food to be packed, non-toxic, durable and clean. Chemicals from packaging materials should not migrate into the food; and if migration occurs, there should be no known toxic effects to consumers.

Packaging materials may contaminate food if they are not clean. They should thus be kept in their original packages and stored in clean areas where they are not exposed to risks of contamination.

4.8 Food Transportation

(a) Food during transportation should be protected from risks of contamination:
   (i) food transportation units (including vehicles, trolleys, boxes, trays, crates, etc.) should be designed, constructed, maintained and used in a manner that protects the food from contamination;
   (ii) food transportation equipment that is intended to be in direct contact with food products should be constructed with non-toxic materials, which should also be easy to clean and maintain, such as stainless steel and food-grade plastic containers;
   (iii) during transportation, open food should be carried in enclosed vehicles, packed in covered containers or completely wrapped or packaged, to protect it against contamination by dust / dirt / fumes from vehicles or traffic;
   (iv) food and non-food products transported at the same time in the same vehicle should be adequately separated (e.g. wrapped or packed) to ensure that there is no risk of spillage or contact that may contaminate the food; and
   (v) if different types of food are transported within a vehicle, precaution should be taken to avoid cross-contamination. For example, if both raw meat and ready-to-eat food are transported at the same time, they should be wrapped or kept in separate covered containers and places so that no cross-contamination can occur.

(b) Food business operators should, when transporting potentially hazardous food:
   (i) keep the food at or below 4°C, or at above 60°C;
   (ii) ensure that the food which is intended to be transported frozen remain frozen during transportation; and
   (iii) preferably, transport potentially hazardous food that is required to be kept cold during transportation in vehicles fitted with refrigeration equipment. Alternatively, coolers, ice bricks or other means may also be used to keep food cold during transportation. However, they should be used only temporarily because they cannot help lower the temperature.

Rationale

Transportation of food provides a significant opportunity for contamination

and spoilage. Contamination may occur if food is carried in dirty or inappropriate containers or vehicles, or is transported together with toxic chemicals, or is inadequately covered, or packaging becomes damaged by poor handling. A further risk is introduced if potentially hazardous food is transported under ambient temperature that encourages growth of pathogenic bacteria.

4.9 Food Disposal

Food that has been found or suspected to be unsafe or unsuitable (e.g. food that is subject to recall or has been returned, temperature abused, contaminated or damaged) should be rejected or identified (e.g. marked, labelled, kept in a separated container or isolated area), kept separately and disposed of as quickly as possible. It should never be available for human consumption.

Rationale

Food intended for disposal should be kept separate so that it is not accidentally sold or used.

4.10 Use of deep-frying oil

Food traders are recommended to follow the advice below on the use of deep-frying oil.

(a) Before deep-frying
  (i) minimise moisture on the food surface; and
  (ii) proper use of breadcrumbs or batter.

(b) During deep-frying
  (i) control the oil temperature between 150°C and 180°C.

(c) After deep-frying
  (i) remove residues in deep-frying oil;
  (ii) lower the oil temperature setting to 120-130°C when the fryer is idle;
  (iii) season after deep-frying as far as possible;
  (iv) cover the fryer after it is turned off;
  (v) clean the fryer regularly; and
  (vi) if the level of deep-frying oil is too low, top up fresh oil as appropriate, but not as a means of diluting or prolonging oil use.

(d) Changing oil

When any of the following conditions occur in deep-frying oil:

(i) having an unusual colour or odour;

(ii) starting to smoke;

(iii) starting to foam.

Rationale

During the deep-frying process, oil is exposed to high temperatures in the presence of oxygen in air and moisture in food. This results in chemical compounds that can accelerate the deterioration of oils and may affect quality of oils as well as food safety. When the deep-frying oil is used repeatedly, both the deep-frying oil and deep-fried food would gradually become darker in colour and give off a rancid odour. Besides, using an excessively high temperature (>180 ℃) accelerates the deterioration of deep-frying oil, however, using too low a temperature (<150 ℃) increases oil absorption into deep-fried food.

CHAPTER 5 PERSONAL HEALTH, HYGIENE AND TRAINING OF FOOD HANDLERS

5.1 Personal Health and Illnesses

(a) Operators of food premises should ensure that all staff engaged in food handling are:
   (i) free from any symptomatic signs of illnesses or communicable diseases such as diarrhoea, vomiting, fever, sore throat, abdominal pain and jaundice, etc.;
   (ii) not carriers of food-borne diseases e.g. cholera, hepatitis type A; and
   (iii) not suffering from discharging wounds or sores on any exposed part of their bodies; or from discharge from their ears, eyes or noses.

(b) Food handlers suffering or suspected to be suffering from a communicable disease should immediately report their illness or symptoms of illness to the management and seek medical treatment. They should be immediately suspended from engaging in any work that may allow them to come into contact with food, food contact surfaces, food utensils and equipment.

(c) Food handlers ordered by health officers to cease working or taking part in food business should have written clearance from health officers before returning to handle food.

Note :	Any person who permits persons suffering from a condition mentioned in (a) or (c) to take part in food handling activities commits an offence under **section 24 of the Food Business Regulation.**

5.1.1 Injuries

(a) Food handlers with open cuts or wounds on the exposed parts of their bodies should not be allowed to handle food or to come into contact with food utensils, equipment and food contact surfaces, unless such cuts / wounds are completely protected by impermeable or waterproof gloves or dressings.

(b) Bandages or dressings should preferably not be in flesh-colour, so that they can be easily detected on falling off.

(c) Bandages and dressings should be changed regularly.

Note :	Any person who engages in handling of food in any food business with open cuts or abrasions on the exposed part of the body not covered with a suitable waterproof dressing commits an offence under **section 22(c) of the Food Business Regulation.**

Rationale

Several types of communicable diseases can be transmitted by consumption of food. Food handlers should eliminate the opportunity for pathogenic micro-organisms from being transferred to food and spread to consumers.

Food handlers can carry communicable diseases, especially if they themselves have been infected. Some food poisoning bacteria are commonly found on open wounds or cuts of their bodies. Illnesses may be spread to consumers if food handlers suffering from illnesses or with open wounds are allowed to take part in food activities.

5.2 Personal Hygiene

Food handlers should keep all parts of their bodies and clothing clean.

(a) Hair

(i) Food handlers should preferably keep their hair short.

(ii) In the course of handling food, hair should be covered with a clean hat or hair net. Long hair should be tied back as well.

(iii) Combing of hair should not be conducted in food handling areas.

(b) Jewelry and Perfume

(i) Food handlers should have their watches, rings and jewelry removed before they work with food. Jewelry which may easily become detached should not be worn while handling food to avoid them from falling on the food and cause contamination.

(ii) Heavy make-up, strong perfume or aftershave should be avoided.

(c) Clothing and Personal Effects

(i) Food handlers should wear disposable gloves when handling ready-to-eat food. They should be discarded if damaged,

soiled, or when interruptions occur in the operation.

(ii) Food handlers should, as far as possible, wear mouth masks when handling food. They should be discarded when damaged, soiled, or after prolonged use.

(iii) Only clean and light coloured outer clothing or protective overalls should be worn by food handlers. If they become soiled during food preparation, they should be changed or cleaned as necessary.

Note : Failure to observe this is a breach of licensing condition.

(iv) Buttons should preferably be avoided on the clothing as they may come off and fall on the food.

(v) Shoes should be worn when handling food.

(vi) Personal effects, such as handbags, footwear, umbrellas and dirty clothing, should not be stored or left in any food preparation area. They should be put inside lockers or cloakrooms away from food preparation areas.

Note : Failure to observe this is a breach of licensing condition.

(d) Hands

(i) Hands of food handlers should be kept clean at all times. Nails should be kept short and unpolished.

(ii) Cuts or wounds on hands of food handlers should be completely covered by suitable waterproof dressings or gloves.

(iii) Food handlers should wash their hands:
- before commencing work;
- before handling food;
- after visiting the toilet;
- after handling raw food;
- after handling soiled equipment or utensils;
- after coughing, sneezing, smoking, eating, drinking or blowing nose;
- after handling animals or waste;
- after touching their ears, noses, hair, mouths or other parts of their bodies; or

- after engaging in any activities that may contaminate hands. (e.g. handling money, carrying out cleaning duties, etc.)

(iv) Staff engaged in food handling should not be allowed to handle cash simultaneously.

Note :	Failure to observe this is a breach of licensing condition.

(v) Handwashing should be frequent, thorough and performed in wash hand basins. The following proper procedures should be adopted for washing hands:

- wet the hands with running water, preferably with warm water;
- apply liquid soap;
- rub hands for 20 seconds (wash all surfaces thoroughly, including forearms, wrists, palms, back of hands, fingers and under fingernails);
- if necessary, use a clean and sanitary nail brush to clean nails;
- rinse hands thoroughly;
- dry hands with a clean paper towel, continuous cloth towel in dispenser or air dryer;
- turn off the tap with a paper towel.

Note :	A food handler who fails to keep all parts of his body or clothing which may come into contact with food in a clean condition commits an offence under **section 22(a) or section 22(b) of the Food Business Regulation.**

5.2.1 Personal Habits

(a) Inside food preparation areas, food handlers should refrain from performing the following behaviours which may result in contamination of food:

(i) smoking or using tobacco;
(ii) spitting;
(iii) chewing, eating, sneezing or coughing over unprotected food or food contact surfaces;
(iv) touching ready-to-eat food with bare hands;
(v) sitting, lying or standing on any surface liable to come into contact with food;
(vi) tasting food with fingers; and
(vii) touching hair or other parts of bodies such as noses, eyes or ears.

(b) When sneezing or coughing inside food preparation area is unavoidable, food handlers should turn away from food and cover their noses and mouths with tissue paper or handkerchieves. Hands should then be thoroughly cleaned at once.

Note : (1) Smoking in food room or smoking while handling open food is an offence under **section 22(d) of the Food Business Regulation.**

(2) Spitting in food room is an offence under **section 9 of the Food Business Regulation.**

(3) Lying, sitting or standing on tables or surfaces that will come into contact with food is an offence under **section 18 of the Food Business Regulation.**

Rationale

Pathogens are commonly found on the skin and in the noses of healthy people. Scratching the head and nose can result in bacteria being transferred by hands onto food, which may cause illnesses to customers. Smoking in food rooms may cause food contamination by cigarette ends, ashes or hands.

Prevention of foodborne illnesses should begin with good personal hygiene practices by food handlers in both personal cleanliness and habits to prevent contamination of food by pathogens.

5.3 Training of Food Handlers

5.3.1 Awareness and Responsibilities

All personnel involved in food businesses should be aware of their role and responsibility in protecting food from contamination or deterioration. They should:

(a) put the health and safety of customers first and regard this as a social responsibility;
(b) familiarize with the standards and requirements stipulated in the law and those promulgated by the Government, and strict observance is necessary to foster a strong sense of hygiene;
(c) study and adopt the best hygiene practices in food handling;
(d) exercise constant care and vigilance in supervising the preparation, production, handling and serving of food; and
(e) constantly improve the hygiene standards of their food premises.

5.3.2 Training Programmes

(a) Persons engaged in food operations should be trained or instructed in food hygiene and safety to a level appropriate to the operations they are to perform. All training programmes should be based on the level of food safety risk in the food premises. Factors for assessing the level of food safety risk include:
   (i) the nature of food and its ability to sustain growth of pathogenic or spoilage bacteria;
   (ii) the manner in which food is handled or served;
   (iii) the complexity of processes involved; and
   (iv) the size of business and types of customer to be served.

(b) The management of food premises should promote food safety training to their employees by conducting on-going in-house courses for them or arranging them to participate in courses run by the Food and Environmental Hygiene Department or institutions recognized by the Food and Environmental Hygiene Department.

(c) Courses should meet the learning outcomes i.e. the ability to judge potential risks and to take correct remedial actions. They could be tailor-made to suit the specific need of a particular trade. Participants should be able to demonstrate competencies through standard testing. Certificates may be issued to successful candidates.

(d) Periodic assessment of the effectiveness of training and instruction programmes should be made. Refresher training may be required should deterioration in safe food handling practices to pre-trained level be detected after a certain period of time.

(e) Records indicating those employees who have been trained and their relevant particulars should be maintained by the management.

5.3.3 Supervision

Food business should always be supervised by a person who has attended a recognized food hygiene course. He should keep his certificate or other relevant documentary proof at the food premises and be readily available for inspection on demand.

Note : Failure to observe this is a breach of licensing condition.

Rationale

Food safety depends heavily on the ways in which food is handled. Provision of training to food handlers is important as they are required to constantly make decisions and take actions that could affect food safety. Food handlers should have the knowledge and skills on how to handle food hygienically and comply with the food safety regulations through proper and regular training.

Though the government has an irreplaceable role to play in ensuring food safety in food business, the food trade also has a pivotal part to play. To ensure their employees receive an appropriate training should inevitably be one of their responsibilities in contributing to food safety.

CHAPTER 6 MISCELLANEOUS

6.1 Approved Layout

A licensee will be given a copy of the approved layout plan and a copy of the approved ventilating system layout plan (if any) of his food premises upon issue of a licence or granting of approval for change of layout.

Particulars to be indicated on an approved layout plan include:

(a) space allocated to food handling and cooking, scullery, food storage and seating accommodation;
(b) sanitary fitments, open spaces, cloakrooms;
(c) all means of exit and entry;
(d) all windows and mechanical ventilating systems;
(e) siting of all furniture and equipment of a substantial and permanent nature; and
(f) types of fuel for heating equipment.

6.1.1 Deviation from Approved Layout Plan

(a) The layout of food premises, other than movable furniture, should be kept in strict conformity with that shown in the final approved plan. No alteration or addition should be made without the prior approval of the Food and Environmental Hygiene Department.

Note : Failure to observe this is a breach of licensing condition.

(b) Alteration, addition or deletion, which results in change of the approved layout, such as change in area of the premises or the food rooms; addition, deletion or repositioning of some furniture or equipment of a substantial and permanent nature, sanitary fitments, drainage works, passageways and open spaces, means of exit, entry and internal communication, windows and ventilating systems, etc., should not be effected without the prior consent of the Food and Environmental Hygiene Department.

Note : Any alteration or addition resulting in deviation from the approved layout is an offence under **section 34D of the Food Business Regulation.**

(c) No fuel other than that has been approved and indicated on the layout plan should be used on the premises. Type and number of heating equipment used should not be altered without prior approval.

Note :	Any alteration of heating equipment or any change in the type of fuel used is an offence under **section 34(c) of the Food Business Regulation.**

Rationale

A food business licence will be issued only if the layout is in strict conformity with the final layout plan and all licensing requirements in respect of health, ventilation, gas safety, building structure, means of escape and fire safety are fully complied with. Deviation of approved layout without prior consent may pose risks to health, building and fire safety.

6.2 Extension of Food Business and Restriction on the Use of Open Spaces

6.2.1 Extension of Food Business

Food business should only be carried out within the licensed area as delineated in the approved layout plan. No food activity should extend to any place beyond the licensed area, such as:

(a) washing of equipment and utensils;
(b) food preparation and cooking of food;
(c) storage of utensils, equipment and food; and
(d) provision of seating accommodation for customers (unless with the approval of the Food and Environmental Hygiene Department).

Note :	Any licensee who carries on food business outside the licensed area commits an offence under **section 34C of the Food Business Regulation.**

Rationale

Scullery, preparation and storage of food, serving of food and other food activities conducted outside the licensed area of food premises would not only result in food and equipment being contaminated, but also encourage pest infestation, cause environmental nuisances and pose a fire hazard.

Extension of seating area causes obstructions, and gives rise to health and food safety problems as the size of food room may become inadequate to cater for the increased number of customers.

6.2.2 Restriction on the Use of Open Spaces

Open spaces, such as yards, streets, side or rear lanes and roof tops, should not be used for preparation or storage of food, cleansing or storage of equipment or utensils, or preparation or service of food.

Note :	Use of open spaces for conducting food activities is an offence under **section 13(1) of the Food Business Regulation.**

Rationale

Open spaces are not suitable for conducting food activities. Food and equipment can be easily contaminated by dirt, dust, fumes, smoke, sewage, or by pathogens carried by bodies, excreta and hair of pests, birds, insects and other animals. They may also cause environmental nuisances and pose health and fire hazard.

6.3 Quality of Water for Keeping Live Marine Fish and / or Shellfish

6.3.1 Control of Water Quality

Fish tanks may be installed in food premises and market stalls for keeping live fish or shellfish. Water used for keeping live fish or shellfish intended for sale for human consumption should conform to the following standard:

"Less than 610 *E. coli* and absence of pathogenic organism in 100 ml of water keeping live fish and shellfish"

Note :	Any person who keeps live fish or shellfish for human consumption in water of a quality below the prescribed standard commits an offence under **section 10A of the Food Business Regulation.**

6.3.2 Filtration and Disinfection Facilities for Fish Tank Water

(a) Water used for keeping marine live fish or shellfish intended for human consumption should be filtered and disinfected by filtration and disinfection facilities acceptable to the Food and Environmental Hygiene Department, to a standard specified in paragraph 6.3.1 of this Chapter. These facilities should be maintained in good working order at all times.

(b) No water obtained from seawater flushing systems or drawn from doubtful sources, such as from the seafront within the Victoria Harbour or at any Typhoon shelter, should be used for keeping marine seafood for human consumption. Use of synthetic seawater is desirable.

Note : Failure to observe this is a breach of licensing condition.

(c) The filtration / disinfection system should be a closed loop system capable of providing continuous filtration and disinfection action.

(d) Marine salts used for making synthetic seawater should be sourced from reliable suppliers.

(e) Live fish and shellfish should be kept separately in different tanks and at an optimal stock to avoid overcrowding. Live bivalve molluscs should be washed free of mud with clean water before being kept in the storage tank.

(f) The filtration and disinfection facilities for fish tank water should be properly installed and regularly maintained by a company / supplier specializing in water treatment for live seafood.

(g) Dedicated staff should be assigned to take care of the cleansing and maintenance of the whole system.

(h) Records using the format as per **Annex II** should be kept to register the maintenance details. They should be completed and certified by the dedicated staff / contractor.

(i) All internal surfaces of fish tanks, all pipes for the supply of water and air to the fish tanks, as well as all nets and articles should be thoroughly cleansed regularly, preferably at least once a week.

(j) The fish tank area should be clean, well ventilated and free from any building defect.

(k) When handling fish tanks, clean rubber gloves should be worn.

(l) Fish tanks and other connected articles left unused for a period of time should be cleansed thoroughly before they are used again.

(m) Fish tank water should be changed regularly to remove harmful substances produced by the stock after a period of time.

(n) Filter materials should be cleansed at least once a week and replenished at least once a month.

(o) Sponge filters, sand filters, activated carbon filters and layered multi-sand filters may be used. Regular cleansing and replenishment of the filter materials are required.

(p) Filtration system should be installed upstream of the disinfection system and not vice versa.

(q) UV radiation, ozonation, copper-silver ionization and photocatalytic oxidation technology with the use of UV radiation and titanium dioxide may be used for disinfection of fish tank water.

[Food and Environmental Hygiene Department reviews the disinfection methods from time to time. An updated list of the accepted methods is kept at its district offices for inspection upon request.]

Rationale

Untreated seawater is likely to contain pathogens. Water for keeping live seafood should be of safe quality to minimize the risk of food contamination and spread of foodborne diseases. It can be achieved by an effective filtration and disinfection system in the fish tank, coupled with good management practices in cleansing and maintenance of the system.

6.4 Prohibition of Animals on Food Premises

(a) Prohibition of Dogs on Food Premises

Dogs should not be allowed to be brought onto food premises except that:

(i) the dog is served as a guide for a blind person; or

(ii) the dog is used in connection with the exercise of a lawful power e.g. dog led by a police officer on duty.

Note :	Any person who knowingly suffers or permits the presence of a dog on food premises commits an offence under **section 10B of the Food Business Regulation.**

(b) Prohibition of Live Animals in Kitchens or Food Rooms

Live birds, pets or animals, such as dogs and cats, except live seafood, or live poultry in fresh provision shops, are not allowed to be kept or present in any kitchen or food room of any food premises.

Note :	Any person who permits the presence of live animals in food room commits an offence under **section 5(3)(b) of the Food Business Regulation.**

Rationale

Animals are a source of contamination of food and equipment as they may carry pathogens and parasites by their bodies, hair and excreta.

6.5 Napkins for Customers

(a) Non-single-use napkins or wet towels provided for the use of customers should be washed and sterilized after each use.

(b) If wet towels are provided for the use of customers, a sterilizer should be provided and used for sterilizing the towels.

Note :	Failure to observe this is a breach of licensing requirement.

(c) Napkins or towels should be sterilized by being immersed in boiling water for not less than one minute.

(d) Napkins or wet towels for serving customers should not be used for any other purpose.

Note :	Failure to sterilize napkins or wet towels before serving customers is an offence under **section 20 of the Food Business Regulation.**

Rationale

Napkins and towels, if not properly cleansed and sterilized, may contain pathogens transmissible from person to person.

6.6 Prevention of Spread of Avian Flu

The following hygiene practices should be observed by operators and food handlers of market stalls or fresh provision shops selling live poultry to maintain the hygiene condition of the premises at a high standard to prevent the spread of Avian Flu:

(a) Restriction on Sale of Live Water Birds and Live Quails

(i) No live water birds (e.g. geese and ducks) shall be allowed to be sold in market stalls and fresh provision shops except those inside the Western Wholesale Food Market.

Note :	Any person who sells live water birds with live poultry in the same premises commits an offence under **section 30A of the Food Business Regulation.**

(ii) No live quails shall be allowed to be sold with other live poultry at the same premises.

Note :	Any person who sells live quails with other live poultry at the same premises commits an offence under **section 30B of the Food Business Regulation.**

(b) Delivery of Live Poultry

(i) Handcarts for conveyance of poultry cages should be fitted with trays at the bottom to avoid soiling of passageways. Any soiled places should be cleaned and disinfected promptly.

(ii) Cages for conveyance of live poultry should be returned to the wholesale market for cleaning and disinfection after each use. They should not be stored in public places.

(c) Supply of Poultry

(i) Poultry should be obtained from a wholesale market or a source approved by the Food and Environmental Hygiene Department, and stock should preferably be restricted to one day's sales volume.

(ii) Poultry showing signs or symptoms of diseases should be immediately killed and removed for proper disposal.

(d) Keeping of Live Poultry

(i) All cages for storage of live poultry on the premises should be constructed of stainless steel or other durable, smooth, impervious and non-absorbent material, and fitted with removable trays made of the same material for reception of excreta. The size and shape of the trays should be the same as that of the cages.

(ii) The lowest cage should be raised at least 300 mm above the floor level. The cages should be made easily movable, preferably on castor wheels, to facilitate easy cleansing and disinfection of the premises.

(iii) Poultry should be provided with sufficient feed and clean water, and be avoided from unnecessary stress.

(iv) Poultry should be kept in cages with a space requirement of not less than 300 cm^2 for each kg of live birds to avoid overcrowding (i.e. a 900 mm x 1800 mm cage can hold a maximum of about 40 poultry of 1.36 kg each). The height of each cage should not be less than 30 cm.

(v) Over-stacking of cages should be avoided so as not to obstruct air ventilation. Sufficient clearance between the ceiling and the top of the cages should be maintained.

(e) Premises Hygiene

(i) Premises should be kept well ventilated at all times. Air extraction systems should be maintained in good working condition with dust filters cleaned as frequently as possible.

(ii) All parts of the wall and floor surfaces of the premises including slaughtering / dressing / scalding room should be easily accessible for cleaning and be kept clean. They should be thoroughly washed and disinfected after business every day by using a high pressure water jet cleaner capable of delivering water at a temperature of not less than 70 ^oC.

(iii) Feathers, excreta, dead poultry and other waste should be stored properly in close fitting waste containers and disposed of

promptly.

(iv) No live poultry shall be allowed to be kept at permitted premises between 8:00 p.m. each day and 5:00 a.m. the next day.

Note : A permittee who fails to slaughter all live poultry remaining at the permitted premises before 8:00 p.m. each day and keeps live poultry at the permitted premises between 8:00 p.m. each day and 5:00 a.m. the next day commits an offence under **section 30AA of the Food Business Regulation**.

(f) Equipment and Utensil Hygiene

(i) All utensils and surfaces of equipment or facilities liable to come into contact with live poultry, feathers, carcasses or offal of poultry should be thoroughly cleansed and disinfected after business every day.

(ii) All cages for the storage of live poultry and trays for reception of excreta should be thoroughly washed and disinfected after business every day.

(iii) Display cages for storage of poultry should be left vacant in the course of cleansing and disinfection. The poultry should be removed from the display cages to clean spare cages for temporary storage.

(g) Personal Hygiene

(i) Every person engaged in handling of poultry should wear clean light coloured protective clothing which should include aprons and rubber boots. In addition, gloves should be worn except during slaughtering, dressing or evisceration processes.

(ii) Open cut, abrasion or wounds should be covered with suitable waterproof dressing.

(iii) Wash hands with liquid soap as frequently as possible, especially before and after handling live poultry and offal; and immediately after slaughtering and evisceration of poultry.

(iv) Observe personal hygiene such as keeping nails short, refraining from nose picking, spitting, coughing, smoking or eating in workplace.

(v) Stop working and see the doctor when feeling sick.

(h) Slaughtering and Evisceration

(i) Slaughtering and evisceration of poultry should only be conducted in the trough in the slaughter / scalding / dressing room.

(ii) Poultry carcasses and offal should be handled separately at all stages of slaughtering, dressing, storage and delivery.

(i) Display of Dressed Poultry

(i) Carcasses and offal of poultry other than of water birds should preferably be separately packed in plastic bags and stored in refrigerators at a temperature less than 10°C, preferably at 4°C, for display for sale.

(ii) Carcasses and offal of water birds must be securely and separately packed in containers and stored in refrigerators at a temperature less than 10°C, preferably at 4°C, for display for sale. Offal of water birds must be packed in hermetically sealed containers if live poultry is on sale at the same premises.

Note :	Sale or offer or expose for sale or deliver for sale of carcass and offal of water birds not properly contained is an offence under **section 30(1A), (1C), (1E) or (1G) of the Food Business Regulation**.

(j) Keeping of Records and Reporting of Death

(i) Records showing the dates, quantities and sources of supply of live / dressed / chilled poultry should be kept for at least 60 days and be made readily available for inspection on demand.

(ii) Poultry dealers should report abnormal death rate of poultry occurred in their premises to the Food and Environmental Hygiene Department whenever possible.

Rationale

Avian Flu is a viral disease transmissible between birds including poultry. On entering the bodies of birds / poultry, the virus may undergo mutation to become a highly virulent disease-causing-organism, which can give rise to rapid mortality in birds / poultry; and may be fatal to human beings if infected. Proper segregation of live water birds and live quails from other live poultry, together with observance of good hygiene practices by operators of market stalls and fresh provision shops in the sale of live poultry, is crucial to minimizing the possibility of the disease being transmitted to human beings through close contact with poultry.

6.7 Sale of Mainland-Imported Chilled Chickens in Fresh Provision Shops or Market Stalls Selling Live Poultry

Permission has to be obtained from the Food and Environmental Hygiene Department for sale of Mainland-imported chilled chickens in fresh provision shops selling live poultry or chilled / frozen commodities or market stalls selling live poultry or frozen meat. The following practices should be observed in the sale of chilled chickens:

(a) Display of Notice

Notices in rectangular shape with a minimum size of 30 cm in length and 20 cm in width printed with legible English letters "Imported Chilled Poultry for Sale" and Chinese words "本店有售進口冰鮮家禽" should be displayed at all times conspicuously at the premises and at the refrigerators for the display for sale of such commodities.

Note : Failure to observe this is a breach of licensing requirement.

(b) Sale of Imported Chilled Chickens in Original Intact Form

Imported chilled chickens should be pre-packed, labelled in accordance with the Food and Drugs (Composition and Labelling) Regulations (Cap. 132 Sub. Leg.) and be sold in the original and intact pre-packed form.

(c) Display of Chilled Chickens

All chilled chickens should be kept at all times at a temperature between 0ºC and 4ºC.

(d) Keeping of Records

Records of sources of supply of chilled chickens should be kept as specified in paragraph 6.6(j)(i) of this Chapter.

Note :	Failure to observe any of (b) to (d) is a breach of licensing condition.

(e) Distribution of Imported Chilled Chickens to Other Food Premises

(i) Approval has to be obtained from the Food and Environmental Hygiene Department for the vehicle used for transportation of imported chilled chickens if the food premises conduct distribution of these chilled chickens to other food premises.

(ii) The vehicle should have temperature devices to record the temperature of the conveying compartment on a running graph for the duration of the trip.

(iii) A temperature gauge should be located outside of the vehicle so that the driver can monitor the temperature inside the conveying compartment.

Note :	Failure to observe any of (i) to (iii) is a breach of licensing requirement.

(iv) The conveying compartment of the vehicle should only be used for the transportation of imported chilled chicken carcasses and offal. They should be kept at a temperature between 0ºC to 4ºC in the vehicle during transportation.

(v) In case the vehicle is also used to deliver other chilled / frozen food commodities, the prepackaged chilled chickens must be kept separately from any other food commodities and contained in independent metal or plastic containers, and the vehicle is not used for any purpose other than transportation of chilled / frozen food commodities.

Note :	Failure to observe (iv) or (v) is a breach of licensing condition.

6.8 Sale of Imported Chilled Meat

Imported chilled meat means imported meat which has been preserved by chilling at a temperature above freezing point from the point of slaughter, storage and transportation to the point of sale. The following practices should be observed in the

sale of imported chilled meat:

(a) Imported chilled meat delivered to fresh provision shops or market stalls for sale should be stored or displayed in refrigerators at a temperature not more than 4ºC and sold directly from refrigerators to customers. Chilled meat should only be taken out from refrigerators for the purpose of cutting up to meet the immediate orders of customers, weighing, and wrapping for delivery or handing over to customers.

(b) Imported chilled meat received from meat suppliers should not be displayed or sold as fresh meat.

Note : Failure to observe (a) or (b) is a breach of licensing condition.

6.9 Maintenance of Siu Mei and Lo Mei Showcase

6.9.1 Glass Panels

Every siu mei and lo mei showcase should be provided with fixed glass panels on the side abutting the street and the side facing the customers (the latter should be of at least 1.2m from the front of the showcase). These glass panels should not be removed or replaced by movable ones.

Note : Removal of the fixed glass panels of a siu mei and lo mei showcase or replacement by movable glass panels is a breach of licensing requirement.

6.9.2 Paraphernalia for Storage or Sale of Siu Mei and Lo Mei

All siu mei and lo mei should be stored or displayed for sale inside a siu mei and lo mei showcase. There should be no hanging rails or paraphernalia put outside the showcase for display of siu mei and lo mei.

6.9.3 Permission for Sale of Other Foods in Siu Mei and Lo Mei Shops

Chinese sausages, preserved meat or ducks, or other similar foodstuffs may be sold in siu mei and lo mei shops with the prior permission of the Food and Environmental Hygiene Department. Such foodstuffs should, however, not be stored or displayed in any siu mei and lo mei showcase.

6.9.4 Permission for Storage of Fresh Meat in Siu Mei and Lo Mei Shops

Fresh meat may be stored in siu mei and lo mei shops with the prior permission of the Food and Environmental Hygiene Department. Such meat should only be stored in refrigerators separated from siu mei and lo mei, preferably in separate refrigerators. Sale of fresh meat from siu mei and lo mei shops is not allowed.

Rationale

Siu mei and lo mei is a high risk ready-to-eat food. They should be stored and displayed inside a properly constructed and maintained showcase to protect it from risks of contamination.

6.10 Exhibition of Licence and Sign

Licensee of a food business should exhibit the licence and sign, issued by the Food and Environmental Hygiene Department denoting that his food premises have been licensed, at a conspicuous place near the main entrance of his licensed premises.

Note :	(1)	Failure to exhibit the licence at a conspicuous place is an offence under **section 34B of the Food Business Regulation.**
	(2)	Failure to exhibit the sign at a conspicuous place is a breach of licensing condition.

6.11 Keeping of Inspection Records

Licensees of food premises should keep the inspection forms supplied by the Food and Environmental Hygiene Department at all times on the food premises for use by health inspectors, and should take prompt follow-up or remedial actions according to the advice given by health inspectors on such forms.

Note :	Failure to keep the inspection form and available for use by any health inspector visiting the food premises is an offence under **section 25(2) of the Food Business Regulation.**

6.12 Checklist for Self-Inspection

A food supplier has a pivotal role to play in ensuring the food he supplies is clean and fit for human consumption. He should exercise constant care and vigilance in supervising the preparation, production, handling and serving of food by conducting "self-inspection", with a view to ensuring compliance with the food hygiene and safety laws and the adoption of the best hygiene practices. "Self-inspection" is a very effective tool to enable a food supplier to detect food safety and hygiene problems in his everyday operation and solve them before they get out of control. Enclosed at **Annex III** is a recommended checklist for self-inspection. It helps food suppliers to perform a check on their own premises and operations. We suggest food suppliers to make use of it to conduct daily checks and keep records of their findings to improve the food safety and hygiene standards of their premises. However, "self-inspection" should not be taken in any way as a substitute for the regulatory inspections conducted by the Food and Environmental Hygiene Department.

6.13 Consumer Advice on High-risk Foods on Menus

(a) To keep consumers, especially susceptible populations, informed of the risk of consuming raw/undercooked foods, food businesses may consider to provide consumer advice or a reminder on raw/undercooked foods on the menu. The advice should be legible and displayed in a prominent position on the menu. Apart from menus, the advice can also appear on menu boards, brochures, signage, food labels and placards if suitable. Examples for the consumer advice are set out at "Guidelines for Food Businesses on Providing Consumer Advice on High-risk Foods on Menus" available at website of the Centre for Food Safety.

(b) For foods that are safe to be consumed raw/undercooked or are prepared by special methods for safe consumption, such consumer advice may not be required. Examples are sunny-side-up eggs made with pasteurised eggs, soft cheeses made with pasteurised milk and hot-smoked salmon. In such cases, food businesses should assure food safety by obtaining documentary proofs.

Rationale

Raw or undercooked foods, as there is no or inadequate heat treatment to eliminate the microorganisms present, such as bacteria, viruses and parasites, can pose risks to health. Consumption of food contaminated by microorganisms may cause food poisoning. No matter which type of pathogens is involved, susceptible populations

include pregnant women, infants, young children, the elderly and people with weakened immunity are more likely to develop severe symptoms or complications and even face the risk of death if they consume raw/undercooked foods.

Annex I

A Suggested Cleaning Programme

Item		Least Frequency	Equipment and Chemicals	Method	Responsible Person
STRUCTURE	Floors	End of each day or as required	Brooms, damp mops, brushes, detergents and sanitizers	1. Sweep the area 2. Apply detergent and mop the area 3. Use scrub for extra soil 4. Rinse thoroughly with water 5. Remove water with mop	
	Walls, windows and ceiling	Monthly or as required	Wiping cloths, brushes and detergents	1. Remove dry soil 2. Rub with wet cloth or rinse with water 3. Apply detergent and wash 4. Wipe with wet cloth or rinse with water 5. Air dry	
FOOD CONTACT SURFACES	Work tables and sinks	After use	Wiping cloths, detergents and sanitizers	1. Remove food debris and soil 2. Rub with wet cloth or rinse with water 3. Apply detergent and wash 4. Wipe with wet cloth or rinse with water 5. Apply sanitizer 6. Air dry	
EQUIPMENT	Utensils, cutting boards, knives and other cooking equipment	After each use	Wiping cloths, brushes, detergents and sanitizers	1. Remove food debris and soil 2. Rinse with water 3. Apply detergent and wash 4. Rinse with water 5. Apply sanitizer 6. Air dry	
	Refrigerators, freezers and storage areas	Weekly or as required	Wiping cloths, brushes and detergents	1. Remove food debris and soil 2. Rub with wet cloth or rinse with water 3. Apply detergent and wash 4. Wipe with wet cloth or rinse with water 5. Dry with clean cloths / air dry	
HAND CONTACT SURFACES	Door knobs	Daily	Damp cloths and detergents	1. Remove debris 2. Apply detergent 3. Rinse with damp cloths 4. Dry with paper towels / air dry	
CARPET	Floors	Monthly	Steam / chemicals	1. Remove debris 2. Apply chemicals 3. Vacuum dry	

Annex II

Maintenance Record on Filtration and Disinfection Facilities for Water for Keeping Live Marine Fish and / or Shellfish

Shop Sign:_____ Type of Filter:_____

Address:_____ Type of Disinfection System:_____

Nature of Premises:_____ Name of Maintenance Contractor:_____

Tel. of Maintenance Contractor:_____ Address of Maintenance Contractor:_____

Item	Date / Particulars						
(a)	Cleansing of filter / disinfection system						
(b)	Replacement / replenishment of filter media						
(c)	Replacement of major parts of the disinfection system such as UV lamp, electrodes, etc.						
(d)	Overhaul maintenance						
Signature of Dedicated Staff / Maintenance Contractor							
Signature of Licensee / Nominated Manager / Lessee / Registered Assistant							

Remarks :

1. UV radiation system should be regularly maintained by the UV lamp supplier, preferably at least once every 6 months.
2. Regular maintenance of the ozone disinfection system should be carried out by the system supplier or trained personnel, preferably at quarterly intervals. The ozone source must be switched off during the cleansing and maintenance operations.
3. Regular maintenance of the copper-silver ionization system should be carried out by trained personnel or the system supplier, preferably at quarterly interval; the electrodes of the ionizer should preferably be replaced at yearly interval.
4. Photocatalyst used in disinfection system employing photocatalytic oxidation technology with the use of UV radiation and titanium dioxide should be regenerated or replaced by the system supplier, preferably at least once yearly; and the system should be maintained by them, preferably at quarterly intervals.
5. UV lamp tubes / bulbs used in all disinfection systems should be renewed in every 6-9 months.

Annex III

Food Premises Self-Inspection Checklist

Checked by _____ Date _____

Signature _____

[√] In order [x] Not in order

(a) Food Hygiene

Standard	Finding
Food supplied from approved and reputable sources	
Food promptly moved to proper storage areas upon receipt	
Food and raw materials stored off the floor	
First-in-first-out principle for food storage applied	
Food at proper temperature during cooling, storage, display and transportation	
Frozen food thawed properly and completely	
No cross-contamination of raw / cooked food	
No cross-contamination of food by equipment, utensils, and personnel	
Food properly protected during storage, preparation, display, service and transportation	
Thorough cooking and reheating of food	

(b) Utensils and Equipment

Food contact surfaces of equipment and utensils properly maintained, kept clean and sanitized between uses	
Non-food contact surfaces of equipment properly maintained and kept clean	
Proper storage of cleaned equipment and utensils	

(c) Premises Hygiene

Walls, floors and ceilings properly maintained and kept clean	
Sewerage / grease trap and plumbing system in good state and working condition	
Extraction / exhaust systems in food room in good working condition, grease filters installed and kept clean	
Ventilating system in premises functioning properly	
Toilets kept clean and free from obstruction	
Water closets in good repair and working condition with flushing water	
Wash hand basins kept clean, and provided with liquid soap and hand-drying facilities	
Adequate waste containers, properly covered and emptied daily	
Absence of signs of vermin or rodent infestation	
Proper pest-proof measures taken to prevent infestation of pests	
No dogs, cats, birds or pets in food rooms	
No deviation from approved layout	
No food preparation / scullery in open spaces, or extension of business beyond licensed area	

(d) Personal Hygiene of Food Handlers	**Finding**
No obvious symptoms of illness, suspension from food handling for those infected	
Hands washed thoroughly and as frequently as required, open wound completely covered in gloves or dressing	
Good appearance and personal behaviour, no smoking or spitting in food room	
Clean clothes and overall worn	

Remarks: _____

Annex IV

Essential Precautionary Measures against Severe Acute Respiratory Syndrome (SARS) for Food Premises

(a) Step up cleaning, inspection and maintenance for all ventilating systems in the premises, including air outlets, air filters, fresh air inlets and ventilating ducts.

(b) Keep the ventilating systems of the premises in operation during business hours.

(c) Provide customers of restaurants and factory canteens with additional chopsticks or spoons for the common serving of food.

(d) Wash and sterilize tableware / towels provided to customers thoroughly before re-used.

(e) Step up cleansing and disinfection of the walls, floors, utensils, tables, chairs and equipment on the premises.

(f) Cease work and consult a registered medical practitioner immediately should any employee found suffering from respiratory tract illness.

(g) Put all food, beverage and tableware under proper storage and cover.

(h) Arrange mouth masks for the staff to wear; and

(i) Ensure food properly covered during delivery.

Appendix I

How to Read the Food Labels

The Food and Drugs (Composition and Labelling) Regulations require food manufacturers or packers to label their products in a prescribed, uniform and legible manner. Unless there is exemption in the Regulations or otherwise stated, the following information should be marked in either English or Chinese language or in both languages on the label of prepackaged food:

(a) Name of Food

Food should be labelled with an accurate name to make the nature and type of food known to purchasers.

(b) List of Ingredients

(i) The ingredients should be listed in descending order of weight or volume.

(ii) If an additive constitutes one of the ingredients of a food, it should be listed by its specific name (e.g. sulphur dioxide) or by the appropriate category (e.g. preservative) or by both name and category.

(c) Indication of "Use By" or "Best Before" Date

The label should use either the words "Use By 此日期前食用" or "Best Before 此日期前最佳", as the case may be, followed by the date, to indicate the shelf-life of the food.

(d) Statement of Special Conditions for Storage or Instructions for Use

If special conditions are required for storage or special instructions are needed for the use of prepackaged food, a statement should be included on the label (e.g. kept refrigerated at or below 4^{o}C).

(e) Name and Address of Manufacturer or Packer

The label should have the full name and full address of the manufacturer or packer, or otherwise in accordance with the requirements as stipulated in the Food and Drugs (Composition and Labelling) Regulations.

(f) Count, Weight or Volume of Food

The food label should include the numerical count or net weight or net volume of the prepackaged food.

Note :	If Chinese and English languages are used in labelling, the food name and the ingredient list of the prepackaged food shall be labelled in both languages.

Appendix II

How to Select and Use a Food Thermometer

Temperature Checking

Temperature checking is a critical measurement for ensuring the safety and quality of many food products especially potentially hazardous foods. Suitable, reliable and accurate food thermometers are essential for monitoring temperatures at receiving, production or final product storage and distribution stage.

Common Types of Food Thermometers

There are several types of food thermometers on the market. Some are used to measure the temperatures of food and some are to measure temperatures of equipment and storage areas. Since temperature control is essential to safe food production, choosing an appropriate food thermometer and using it properly are of great importance.

When choosing a thermometer, consider (but is not limited to) the following:

(a) the product type or the environment to be monitored;

(b) sensing area. For example, a bi-metallic stemmed thermometer is good for measuring temperatures of thick food (any food more than 76 mm thick) such as beef roasts because its sensing area extends in the stem from about 6 mm to about 76 mm up the stem;

(c) the expected accuracy of the thermometer. Select a thermometer that is accurate to at least ±1°C. For example, if the thermometer reads 60°C, the actual temperature of the food should be between 59°C and 61°C;

(d) the temperature range to be measured. Thermometers with a narrower temperature range will provide greater accuracy at a cheaper price. In general, a thermometer that has a range of –50°C to 150°C is all that is required for measuring the temperature of food;

(e) the sensitivity (some thermometers can detect a 1.0 degree temperature change while some can detect a 0.1 degree temperature change);

(f) response time. Some thermometers take less than 1 second while others may take 2 minutes to measure the temperature; and

(g) the calibration methods (some thermometers can be calibrated while others cannot).

(i) Bi-metallic Stemmed Thermometers

Diagram 2: Bi-metallic Stemmed Thermometer

Bi-metallic stemmed thermometers are the commonest type of food thermometers. These thermometers read the temperature from the tip and up the stem for 50 mm to 76 mm and the measured temperature is the average of the temperatures along the sensing area. They are, therefore, more suitable for measuring the core temperature of thick food (any food more than 76 mm thick) because the entire sensing area of the thermometer must be inside the food. Depending on the types, these thermometers give readings within 20 seconds to 2 minutes.

(ii) Thermocouple Thermometers and Thermistor Thermometers

Thermocouple thermometers and thermistor thermometers measure temperatures through a sensor in the tip of the stem. They give readings quickly (within 10 seconds) and since the sensor is in the tip, these thermometers can measure temperatures in thin and thick foods conveniently. These thermometers may also be called “digital food thermometers” because measured temperatures are normally indicated on a digital display.

Diagram 3: Digital Food Thermometer

Diagram 4: Digital Food Thermometer

(iii) Infrared Thermometers

Hand-held, portable infrared thermometers measure the surface temperature, in less than 1 second, of food and packages of food without contact by measuring the amount of radiant energy emitted from the surface.

Infrared thermometers are useful for checking the storage temperature in freezers and refrigerators, temperature of food held in hot holding equipment and temperature of incoming food products. They are, however, unsuitable for measuring the centre temperatures of food during cooking or cooling as only the surface temperature can be measured.

Diagram 5: Infrared Thermometer

Besides, they cannot accurately measure the temperature of metal surfaces and reflective foils.

Glass thermometers are filled with mercury or spirits. They are not recommended to be used for measuring the temperature of food because the glass and the inner liquid pose physical and chemical hazards.

There are other thermometers designed specifically to measure certain food items or food processes. These include candy / jelly / deep fry thermometers, oven thermometers, single-use temperature indicators, etc.

Checking Thermometer Accuracy

Food thermometers need constant checking / calibration in order to make sure that their readings are accurate and reliable. The manufacturer or distributor should be asked to calibrate them at least once every year but self-checking on the accuracy of food thermometers should be done at least quarterly using the following methods:

(a) Ice Point Method

(i) fill a container with finely crushed ice. Add clean tap water to the top of the ice and stir well;

(ii) let the mixture stand for 5 minutes to allow the temperature of the mixture to become stable;

(iii) immerse the tip (a minimum of 50 mm) of the food thermometer into the mixture without touching the sides or the bottom of the container;

(iv) wait for approximately 2 minutes and record the temperature; and

(v) the temperature should read 0°C. If the food thermometer reads more than ±1°C, it should be adjusted, repaired, or replaced, if adjustment is not possible.

(b) Boiling Point Method

(i) boil clean tap water and immerse the tip (a minimum of 50 mm) of the food thermometer into the boiling water;

(ii) wait for a few minutes to allow the temperature to stabilize;

(iii) write down the temperature of the food thermometer; and

(iv) the temperature should read 100°C at sea level (if your premises locate at a higher attitude, adjust the boiling point accordingly). If the food thermometer differs more than ±1°C, it should be adjusted, repaired, or replaced, if necessary.

Making a Measurement

Before using a food thermometer, read the manufacturer's instructions first. The instructions should tell how far the food thermometer must be inserted into the food to give an accurate reading. Observe the following guidelines when taking temperature measurements:

(a) store the food thermometer in a clean and hygienic manner;

(b) check that the battery low sign, if any, is not showing. Replace with a new battery if required;

(c) wash with warm water and detergent, sanitize and air dry the food thermometer before use;

(d) sanitize the food thermometer by putting the probe in hot water (at least 77ºC or above) for 6 seconds, using alcohol swabs or other appropriate sanitizers as recommended by the manufacturer;

(e) for soups and sauces, stir prior to checking their temperature;

(f) take core temperature of food by inserting the probe into the centre (or thickest part) of the food;

(g) do not let the tip of the thermometer touch the bottom or sides of food containers;

(h) wait for 10 seconds (or the time recommended by the manufacturer) and take the reading;

(i) if the food thermometer is used to measure hot and cold food, wait for the reading to return to room temperature between measurements; and

(j) in taking the surface temperature measurement of packed or frozen food, place the food thermometer probe between two packages of packed / frozen food items and avoid damaging the packaging of packed food.

Appendix III

Guidelines for Design of Food Service Machines and Food Utensil Washing Machines

In accordance with the *Food Business Regulation (Cap. 132 X)* and licensing policy of this Department, the use of bactericidal agents and certain types of food service equipment in food business requires prior approval from the Director of Food and Environmental Hygiene. These types of food service equipment include:

(a) Food utensils washing machine;
(b) Heat-treatment apparatus for frozen confections;
(c) Heat-treatment apparatus for milk; and
(d) Popcorn/cotton candy processing machine.

For the types of food service equipment that do not require our approval, the manufacturers or importers are invited to follow the code of practice outlining the design of the food service equipment as a general guideline to enhance food hygiene.

In general, all food service machines to be used in food premises should satisfy the following basic hygiene requirements:

(a) All food contact surfaces of the machines should be constructed of smooth, non-toxic, non-absorbent and corrosion resistant material. All internal angles and corners of such surfaces should be rounded to facilitate cleaning.

(b) All food contact surfaces, unless designed for in-place cleansing, should be readily removable or accessible for inspection and manual cleaning.

(c) Doors and access panels to the machines should be tight-fitting to prevent entry of insects, rodents and dust.

(d) Containers should be provided within all machines dispensing liquid food in bulk or liquid food ingredients for the collection of drips, spillage, overflow or other internal waste.

(e) A copy of the manual with detailed and proper procedures on operation, cleaning, sterilization and maintenance shall accompany the machine for the user's reference and observance.

Common Types of Food Service Machines

The common types of food service machines are Food Vending Machine, Non-bottled Drinks Manual Dispensing Machines and Frozen Confection (Soft Ice-cream / Frozen Yogurt) Dispensing Machines. Apart from the above basic requirements, they should satisfy the following specific hygiene requirements. For example:

(a) Food Vending Machine (FVM)

(i) All food delivery orifices of FVM should be protected from manual contact by customers and entry of insects, rodents, dust etc. by means of a tight-fitting, self-closing door or cover which should be kept shut at all times, except when food is being removed.

(ii) FVM selling food under temperature control should be fitted with a thermostatically controlled device to maintain the correct temperature.

(iii) All portable food containers, including containers for water to be placed inside FVM should be provided with a cover which can prevent contaminants from reaching the interior of the containers.

(iv) All elements which generate heat in FVM should either be sealed off from the food compartment or so fitted that the heat generated does not affect the storage properties of the food.

(v) FVM used at unprotected outdoor site should be specially designed and constructed to protect food products against contamination by elements of weather.

(b) Non-bottled Drinks Manual Dispensing Machines (NBDMDM)

(i) A thermometer or a suitable temperature-measuring device should be provided to NBDMDM capable of indicating the temperature at which the drink / beverage is being stored.

(ii) Refrigeration device of NBDMDM should be so set as to keep the drink / juice at a temperature below 10°C, preferably at a

temperature between 0°C and 4°C.

(c) Frozen Confection (Soft Ice-cream / Frozen Yogurt) Dispensing Machines (FCDM)

(i) Protective plastic cone and / or screen of suitable design should be provided to the serving nozzles of FCDM to prevent contamination of the nozzle.

(ii) A thermometer or a suitable temperature-measuring device should be provided to FCDM capable of indicating the temperature at which the frozen confection mixes are being stored.

Design of Food Utensil Washing Machines (FUWM)

All FUWM have to be approved by the Food and Environmental Hygiene Department. They should be capable to sanitize food utensils effectively in accordance with section 19 of the Food Business Regulation, and should be of such a design that they can operate hygienically and be cleansed easily. They should also satisfy the following hygiene requirements:

(a) The operation temperature of the water of FUWM for rinsing should be set at a temperature of not less than 82°C.

(b) A temperature-measuring device should be provided in the FUWM to indicate the washing and rinsing water temperatures during the cleaning and sanitizing operations. It should be readily available for inspection on demand by staff of the Food and Environmental Hygiene Department.

Appendix IV

General Principles in Prevention of Bacterial Food Poisoning

What is Food Poisoning?

Food poisoning is caused by the consumption of food or drinks contaminated with pathogens (including bacteria, viruses and parasites), bacterial or biochemical toxins or toxic chemicals. Patients usually show gastrointestinal symptoms like nausea, abdominal pain, diarrhoea and vomiting, although other symptoms like fever may also develop. The incubation period varies from hours to days depending on the causative agent.

Common Types of Bacterial Food Poisoning in Hong Kong

In Hong Kong, bacterial food poisoning caused by pathogenic bacteria is the commonest type of food poisoning. There are various kinds of bacterial food poisoning, but the following are the most prevalent:

Name of Bacteria	Common Foods Involved
Salmonella spp.	Raw or undercooked egg and egg products (e.g. Tiramisu); undercooked meat, poultry and their products (e.g. barbecued and preserved meat, goose intestines, etc.).
Staphylococcus aureus	Foods which have been subject to a large amount of handling with no subsequent cooking or reheating (e.g. lunch boxes, cakes, pastries, sandwiches, etc.).
Vibrio parahaemolyticus	Raw or undercooked seafood, shellfish, marine products and salted food (e.g. jellyfish, cuttlefish, salted vegetables and smoked knuckles, etc.).
Bacillus cereus	Leftover cooked rice, fried rice, meat products and vegetables.
Clostridium perfringens	Cross-contaminated and inadequately cooked meat and meat products (e.g. stew and meat pies, etc.).

[Note : For further details about the above bacterial food poisoning and other types of food poisoning that may be found in Hong Kong as well as their prevention, please refer to Appendix V.]

Common Contributing Factors to Bacterial Food Poisoning

(a) Contamination of Cooked Food
Cooked food has been contaminated by food handlers, raw food, food contact surfaces or pests.

(b) Improper Storage of Cooked Food
Cooked food has been stored between 4°C and 60°C for a prolonged period.

(c) Inadequate Cooking of Food
Raw food has not been cooked thoroughly to reduce any pathogen present.

(d) Inadequate Reheating of Cooked Food
Cooked food has not been reheated to 75°C.

(e) Inadequate Thawing of Food Before Cooking
Insufficiently thawed food, which still has a high bacterial count or pathogen content and which needs a longer time to reach the temperature that kills the bacteria and pathogens in cooking, has not been cooked for sufficiently long time.

(f) Preparation of Food Too Early In Advance
Food has been prepared too early in advance but has not been stored under proper temperature control.

(g) Infected Food Handlers
Food handlers infected with communicable diseases have engaged in handling food.

(h) Consumption of Raw Food
Food (e.g. shrimps) that usually has a high bacterial count or pathogen content has been eaten in a raw state without cooking.

(i) Use of Unsafe Food Source
Food has been purchased from an unapproved or unreliable source such as hawkers.

(j) Use of Leftovers

Use of food leftovers (e.g. cooked rice) that have been stored between 4°C to 60°C for a prolonged period.

Prevention of Bacterial Food Poisoning

In principle, the best way to avoid bacterial food poisoning is to ensure safe food production. Essential measures include:

(a) Purchase of Food

(i) Do not buy foods that are not properly protected (e.g. siu mei and lo mei that has been exposed to the open air during transportation, or cooked food that has not been covered properly).

(ii) Do not purchase food from unlicensed sources, especially for cooked or cold food (because the place and ways in which they cook their foods are usually not hygienic).

(iii) Do not buy any food which looks abnormal (e.g. swollen or dented canned foods).

(iv) Food to be eaten raw, such as sashimi and rock oysters, should be obtained from a reliable and reputable source to ensure their quality.

(b) Handling of Food

(i) Food should be thoroughly cooked before being served to customers (both meat and marine products should be well-cooked).

(ii) Cooked food should be prepared and stored separately from raw food (to avoid cross-contamination).

(iii) Food handlers should thoroughly wash their hands after going to the toilet and before handling food (to prevent the soiled hands from contaminating the food). In any case, do not touch cooked food with bare hands.

(iv) Anybody suffering from diarrhoea, vomiting, sore throat or inflamed wounds (unless properly bandaged with water-proof plastic tapes) should not handle or touch any food so as to prevent the food from being contaminated by food poisoning bacteria.

(c) Storage of Food

(i) Food should be served once it is prepared (that means food should be served either hot or cold. Food that is neither hot nor cold is conducive to the growth of bacteria).

(ii) Leftovers should best be discarded. Otherwise, it should be properly stored in refrigerators (4°C or below) and thoroughly reheated to 75°C or above before being served to customers.

(iii) Any food that is not to be served immediately should be stored at a temperature below 4°C or above 60°C. Do not store food at room temperature which is favourable to bacterial growth or production of toxins.

Appendix V

Common and Important Types of Food Poisoning in Hong Kong

Types of Food Poisoning	Causative Agent	Incubation / Onset Period	Symptoms	Source	Common Foods Involved	Prevention
Bacterial Food Poisoning	*Vibrio parahaemolyticus*	usually 12-24 hours, range 4-30 hours	diarrhoea, abdominal pain, nausea, vomiting, fever	marine environment, seafood, shellfish	raw or undercooked seafood, shellfish, marine products and salted food (e.g. jellyfish, cuttlefish, salted vegetables and smoked knuckles, etc.)	- proper storage temperature and duration of display - thoroughly cook seafood - avoid eating raw seafood - proper storage of cooked food to avoid cross-contamination
	Salmonella spp.	usually 12-36 hours, range 6-72 hours	abdominal pain, diarrhoea, nausea, vomiting, fever	domestic and wild animals, poultry, pigs, cattle, eggs	raw or undercooked egg and egg products (e.g. Tiramisu); undercooked meat, poultry and their products (e.g. barbecued and preserved meat, goose intestines, etc.)	- thorough cooking - avoid using unpasteurized eggs to make pastry and desserts
	Staphylococcus aureus	usually 2-4 hours, range 30 minutes to 8 hours	nausea and vomiting (prominent), abdominal pain, diarrhoea	human skin, hair, nasal cavity, throat, wounds	foods which have been subject to a large amount of handling; with no subsequent cooking and reheating (e.g. lunch boxes, cakes, pastries, sandwiches, etc.)	- strict compliance to good food, personal and environmental hygiene - proper storage condition and temperature - adequate and rapid cooling and reheating
	Bacillus cereus	1-6 hours if vomiting is predominant; 6-24 hours if diarrhoea is predominant	nausea and vomiting; or diarrhoea and abdominal pain	an ubiquitous organism in soil and environment	leftover cooked rice, fried rice, meat products and vegetables	- refrigerate leftovers promptly - reheat thoroughly and rapidly

Types of Food Poisoning	Causative Agent	Incubation / Onset Period	Symptoms	Source	Common Foods Involved	Prevention
Bacterial Food Poisoning	*Clostridium perfringens*	usually 10-12 hours, range 6-24 hours	diarrhoea, abdominal pain, nausea	soil, gastro-intestinal tract of healthy people and animals	inadequately cooked meat and meat products (e.g. stew and meat pies, etc.)	- proper storage temperature - adequate and rapid cooling and reheating
	Clostridium botulinum	usually 12-36 hours for foodborne botulism	blurred or double vision, dysphagia, dry mouth, paralysis; vomiting and constipation / diarrhoea	soil, gastro-intestinal tract of animals	canned food and meat products	- proper processing and preparation of canned and preserved foods - avoid amateur production of such foods
	Campylobacter spp.	usually 2 to 5 days, range 1 to 10 days	diarrhoea, abdominal pain, malaise, fever, nausea and vomiting	animals, most frequently poultry and cattle	undercooked chicken and pork, unpasteurised milk	- thorough cooking - use pasteurized milk
	Listeria monocytogenes	3 to 70 days, median 3 weeks	meningoencephalitis and / or septicaemia, particularly in newborn, elderly and immunocompromised people; fever and abortion in pregnant women	soil, forage, water, mud and silage; infected domestic and wild mammals, fowl and people; asymptomatic carrier in human	raw or contaminated milk, soft cheese, vegetables and ready-to-eat meat, salad, cold food side dish	- pregnant women and immunocompromised individuals should avoid soft cheese and deli meat; - use only properly cooked meat and pasteurized dairy products
Viral Food Poisoning	Norwalk-like viruses (*Norovirus)*	usually 24-48 hours, range 10-50 hours	nausea, vomiting, diarrhoea, abdominal pain, fever	contaminated water or shellfish, particularly filter feeders such as oysters and clams	raw or inadequately cooked shellfish	- proper storage temperature and duration of display, - thoroughly cook shellfish - avoid eating raw shellfish - proper storage of cooked food to avoid cross-contamination
Chemical Food Poisoning	Clenbuterol	30 minutes to 6 hours	tachycardia, tremor, hypertension, and muscle-relaxing effects	veterinary drug	contaminated pig's offal or pork	- purchase pig's offal or pork from approved / licensed and reputable suppliers

Types of Food Poisoning	Causative Agent	Incubation / Onset Period	Symptoms	Source	Common Foods Involved	Prevention
Pesticide Poisoning	Organophosphorus e.g. Methamidophos	up to 12 hours, usually within 6 hours; onset is often fast	mild exposure: headache, fatigue, dizziness, loss of appetite with nausea, stomach cramps and diarrhoea, blurred vision associated with excessive tearing, rippling of surface muscles just under the skin severe poisoning: incontinence, unconsciousness and seizures	vegetables and fruits contaminated by agricultural pesticides	agricultural commodities such as leafy vegetables and fruits	- buy vegetables and fruits from reputable shops - wash and immerse vegetables and fruits in clean water for 1 hour
	Carbamates					
	Organochlorine	can occur soon after exposure	nausea and vomiting, apprehension, excitability, dizziness, headache, disorientation, weakness, a tingling or pricking sensation on the skin and muscle twitching			
	Pyrethroids (synthetic)	onset is often fast (the main effects of Pyrethroids have been shown to be reversible)	skin irritation like stinging, burning; very large doses may rarely cause muscle incoordination, tremors, salivation, vomiting, diarrhoea and irritability to sound and touch			

Types of Food Poisoning	Causative Agent	Incubation / Onset Period	Symptoms	Source	Common Foods Involved	Prevention
Paralytic Shellfish Poisoning (most common shellfish poisoning)	Toxic Algae -Dinoflagellates: *Alexandrium* spp., *Gymnodinium catenatum*, *Pyrodinium bahamense* that produce saxitoxin, neosaxitin	onset of symptoms is rapid; there are some severe cases that may result in respiratory arrest within 24 hours of consumption of the toxic shellfish	tingling, numbness, and burning of the perioral region, ataxia, fever, rash and staggering	shellfish contaminated with phycotoxins that are produced by free-living micro-algae, upon which the shellfish feed	bivalve shellfish such as oysters, clams, mussels, fan shells, scallops, etc. are common vehicles responsible for shellfish poisoning	- buy shellfish from reputable and licensed seafood shops - eat a smaller amount of shellfish in one meal - avoid eating the viscera, gonad and roe
Diarrheic Shellfish Poisoning	Toxic Algae -Dinoflagellates: *Dinophysis* spp., and *Prorocentrum lima* that produce okadaic acid and dinophysistoxin-1	symptoms usually begin within 30 minutes to a few hours after consuming contaminated shellfish	diarrhoea, nausea, vomiting, chills, and moderate to severe abdominal pain and cramps			
Neurotoxic Shellfish Poisoning	Toxic Algae -Dinoflagellates: *Gymnodinium breve* that produces brevetoxins	after 3 to 6 hours, symptoms tend to be mild and may resolve quickly	tingling of facial muscles, cold and hot sensory reversal, bradycardia and dilation of pupils			
Amnesic Shellfish Poisoning	Marine diatoms: *Nitzschia* (or *Pseudonitzschia*) – *P. pungens, P. australis* and *P. pseudodelicatissima* that produce domoic acid	15 minutes to 38 hours	vomiting, abdominal cramps, diarrhoea, headache and in particular a short-term memory loss			

Types of Food Poisoning	Causative Agent	Incubation / Onset Period	Symptoms	Source	Common Foods Involved	Prevention
Ciguatera Fish Poisoning	Toxic Algae -Dinoflagellates: possible *Gambierdiscus toxicus* produces ciguatoxin	several hours after consuming toxic fish	vomiting, diarrhoea, numbness of extremities, mouth and lips, reversal of hot and cold sensation, as well as muscle and joint aches	fish containing ciguatoxin (usually, fish feed and dwell at coral reef are more likely to contain ciguatoxin)	most common in grouper, snapper, barracuda, kahala, and moray eel	- eat fewer coral reef fish - eat small amount of coral reef fish at any one meal - avoid eating the roe, liver, guts, head and skin of coral reef fish - avoid consuming alcoholic beverages and nut or seed products when eating coral reef fish or when suffering from ciguatera fish poisoning - buy coral reef fish from reputable and licensed seafood shops and those caught from safe harvesting area
Scombroid Fish Poisoning	Histamine	a few minutes to an hour after consuming the affected fish	metallic, sharp or peppery taste, intense headache, dizziness, nausea, vomiting, facial swelling and flushing, burning throat and diarrhoea	fish containing histamine, deteriorated fish because of failed temperature control at some point between capture and consumption	most common in the member of Scombroidea family (tunas and mackerels)	- buy fish from reputable and licensed seafood shops - proper handling of fish, including rapid chilling of fish after death, maintenance of low temperature during storage and where possible during processing