

Food Retail and Foodservices Code

Food Retail and Foodservices Code

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Revisions in December 2019

| Sections | Change Description | Rationale |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.4(a)(vii) 1.7 3.2.1.2(b) Appendices | Remove references to food banks to align with the amended Food Regulation. Remove Food Bank Guidelines (Appendix G) and reassign labels for subsequent appendices. | The <i>Food Regulation</i> was amended to remove the distinction between food banks and soup kitchens to make it easier for both to operate in the same facility. |
| 1.7 2.17(a) | Revise definition of and references to bed and breakfasts to align with the amended <i>Food Regulation</i> . | The <i>Food Regulation</i> was amended to remove the restriction for bed and breakfasts to serve only breakfast and allow them to serve any meal. |

Revisions in June 2020

| Sections | Change Description | Rationale |
|----------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 1.0 | Updated subsection 1.1 Removed subsections 1.2 – 1.6 to align with document type and purpose | Revised subsection 1.1 to reflect the intent of the document Subsections removed no longer fit the intent of the document |
| 1.7 | Definitions revised or added | Definitions were revised and added to align with the <i>Food Regulation</i> |
| 2.11 | Minor rewording of title and contents | Reworded for consistent terminology |
| 2.17 | Rewording of subsections (a) and (b) to align with the <i>Food Regulation</i> | Wording revised to reflect recent changes to bed and breakfasts in the <i>Food Regulation</i> |
| 3.2.1.2 | Revisions to references to home-prepared foods | Revisions align with the new Part 6.1 in the <i>Food Regulation</i> |
| 3.3 | Clarified temperatures listed are internal temperatures unless products are frozen | Revisions improves clarity |
| Appendices A-F | Minor revisions for clarity, consistency and to update outdated information including external links | Revisions improve clarity and consistency and update references |

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1.0 Purpose and Definitions

1.1 Introduction

The *Food Retail and Foodservices Code* (Code) is incorporated by reference in the *Food Regulation* (Regulation) AR 31/2006. The Code is not meant to be a standalone document, but rather is to supplement, and be used in conjunction with, the *Food Regulation*. Taken together, they set the minimum requirements for safe food handling.

1.2 Definitions

Definitions of common terms contained in the *Food Retail and Foodservices Code* are listed below.

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| Act: | means the <i>Public Health Act</i> |
| Adulterant: | any undeclared ingredient in a food product which diminishes the safe or nutritional value of the food product, or which may render the food product injurious to health. |
| Applicant: | one who applies for a permit. |
| Bed and Breakfast | a private dwelling occupied by the owner or operator that offers overnight lodging and meals, for a fee, to no more than 8 registered guests at one time. |
| Clean: | to render free from food residues and/or other foreign material. |
| Comminuted: | to reduce to minute particles. |
| Communicable Disease: | an illness in humans caused by an organism or microorganism or its toxic products, and transmitted directly or indirectly from an infected person or animal, or the environment. |
| Container: | means a receptacle or covering used to contain, cover, package or wrap food. |
| Contamination: | means exposure to conditions which may result in : <ul style="list-style-type: none">a) the introduction of foreign matter including filth, a poisonous substance or pests, orb) the introduction or multiplication of disease-causing microorganisms or parasites, orc) the introduction or production of toxins. |
| Corrective Actions: | procedures to be followed when a deviation occurs from the Critical Limits, i.e., a violation or deviation at any of the Critical Control Points. |

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| Critical Control Point: | a point, step or procedure at which control must be applied and a food safety hazard can be prevented, eliminated, or reduced to acceptable levels. |
| Critical Limit: | a criterion that must be met for each preventive measure associated with a Critical Control Point. |
| Equipment: | means any appliance, apparatus or device that is or may be used in the operation or maintenance of a food establishment, but does not include utensils. |
| Fish: | fin fish and molluscan and crustacean shellfish. |
| Food: | means any substance, including water and ice, intended for use in whole or in part for human consumption, but does not include a drug, medication or health related product regulated under the <i>Pharmaceutical Profession Act</i> or the <i>Food and Drugs Act</i> (Canada); |
| Foodborne Illness: | sickness caused by the ingestion of food containing microbiological or chemical hazards. |
| Food Contact Surface: | means the surface of counters, equipment or utensils with which food may normally come into contact |
| Food Establishment: | means a place where food is handled. |
| Food Grade: | in the case of packaging, any material that does not violate the provisions of Division 23 of the <i>Food and Drug Regulations</i> . The document states (in part) that no person “shall sell any food in a package that may yield to its contents any substance that may be injurious to the health of a consumer of the food.” |

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| Food Handler: | means an individual who handles food, utensils or equipment. |
| Food Recall: | a process in which foods or food products are effectively withdrawn from the market place. |
| Food Transportation Unit: | vehicles, aircraft, railcars, ships, containers, boxes, bulk tanks, trailers and any other transportation unit used to transport food. |
| Game Animal: | an animal, the products of which are food, that is not classified as cattle, poultry, sheep, swine or goat. This includes, but is not limited to, reindeer, elk, deer, antelope, water buffalo, bison, rabbit, aquatic and non-aquatic birds, non-aquatic reptiles and aquatic mammals. |
| Good Operating Practices: | universal steps or procedures that control the operational conditions within a food establishment allowing for conditions that are favourable to the production of safe food (i.e., proper personal hygiene, sanitation and food handler training). |
| HACCP: | an acronym for Hazard Analysis Critical Control Point which is a systematic approach to be used in food production as a risk-based means to ensure food safety. |
| HACCP Plan: | the document which defines the procedures to be followed to ensure the control of product safety for a specific process, raw ingredient or recipe category. |
| Handle: | means, in relation to food, the supply, sale, offering for sale, processing, preparation, packaging, providing, display, service, dispensing, storage or transportation of any food that is intended for public consumption. |
| Handwashing Station: | Means a station that is equipped with a hand basin and hot and cold running water and that, in its immediate vicinity, <ul style="list-style-type: none"> a) has a dispenser for the provision of soap or is otherwise provided with soap in a container, and b) has a method of hand drying that uses single service products or a mechanical hand dryer. |
| Mobile Food Establishment: | Means a commercial food establishment that is movable and capable of being operated in varying locations. |
| Nuisance: | means a condition that is or might become injurious or dangerous to the public health or that might hinder in any manner the prevention or suppression of disease. |
| Operator: | Means the person who manages or directs the handling of food in a food establishment, and includes an owner as defined in the Act. |

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| Pathogen: | a disease-causing organism. |
| Permit: | means a food handling permit issued or renewed under Part 1 of the <i>Food Regulation</i> . |
| Permit Holder: | the person who is legally responsible for the operation of a food establishment, such as the owner or the owner's agent, and who possesses a valid permit to operate the food establishment. |
| Pest: | means <ul style="list-style-type: none"> a) rodents, cockroaches or flies, or insects or other vermin and b) any other animals that are potentially destructive to the sanitary operation or maintenance of a food establishment. |
| pH: | a measure of the degree of acidity and alkalinity. Values between 0 and 7 indicate acidity and values between 7 and 14 indicate alkalinity. The value for pure distilled water is 7, which is considered neutral |
| Place: | includes any location, including, without limitation, <ul style="list-style-type: none"> a) a premises, b) a vehicle, and c) an outdoor area |
| Potable: | Safe for human consumption. |
| Potentially Hazardous Food: | means, with respect to food, in a form or state that is capable of supporting the growth of pathogenic micro-organisms or the production of toxins. This does not include foods which have a pH level of 4.6 or below and foods which have a water activity of 0.85 or less. |
| Poultry: | any domesticated bird (chickens, turkeys, ducks, geese or guineas), whether live or dead. |
| Pre-packaged food | means food that was already packaged when the person who is selling the food obtained it. |
| Processing: | means transforming food and includes, without limitation, the thawing, heating, cutting, cooking, smoking, chilling, reheating, salting, canning, freezing and pasteurizing of food |
| Raw Ingredient: | any food that enters into the composition of a mixture in a natural, crude, uncooked state. |
| Ready-to-Eat Foods: | foods not requiring any further preparation before consumption. |
| Refuse: | solid waste not carried by water through the sewage system. |
| Regulatory Authority: | the municipal, provincial, territorial or federal body having jurisdiction over the food premises for the purposes of administering and enforcing the appropriate Act (s) and regulation (s), or any agency or authorized representatives of any of them. |

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| Retail: | the sale of food directly to the public. |
| Sanitary: | free from contamination. |
| Sanitize: | means to treat a surface in such a way as to reduce the microorganism population to a level that does not constitute an insanitary condition. |
| Service Animal: | means an animal that is specifically trained or being trained for the purpose of providing assistance to persons with disabilities; |
| Shelf Stable: | foods not requiring refrigeration. (See <i>Water Activity</i> below.) |
| Single Service: | means designed to be used only once and then discarded. |
| Tableware: | eating, drinking and serving utensils for table use, such as flatware including forks, knives and spoons, and hollowware including bowls, cups, serving dishes, tumblers, glasses and plates. |
| Toxic Substances: | substances that are not intended for ingestion, such as cleaners, sanitizers, pesticides, insecticides, paint, petroleum, etc. |
| Utensils: | means kitchenware, tableware, cutlery and other similar items used in the handling or consuming of food. |
| Vending Machine: | a self-service device that dispenses servings of food in bulk or in packages without the necessity of replenishing the device between each vending operation. |
| Volunteer Caterer: | means a food handler who provides food for community organization functions and restricted functions and who receives no or at most nominal compensation for doing so |
| Water Activity (A_w): | A measure of the relative availability of water in food that could support the growth of microorganisms or their production of toxins. It is measured on a scale of 0 to 1. |

2.0 Construction, Design and Facilities

2.1 Site and Location

Sites for food establishment should be chosen that are free from conditions that might interfere with their sanitary operation, including:

- a) No land use conflicts or potential conflicts with adjacent sites.
- b) Set reasonably apart from waste disposal facilities, incompatible processing facilities, and any offensive trades. Generally a minimum set back of 30 metres is recommended from potential sources of contamination. However, a greater or lesser distance could be accepted depending on specific site conditions.

Rationale

Surrounding facilities should not contaminate food. Conditions which might lead to contamination include excessive dust, foul odours, smoke, pest infestations, airborne microbial and chemical contaminants, and other similar conditions.

2.2 General Premises Design and Construction Specifications

2.2.1 Premises Design and Layout

- a) Food establishment should be designed such that food flow is in one direction (for example, from receiving, to storage, to preparation, to packaging/serving).
- b) Incompatible areas or processes, particularly clean-up and chemical storage areas, should be reasonably separated from food preparation/processing areas.

Rationale

Unnecessary movement of food and personnel within the food establishment increases the likelihood of contamination, and hence should be controlled as much as possible. If unsanitary operations are conducted in close proximity to sanitary operations, the likelihood of contamination is similarly increased. A properly designed and operated food establishment will minimize the opportunity for food to be contaminated.

2.2.2 Construction Plans and Specifications

- a) Construction plans and specifications respecting the location, design and construction of the facility are to be approved by the regulatory authority.
- b) With regard to alterations to existing facilities, the plans and specifications regarding the alterations are to be submitted to and approved by the regional health authority only if the alterations involve items or equipment that are specified in the *Code*. Plans for minor alterations such as the installation of shelves in a storeroom do not have to be submitted to the regional health authority. Plans submitted should be reviewed by the regional health authority within 15 business days.
- c) The term “alteration” and the context in which it is used in sub-section (b) above, means those alterations that normally require a building permit from the municipality.

2.3 Walls and Ceilings

- a) Walls and ceilings in food preparation, processing and storage areas should be:
 - i) constructed of finishes such as tile, plaster, sealed brick, stainless steel, or other equivalent materials, which are impervious, washable, durable and light coloured;
 - ii) kept in good repair;
 - iii) kept in a clean and sanitary manner;
 - iv) free from flaking materials; and
 - v) free of pitting and cracks
- b) Inserts for false ceilings must have a non-porous (smooth), washable, impervious finish in areas where food is prepared or stored.

Rationale

Properly finished walls and ceiling are easier to clean and as such, are more likely to be kept clean. A light coloured finish aids in the even distribution of light and the detection of unclean conditions that can then be corrected.

2.4 Floors

Floors that are subject to moisture must be constructed of impervious materials, non-slip and sloped to allow for draining.

Rationale

Properly constructed floors facilitate cleaning and sanitizing. Impervious materials do not absorb water or organic matter, and sloping helps avoid pooling of liquids that can lead to unsanitary conditions.

2.4.1 Dry Areas

- a) In operating areas where the floor is not normally subject to moisture, the floor should be durable, impervious and easily cleanable, and non-slip.
- b) The floor to wall joints should be coved. **Generally**, a gap of no larger than 1 mm is recommended.

2.4.2 Wet Areas

- a) In areas where the floor is subject to moisture (such as food preparation or processing areas, walk-in coolers, washrooms, and areas subject to flushing or spray cleaning), the floor should be:
 - i) durable, easily cleanable and non-slip;
 - ii) constructed of an impervious material that is able to withstand regular wet washing, such as tile or epoxy resin;
 - iii) coved at the wall to floor joints, and sealed;
 - iv) smooth so as not to allow for pooling of liquids; and
 - v) sufficiently sloped for liquids to drain to adequately sized and constructed floor drains. (See Section 2.5 below.) **Generally**, a minimum slope of 2% or more is recommended.
- b) All floors should be kept clean and in good repair.
- c) Rubber or plastic mats excluding carpet or other similar floor coverings applied to the floor should be designed for easy removal, cleaning and sanitizing, and made of a non-absorbent material.
- d) Sawdust on floors is not acceptable where food is prepared, handled and processed.

2.4.3 Carpeting

Carpeting or similar material should not be installed as a floor covering in food preparation areas, walk-in coolers/freezers, storage rooms, janitorial/waste rooms, washrooms, change rooms, or other areas subject to moisture or wet cleaning. Where carpet is used in an operation, it should be installed only in the dining or public areas.

Rationale

Sanitary food operation areas will minimize the risk of contamination of the food from environmental sources.

2.5 Floor Drains

- a) Floor drains shall meet all the plumbing codes, and should:
 - i) effectively prevent accumulation of liquids;
 - ii) be cleaned out on a regular basis;
 - iii) be located so that they are easily accessible, and equipped with removable covers that are flush to the floor; and
 - iv) be equipped with backflow preventers.
- b) Drain lines should be sloped, individually trapped, and properly vented to outside air.
- c) The drainage system should be constructed such that there is no cross-connection between the drains or drain lines, and:
 - i) the water supply; or
 - ii) the food product lines or equipment.

Rationale

The accumulation of liquids on the floor of a food establishment can lead to unsanitary conditions, increasing the likelihood of contamination of food. Properly designed drains and drain lines can eliminate the accumulation of liquids.

Trapping and venting of plumbing, as well as other mechanisms preventing backflow, will prevent sewer gases and pests from entering the food establishment. The provision for the separation of floor drains from sewage drains is to prevent the contamination of the floor drains with human wastes, which can contain pathogenic bacteria. Faecal contamination of the floor drains increases the likelihood of contamination of the food establishment.

2.6 Stairs, Catwalks and Mezzanines

- a) Stairways should be:
 - i) located so as to minimize the risk of food contamination; and
 - ii) constructed of materials that are impervious and easily cleanable.
- b) Catwalks or mezzanines should:
 - i) not be located over food preparation areas, or where splashing or dripping could pose a contamination risk;
 - ii) be constructed of solid masonry or metal construction; and
 - iii) be equipped, where appropriate, with raised edges of a height sufficient to prevent contamination from falling onto surfaces below.

Rationale

Stairs, catwalks and mezzanines, whether over work areas or exposed food or near these areas, can act as a source of contamination.

2.7 Lighting

- a) Lighting and lighting fixtures should be designed to prevent accumulation of dirt and be easily cleanable.
- b) Food establishments should be supplied with sufficient artificial light to ensure the safe and sanitary production of food, and facilitate cleaning of the premises. Unless otherwise specified, the minimum lighting intensities should be:
 - i) 110 lux (at a distance of 89 cm (3 ft.) above the floor) in walk-in coolers, dry food storage areas, and in all other areas and rooms during periods of cleaning;
 - ii) 220 lux (at a distance of 89 cm (3 ft.) above the floor) in areas where fresh produce or packaged foods are sold or offered for consumption; areas used for handwashing, warewashing, and equipment and utensil storage; and in toilet rooms; and
 - iii) 540 lux at the surface where a food handler is working with unpackaged potentially hazardous food or with food utensils and equipment such as knives, slicers, grinders or saws where employee/worker safety is a factor.
- c) Except as otherwise specified, lighting fixtures should be shielded with shatterproof coverings in areas where there is exposed food, equipment, utensils, linens or unwrapped single-service and single-use articles. Shielded lighting is not necessary in areas used only for storing food in unopened packages if:
 - i) the integrity of the food packages cannot be affected by broken glass falling onto them; and
 - ii) the food packages are capable of being cleaned of debris from broken glass before the packages are opened.
- d) Infrared or other heat lamps should be protected against breakage by a shield surrounding and extending beyond the bulb so that only the face of the bulb is exposed.

Rationale

Adequate lighting promotes cleanliness by facilitating the identification of unclean areas. Shielding of lights to prevent the contamination of food from glass fragments in the event of breakage is an essential public health protection measure.

2.8 Ventilation

- a) Food establishments should be provided with adequate natural or mechanical ventilation that effectively keep rooms free of excessive heat, steam, condensation, vapours, odours, smoke and fumes.
- b) Where mechanical ventilation systems are used, they should be designed and installed such that:
 - i) they are sufficient in number and capacity to prevent grease or condensation from collecting on the walls and ceiling;
 - ii) the filters or other grease extracting equipment are easily removable for cleaning and replacement if not designed to be cleaned in place;
 - iii) the exhaust ventilation hood systems include components such as hoods, fans, guards, and ducting which will prevent grease or condensation from draining or dripping onto food, food contact equipment or surfaces, utensils and linens, or single-service and single-use articles; and
 - iv) they are equipped with make-up air systems, installed in accordance with the Alberta Building Code.
- c) Mechanical ventilation systems shall be cleaned in accordance with frequencies stipulated in local fire or building codes, or as necessary as determined by the executive officer.

Rationale

The air supplied to the food establishment must be of sufficient quality so as not to contaminate the equipment or the food. Unclean air, excessive dust, odors, or build-up of condensation or grease are all potential sources of food contamination. Build up of various constituents in equipment such as range hoods also poses a fire hazard.

2.9 Storage Areas

Stored items must be protected from contamination such as water leakage, pest infestation or any other unsanitary condition.

- a) Food establishments require adequate storage facilities for all items required for operation, including food, food ingredients, equipment, and non-food materials such as utensils, linens, single-service and single-use articles, packaging, and chemical agents. Foods are to be stored in an area separate from all other non-food related items.
- b) The following criteria should be applied to all storage areas:
 - i) adequate shelving should be supplied in order that all materials may be stored off the floor. All food and food items must be maintained a minimum of 15 cm (6 in.) off the floor on racks, shelves or pallets. Shelving which isn't sealed to the floor should have a clear vertical space of at least 20 cm (8 in.) between the bottom shelf and the floor to facilitate cleaning. (Extra-wide shelving will need more space.) Shelving should be at least 5 cm (2 in.) from the walls to allow for access, and permit easier visual inspection;
 - ii) areas should be located in a dry, pest-free location; and
 - iii) they must be constructed of materials which are durable, non-absorbent and easily cleaned. Unsealed wood is not an acceptable finish for shelves, ceilings and walls.

Note: Subsection 2.9(b) does not apply to storage of foods in chest type freezers or upright refrigerators and coolers where it is impractical to provide a vertical space from the floor of the chest freezer or cooler to the food container.

- c) The facilities used for the storage of food, food ingredients, equipment and non-food materials such as utensils, linens, single-service and single-use utensils, and packaging should be designed and constructed so that they:
 - i) are cleanable;
 - ii) are located in a clean and dry location;
 - iii) restrict pest access and harborage;
 - iv) provide an environment which minimizes the deterioration of stored materials; and
 - v) protect food from contamination during storage.
- d) These facilities may not be located:
 - i) in laundry areas or in areas used for the storage of soiled linens;
 - ii) in locker rooms;
 - iii) in toilet rooms;
 - iv) in garbage rooms;

- v) in mechanical rooms;
 - vi) under sewer lines that are not shielded to intercept potential drips; or
 - vii) in the same room/vicinity as chemicals/pesticides.
- e) Non-food agents such as cleaners, sanitizers, detergents, pesticides and other similar products should be stored in an area that prevents the potential for cross-contamination with food, food ingredients, food contact surfaces and non-food materials such as utensils, linens, single-service and single-use utensils, and packaging materials. As well, personal belongings of employees must be stored separately from food storage and food preparation areas.
- f) Recyclables such as bottles and cans need to be stored in a sanitary manner that prevents the harborage of pests.
- g) Other materials that may be stored on the premises can also include items not directly related to the operation of the premises. This can include items such as landscaping tools, pesticides for use outside, and marketing materials (signs, posters, etc.). These items should be stored in a separate, designated area that prevents the potential for cross-contamination with food, food ingredients, food contact surfaces, and non-food materials such as utensils, linens, single-service and single-use utensils and packaging materials.

Rationale

Contamination of food, food ingredients, equipment, and non-food materials can occur when improper storage facilities are used.

Separation of food and equipment from toxic and soiled materials ensures that the opportunity for cross-contamination is minimized. Additional information on the storage of chemicals and other poisonous materials can be found in Workplace Hazardous Materials Information System (WHMIS) guidelines.

A number of other environmental conditions can lead to contamination or food spoilage. For example, refrigeration condensers located in dry food storage areas can produce heat that may damage foods, including canned goods. As well, unhygienic practices, including poor employee hygiene, can cause contamination.

2.10 Water and Steam Supply

- a) Water supplies should only be from an approved source, such as:
 - i) a public water system; or
 - ii) a private water system that is constructed, maintained, and operated to meet health requirements, and is approved by the local or provincial/territorial regulatory agency.
- b) Hot and cold water, under adequate pressure and in sufficient quantities, must be provided to meet the peak demands throughout the food establishment.
- c) Premises that are equipped with their own private water supply should have written water sampling plan and protocol. Samples of the water should be tested at a government or accredited laboratory at a frequency deemed necessary by the regulatory agency. Test results for potable water in most jurisdictions must meet or exceed the minimum health requirements as prescribed in the current publication of the *Guidelines for Canadian Drinking Water Quality*, published by Health Canada.
- d) The use of non-potable water in food establishment is prohibited.
- e) Water and boiler treatment chemicals approved for use are listed in the *Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products* published by the Canadian Food Inspection Agency.

Rationale

An adequate water supply, in quantities that encourage cleaning and rinsing, is necessary to ensure effective cleaning and safe food processing operations. The water supply used in cleaning and other culinary operations must be of a safe and sanitary quality in order to avoid contamination of food equipment or food.

A properly constructed, maintained and operated water distribution system is necessary to ensure the water supply delivered to the food establishment is not contaminated.

2.11 Sewage and Refuse Disposal

- a) Sewage disposal systems must meet all local or provincial/territorial requirements.
- b) Disposal of sewage and refuse should be done in a sanitary manner that does not expose the food establishment or food products to potential contamination.
- c) Refuse containers within the premises should be:
 - i) sufficient in number and accessible;
 - ii) non absorbent;
 - iii) designed to minimize both the attraction of pests, and the potential for airborne contamination;
 - iv) identified as to their contents; and
 - v) emptied when full or at least daily.
- d) Refuse storage rooms and containers should be emptied, cleaned and sanitized as often as necessary.
- e) Refuse containers located outside the premises should be:
 - i) equipped with covers and closed when not in use;
 - ii) maintained in a manner that does not attract pests;
 - iii) cleaned regularly and emptied when full; and
 - iv) shall not create a nuisance.

Rationale

The proper disposal of sewage and solid waste is critical in preventing the spread of pathogens in the food establishment. In addition, the sanitary disposal of both sewage and solid wastes, and the maintenance of waste containers and facilities, will minimize the presence of pests inside and outside the premises.

2.12 Plumbing System

- a) The plumbing system conveying water and waste requires the approval of local or provincial/territorial building authorities.
- b) Where water conditioning devices such as water filters or screens are installed on water lines, they should be of a type that is designed and installed according to the manufacturer's instructions. They should permit easy disassembly, to facilitate periodic servicing and cleaning.
- c) In order to prevent backflows through cross connections, backflow prevention devices (e.g., air gaps, vacuum breakers) should be installed wherever required and in compliance with local plumbing/building codes.

Rationale

Cross connections and backflows can contaminate the potable water supply.

2.13 Overhead Utility Lines

- a) Utility lines such as gas, electrical, sewage and water lines, as well as heating ducts, should be suspended away from work areas or areas of exposed food to minimize the potential for contamination.
- b) They should exhibit no sign of flaking rust or paint.
- c) Lines carrying contaminated or hazardous materials, such as sewer or floor drain lines, should be located sufficiently distant from any product or product contact surfaces to prevent any risk of contamination.
- d) Lines should be:
 - i) insulated, where appropriate, to prevent condensation;
 - ii) constructed and covered with a suitable material to minimize the build-up of soil;
 - iii) easily cleanable; and
 - iv) labeled or colour-coded.

Rationale

Conditions such as dripping condensation or excessive dust from overhead utility lines can be a source of contamination when the lines are suspended over work areas or areas of exposed food. The consequences of contamination due to leakage are significantly greater with lines carrying sewage, hazardous chemicals or highly contaminated materials.

2.14 Handwash Stations

- a) At least one handwash station should be provided in each food preparation area. It must comply with the provisions of the Alberta Building Code to the extent deemed necessary by the regulatory authority.
- b) Handwash facilities should:
 - i) be located to allow convenient use by food handlers in the food preparation area, and in areas where workers are handling cash as well as serving food;
 - ii) be accessible for the use of workers at all times;
 - iii) not be used for purposes other than handwashing;
 - iv) be provided with soap in suitable dispensers (e.g., liquid soap) and single-use hand drying devices such as paper hand towel dispensers, roll dispensers, or air dryers;
 - v) be equipped to provide hot and cold, or pre-mixed warm, running water;
 - vi) provide an adequate flow of water. If a self-closing faucet is installed, it should flow for at least 20 seconds, without the need to reactivate the faucet;
 - vii) be equipped with a sign which explains the proper handwashing procedures; and
 - viii) be easily cleanable, and maintained in a clean and sanitary condition.
- c) If approved by the executive officer, when food handling or food exposure is limited, alternative handwashing facilities may be provided, (e.g., handwashing facilities in conjunction with other plumbed services such as dishwashing sinks, and/or alcohol based hand cleansers).

Rationale

Proper use of handwashing facilities is essential to personal cleanliness and to reduce the likelihood of contamination of food. It has been documented that improper handwashing is a major contributing factor in outbreaks of foodborne illness.

2.15 Toilet Facilities and Dressing Areas

- a) At least one toilet, and more, if deemed necessary by the regulatory agency, should be provided for the use of workers in each food establishment. The facilities must comply with the provisions of the Alberta Building Code to the extent deemed necessary by the regulatory authority.
- b) Toilet rooms should:
 - i) be completely enclosed and provided with a tight-fitting and self-closing door, with the exception of those washrooms which are designed for use by handicapped persons;
 - ii) be equipped with a handwash station;
 - iii) have handwashing notices prominently displayed;
 - iv) be conveniently located and accessible to workers during all hours of operation;
 - v) provide hooks outside the facility to hang aprons, white coats, etc.; and
 - vi) be easily cleanable, well ventilated, and well lit.
- c) Toilet rooms should not open directly into a food preparation or food storage area, and where toilet facilities are provided for the public, access to the washroom must not be through the food handling or food preparation areas.
- d) Dressing areas should be provided if workers routinely change their clothes in the food establishment. Dressing areas should be:
 - i) easily cleanable;
 - ii) well ventilated and well lit;
 - iii) provided with lockers or other suitable facilities for the storage of workers' possessions; and
 - iv) completely enclosed and provided with a lockable door, unless separate facilities are provided for each sex.
- e) All plumbing should meet the applicable provisions of the provincial/territorial or local plumbing codes.

Rationale

Properly located and equipped toilet facilities are necessary to protect the equipment, facility and food from fecal contamination that may be carried by insects, hands or clothing. Toilet facilities kept clean and in good repair, minimize the opportunities for the spread of contamination.

2.16 Janitorial Facilities

- a) To provide for the cleaning requirements of the operation, every food establishment should be equipped with cleaning materials, equipment and facilities, located away from food handling areas.
- b) The service sink or curbed cleaning facility, equipped with a floor drain, should be conveniently located for the cleaning of mops or similar wet floor cleaning tools, and for the disposal of mop water and similar liquid waste.
- c) Adequate storage facilities should be provided as necessary to store brooms, mops, pails, and cleaning compounds when not in use.

Rationale

Liquid wastes from wet floor cleaning methods are contaminated with microorganisms and filth. A service sink or curbed cleaning facility with a drain allows for the sanitary disposal of this wastewater in a manner that will not contaminate the food. Designated storage areas for brooms, mops, pails, etc., will assist in the sanitary operation of the premises during periods when they are not in use.

2.17 Private Homes, Living or Sleeping Quarters

- a) A private kitchen or living quarters is not suitable for use as a commercial food establishment.
- b) Living or sleeping quarters located adjacent to a commercial food establishment must be separated from rooms and areas used for food preparation or storage by complete partitioning and solid self-closing doors.

Rationale

Private facilities are not generally built to meet commercial requirements for the preparation of food, or for the protection of food from contamination. Many municipalities have strict bylaws concerning commercial food preparation/storage within a private residence.

2.18 Temporary Food establishment and Mobile Food Establishments

For a variety of reasons, temporary food establishments, mobile food establishments and catering trucks present some different challenges when it comes to design and equipment. Most jurisdictions provide for slightly less stringent requirements when it comes to these operations, while continuing to ensure that risks from health hazards are minimized.

2.18.1 Temporary Foodservices

Temporary foodservices are those types of foodservices with a time-limited life (e.g., special events, concessions at fairs and festivals), normally less than 15 days in duration per year. The following conditions shall be met:

- a) Facilities shall be constructed with a suitable floor and roof to preclude environmental contamination of the food via dust, rain, birds, etc.
- b) Refrigeration of adequate size for the storage of potentially hazardous foods shall be provided which is capable of maintaining the potentially hazardous foods at 4°C (40°F) or less, and in the case of frozen food, frozen.
- c) Where potentially hazardous foods are hot held, the hot storage equipment shall be sufficient in number and capacity to maintain the potentially hazardous foods at 60°C (140°F) or higher.
- d) A two-compartment sink with hot and cold running water shall be supplied. To facilitate washing and sanitizing, each compartment must be large enough to immerse the largest piece of equipment or utensils.
- e) A separate handwash sink should be supplied that is equipped with hot and cold running water, soap in a dispenser, and single-use hand towels. However, where the nature of the operation requires only minimal use of utensils/equipment in the preparation and handling of the food (i.e., dispensing tongs), the requirement for a separate hand wash sink may be waived, with one of the two compartment sinks used for this purpose.
- f) Hot and cold water shall be supplied.
- g) Thermometers should be provided to measure the food preparation and food storage temperatures.
- h) Means shall be provided to protect food from contamination from the elements at all times.
- i) A garbage receptacle of sufficient size shall be provided.

j) Where portable or mobile self-contained water supplies are used, the following requirements shall be met:

- i) the potable water tanks shall only be used for storing potable water;
- ii) the potable water tanks shall be sufficiently sized to ensure an adequate supply of water for handwashing, cleaning of equipment, and similar operations;
- iii) the waste water holding tanks shall be sized to accommodate at least 110% of the volume of the potable water supply;
- iv) an approved site for disposal of the waste water shall be specified; and
- v) the potable water tank shall be designed to facilitate cleaning and sanitizing as well as sanitary filling and emptying. Generally, design criteria should include the following:
 - the tank is sloped to an outlet that allows for complete drainage,
 - the tank is enclosed from the filling inlet to the discharge outlet,
 - if the tank has an access port, the port cover shall be provided with a gasket and device for securing the cover in place. As well, the cover shall be flanged to overlap the opening and sloped to drain,
 - if the tank has a vent, it shall terminate in a downward direction and be covered with a screen or filter,
 - the tank inlet shall be positioned so that it is protected from outside contaminants,
 - when compressed air is used to pressurize the potable water tank, a filter that does not pass oil or oil vapours shall be installed in the air supply line between the compressor and the potable water system, and
 - if a hose is used on the tank outlet, the hose shall be cleanable and shall not be used for any other purpose.

Rationale

Because of the short period of use for mobile and temporary facilities, the local authority, while maintaining basic food safety can vary some of the requirements for foodservice premises, such as permanently plumbed fixtures, permanent washrooms and other specifications.

2.18.2 Mobile Food Establishments

Mobile food service operations where potentially hazardous food is prepared on-site (e.g., hotdog carts), shall comply with those provisions outlined in Section 2.18.1 above, in addition to the provisions outlined below.

- a) The wastewater holding tanks shall be incorporated into the design of the cart or vehicle.

- b) The operator of the mobile food establishments should refrain from smoking in or around the food preparation area.
- c) Where applicable, the mobile food establishment should be returned to an approved base of operations where food supplies can be stored in a safe and sanitary manner, including under refrigeration where necessary, and where the cart can be effectively cleaned. Requirements for cleaning equipment at the base of operations are the same as those required for a food establishment.
- d) The potable water tank shall provide an adequate supply of water for the operation.
- e) Enclosed mobile food establishments shall be adequately ventilated to prevent the accumulation of smoke, condensation and odours.
- f) Where applicable, mobile food establishments shall be constructed of durable materials, and be designed with smooth impervious surfaces for easy cleaning.

Rationale

Because some mobile food establishments are used for the preparation or reheating of potentially hazardous foods, they should be equipped to allow for proper handwashing and the cleaning/sanitizing of utensils. A supply of hot and cold water adequate to last the entire day is required.

Food products should be stored at an approved base of operations to protect them from temperature abuse or contamination. The carts should be stored at a base of operations to allow for thorough cleaning of the cart and equipment.

2.18.3 Catering Trucks

Generally, catering trucks are mobile food establishments that move to several locations throughout the course of a day. Those catering trucks that prepare or serve potentially hazardous foods that are not pre-packaged shall meet the provisions for mobile food establishments outlined in Section 2.15.2 above. However, those catering trucks that serve only pre-packaged foods (whether or not the foods are potentially hazardous) shall meet the provisions outlined below.

- a) Food shall be protected from contamination at all times.
- b) Where potentially hazardous foods are served, catering trucks shall be equipped with mechanical refrigeration to ensure the potentially hazardous foods are maintained at 4°C (40°F) or less.
- c) If potable or wastewater tanks are provided, they shall meet the standards outlined in Section 2.18.1 (j) above.

- d) The catering truck should be returned to an approved base of operations as outlined in Section 2.18.2 (d) above.
- e) The operator of the catering truck should refrain from smoking while serving the food.
- f) That portion of the catering truck where the food is stored and served shall be constructed of durable materials, and be designed with smooth, impervious surfaces for easy cleaning.

Rationale

Because catering trucks serve only pre-packaged foods, the provisions for handwashing requirements can be relaxed. However, since the hazards associated with unrefrigerated, potentially hazardous foods are the same, adequate refrigeration must be ensured.

2.19 Vending Machines

Vending machines, although technically regarded as "food establishments", often do not require the same level of construction and equipment as full-fledged food establishments. Nevertheless, they do have some specific requirements to ensure the safe storage and dispensing of food and the prevention of health hazards.

2.19.1 Liquid Foods and Ice

In equipment that dispenses or vends liquid food or ice in unpackaged form, the delivery tube, chute and orifice should be designed such that:

- a) Splashes and drips (including drips from condensation) are diverted away from the container receiving the food (by means of barriers, baffles or drip aprons, for example).
- b) Tubes, chutes and orifices are protected from manual contact (by being recessed, for example).
- c) Where the item is dispensed, the equipment is provided with means to prevent back siphonage.
- d) Delivery tubes, chutes and orifices are protected from dust, insects, rodents and other contamination by a self-closing door if the equipment is:
 - i) located outdoors and is not protected from precipitation, wind-blown debris, pests and other contaminants present in the environment; or
 - ii) available for self-service of food during hours when it is not under the full-time supervision of a food employee.

Rationale

For vending machines that dispense liquid food or ice, it is important to prevent the entry of condensate or splash, which may be contaminated, into the food product.

Food contact surfaces that divert liquid food into the receiving container need to be protected from contact by customers/people to prevent contamination of the food product.

A self-closing door on outdoor machines or unsupervised machines further protects against accidental or malicious contamination.

NSF International (formerly the National Sanitation Foundation) can be contacted for further information contained in Standard 25 - 1997, Vending Machines for Food and Beverages.

NSF International

P.O. Box 130140, Ann Arbor, Michigan, 48105

Phone: 734-769-8010; Toll free: 888-NSF-9000; Fax: 734-669-0196

Email: info@nsf.org; Website: www.nsf.com

2.19.2 Self-service Beverages

- a) Self-service beverage dispensing equipment should be designed to prevent contact between the lip-contact surface of glasses or cups that are refilled and:
 - i) the dispensing equipment actuating lever or mechanism; and
 - ii) the filling device.
- b) Beverage equipment that utilizes carbonation equipment (CO²) shall incorporate a back-flow, back-siphonage prevention device (check valves) to prevent the migration of the carbonated beverage into copper water supply lines.

Rationale

Through proper design of the dispensing equipment, contamination of the lip-contact surfaces of the refillable containers can be avoided, and the risk of cross- contamination reduced.

As well, back-flow into water supply lines has resulted in incidents of copper poisoning after consumption of the dispensed beverage.

2.19.3 Beverages in Paper-Based Packaging

Vending machines designed to store beverages that are packaged in containers made from paper products shall be equipped with diversion devices and retention pans or drains for container leakage.

2.19.4 Low Risk Foods

Vending machines that dispense pre-packaged foods that are not potentially hazardous (e.g., chips, pretzels, etc.) should be equipped with a self-closing door if the machine is:

- i) located outdoors and not protected from precipitation, wind-blown debris, pests and other contaminants present in the environment; or
- ii) available for self-service of food during hours when it is not under the full-time supervision of an employee.

Rationale

A self-closing door is required on vending machines that are unsupervised or located outdoors to protect food inside the machine from sources of contamination.

2.19.5 Potentially Hazardous Foods

A machine vending potentially hazardous food should have an automatic control that prevents the machine from vending food if there is a power failure, mechanical failure or other condition that results in an internal temperature that cannot maintain the food temperature required in Section 3.3 of this *Code*.

NOTE: The automatic control should prevent the machine from dispensing food until it is restocked and can maintain food at required temperatures.

Rationale

Vending machines require a "fail-safe" device that would prevent the dispensing of potentially hazardous foods, in the event of mechanical or power failures that could subject them to temperature abuse.

2.19.6 Can Openers/ Stirring Mechanisms

Cutting and piercing parts of can openers on vending machines should be protected from manual contact, dust, pests and other contamination. Both openers and stirring mechanisms should be cleaned on a regular schedule.

Rationale

Cutting and piercing parts of can openers on vending machines come in direct contact with the canned food product, and, if not protected, may contaminate the vended food product.

2.20 Exterior Openings

- a) Exterior openings should be protected against the entry of pests. Examples include:
 - i) filling or closing holes and other gaps along the floor, walls and ceiling;
 - ii) solid, self-closing, tight-fitting doors; and
 - iii) screen doors that open outward and are self-closing.
- b) If windows or doors are kept open for ventilation or other purposes, the exterior openings should be protected against the entry of pests by means such as:
 - i) screens (a screen size of 16 mesh to 25 mm (1 in.) is generally recommended);
 - ii) properly designed and installed air curtains; or
 - iii) other effective means to restrict the entry of pests.

These provisions may not apply if pests are absent due to the location of the food establishment, weather conditions or other limiting conditions.

Rationale

Pests may carry pathogenic organisms on and within their bodies. As the pests move about the operation, these pathogens can spread through the food establishment. Freedom from pests reduces the likelihood of contamination of both equipment and food.

3.0 Control of Food Hazards

(This is not a regulatory requirement, but is recommended.)

3.1 Control Measures

3.1.1 Supervision

- a) The operator of a food premise shall provide effective supervision, in implementing safe food practices, addressing potential food risks, and, where necessary, taking appropriate corrective action(s).
- b) Trained personnel shall be accessible at all times during foodservice operations.

Rationale

The effectiveness of any management system is only as good as an organization's capacity to carry it out. It is essential that knowledgeable supervisory staff is available and accessible during all hours of operation to respond to various food hazard concerns and to apply corrective actions.

3.1.2 Management Systems

An operator of a food establishment should implement and maintain a management system to prevent contamination of food during critical phases of food production.

Rationale

In food establishment, it is necessary to outline specific procedures for product safety. Each product type has its own specific risk characteristic that is based upon scientific data.

The potential for biological, chemical and physical hazards may vary considerably from one food product to another. Specific hazards, as well as allergens (see Appendix C) having the potential to cause an adverse health effect, need to be identified, as do the preventative measures for their control.

3.1.3 Control Principles

- a) The management system referred to in Section 3.1.2 should:
 - i) identify critical control points in the production and processing of menu items with potentially hazardous ingredients (including raw ingredients) that have the potential to contaminate food;
 - ii) include critical limits for each critical control point;

- iii) identify procedures to regularly monitor critical control points on the critical limits;
- iv) include corrective actions and procedures to follow when deviations from critical limits occur; and
- v) record all exceptions to the procedures/specifications that impact food safety.

b) The principles listed above regarding hazard analysis and the identification of critical control points are an effective means of controlling food hazards, particularly in a food processing organization. However, the operations of a food establishment are very different from that of a food processor. For example, a food establishment can process a large number of food items simultaneously while a food processor generally processes one or two items at a time. The application of this type of management system may need to be modified in a food establishment.

As such, the requirement for the application of this type of management system in a food establishment must be balanced by a number of factors including:

- i) Are the premises capable of instituting this type of management system for foods being served? This will be dependent on a number of factors including the level of technical expertise of the operator, the number and variety of menu items served, and the type of processes used.
- ii) What is the public health risk of the foods being served in the premises? There are several factors which will determine the level of risk including:
 - Who are the predominant customers or clientele of the premises? Consumers that are considered high risk include the elderly, young children and immune compromised individuals. These consumers will have a lower resistance to foodborne illness and may have more severe outcomes from illness.
 - Does the type of operation increase the level of risk? Types of operation that can be considered high risk include:
 - large volume operations,
 - full service kitchens,
 - premises with a large menu item list,
 - premises that prepare foods with complicated or multi-step recipes, and
 - catering operations.
 - What is the level of knowledge of the operator and the food handlers with regard to food safety? Individuals with little or no knowledge can increase the level of risk of the premises.
 - Does the premises have adequate equipment for the types of processes or volumes of food being processed (e.g., cooling capacity, cold storage capacity, hot holding capacity, etc.)?
 - Are the processes that are being used those that are known to contribute to foodborne illness (e.g., bulk cooling, preparation of menu items well in advance of serving, bulk cooking, simultaneous preparation of raw and cooked foods, etc.)?

Premises, which are determined to be high risk, may benefit from the management system described in Section 3.1.3 a) above.

- c) In those premises where the risk of foodborne disease outbreak is lower, or the cost and resources necessary to implement the management system outweigh the benefits, the operator may wish to institute an alternative management system. Examples of such alternatives are:

For small operations with a limited number of menu items and simple processes (i.e., cook/serve), the operator should have a good knowledge of the hazards and the critical control points of the process and implement some monitoring of the critical control points.

For larger operations with several menu items, the operator should prioritize the menu items based upon low, medium and high risk of causing a foodborne illness. The operator should then concentrate available time and resources into monitoring critical control points on the high-risk items.

For larger operations with several menu items and processes, the operator should concentrate on high risk processes (i.e., cooling and cooking) rather than identifying high hazard activities for individual foods. By controlling and monitoring a process, such as cooling, all foods that are prepared using the process will be handled appropriately.

The above alternatives are only examples of management systems that can be considered. There may be others that are appropriate. Not all food establishments can adhere to one particular management system. The objective of the management system that is used is to ensure control of the potential hazards in the food establishment.

Rationale

Operators need to determine the steps in each operation that require effective controls to eliminate hazards or to minimize the probability of those hazards arising. For high risk, potentially hazardous products, this includes establishing critical limits and a monitoring system, including record keeping, ensuring control, as well as a corrective action plan to be taken when deviations occur.

Risk-based management systems are widely accepted as an effective means of controlling food related risks and minimizing the potential of foodborne illness outbreaks.

3.1.4 Record Keeping

- a) Records required pursuant to Section 3.1.3 (a)(v) should be maintained and available for review for at least a three-month period.
- b) Records relating to the implementation of corrective actions in managing an incident involving a potential risk to food safety or a departure from a critical control point must be retained for a period determined by the regional health authority.

3.2 Incoming Material

3.2.1 Sources

3.2.1.1 Approved Sources

- a) All food and food ingredients received at a food establishment must be from approved sources.
- b) Section a) above applies to:
 - i) potentially hazardous food and food ingredients such as meat, poultry, fish, egg and milk, and others capable of supporting the growth of pathogenic microorganisms or the production of toxins;
 - ii) food in hermetically sealed containers; and
 - iii) game animals from commercial game farms that raise, slaughter and process the animals as per the regulatory authority having jurisdiction.

3.2.1.2 Unapproved Sources

- a) Food prepared in a private home or any other place that is not approved shall not be used or offered for human consumption in a commercial food establishment.
- b) Wild game that has not been inspected and approved shall not be used or offered for human consumption in a food establishment except for in accordance with Section 22 of the Food Regulation.

Rationale

Safe food starts with reliable suppliers who meet inspection standards of the jurisdiction's regulatory authority. These suppliers operate in a manner that prevents and controls contamination of food.

3.2.2 Inspection

3.2.2.1 Receiving

Food products received at a food establishment should be visually inspected as they are received, and acceptable items shall be quickly moved into storage.

3.2.2.2 Package Identification

- a) All food products received at a food establishment should be properly packaged and labeled, according to requirements outlined in the *Food and Drugs Act and Regulation* and the *Consumer Packaging and Labeling Act and Regulations*.

- b) In regards to the above it is important to note that shipping containers must be labeled with the common name, net quantity, name and address of the responsible party, and a list of ingredients. Labels of shipping containers such as those for commercial, industrial or institutional use, (i.e., not for sale to consumers), are not required to be bilingual. Additional information that must be declared depends upon the type of food.
- c) Invoices, receipts, and lot coding information should be retained for 90 days, to allow tracking of unlabelled products (such as carcasses, produce or bakery products) or split lots.
- d) Seafood tags should be retained for a minimum of 90 days after use.

Rationale

Lot coding is essential, as it facilitates tracing products in the event of a recall. As well, invoices or receipts should be retained, since lots are often split and original labels removed, and since some food arrives without labels (beef carcasses, produce and bakery products, for example).

3.2.2.3 Disposition

- a) Food products that have been inspected and found unclean, temperature abused, contaminated, damaged or in any way unsafe shall be rejected or segregated and shall not be available for consumption.
- b) This would include (but is not limited to) the following:
 - i) packaging or food with signs of pest or rodent infestation;
 - ii) shell eggs that are cracked;
 - iii) badly dented or bulging canned foods;
 - iv) leaking or broken product containers; and
 - v) food containers with torn or removed tamper evident seals.

3.3 Temperature Control

All temperatures quoted are internal product temperatures, unless the product is frozen.

3.3.1 Frozen Foods

Frozen foods must be maintained at a temperature of 0°C (32°F) or less. To maintain their quality, a temperature of -18°C (0°F) or less is required.

3.3.2 Thawing

- a) Potentially hazardous foods shall be thawed quickly or in a manner that will prevent the rapid growth of pathogenic bacteria.
- b) Food may be thawed:
 - i) under refrigeration at 4°C (40°F) or less;
 - ii) completely submerged in cold running water;
 - iii) as part of the cooking process (but only when thawing is taken into consideration in determining cooking time); and
 - iv) by microwaving.
- c) When thawing foods using methods where the thawed portions of the potentially hazardous foods are above 4°C (40°F), the time period above 4°C (40°F), including the time for cooking preparation or the time required to cool the potentially hazardous foods to below 4°C (40°F), shall not exceed 4 hours.
- d) The only exception to the above procedures and temperature requirement is the thawing of frozen ready-to-eat seafood, which shall be maintained at 3.3°C (38°F) or less during thawing.

Rationale

Freezing prevents microbial growth in foods, but will not destroy all microorganisms. Improper thawing provides an opportunity for surviving bacteria to grow to harmful numbers and/or produce toxins. In seafood, the lower maintenance temperature of 3.30C (380F) prevents the growth and toxin production of *C. botulinum*.

3.3.3 Refrigerated Storage

All potentially hazardous food shall be stored at a temperature of 4°C (40°F) or less. This includes foods that have been prepared and cooled to be served cold. Seafood must be stored at 3.3 °C.

3.3.4 Cooking Raw Foods of Animal Origin

- a) Raw foods of animal origin and food mixtures containing raw foods of animal origin shall be cooked to heat all parts of the food to the minimum temperatures and for the minimum times outlined for different foods in Appendix B. Other times and temperatures may be acceptable, if they are considered to be equivalent by the regulatory authority having jurisdiction.
- b) Raw foods of animal origin and food mixtures containing raw foods of animal origin shall be stirred, to ensure that all parts of the food are heated to the minimum temperatures and for the minimum times outlined above.
- c) Where foods are allowed to be served raw or lightly cooked (such as raw oysters, steak tartar, carpaccio, shakes made from raw eggs and so on), the public should be notified of the increased health risk.

Rationale

To kill microorganisms, food must be held at a required temperatures for specified times as outlined in Appendix B. Different species of microorganisms have varying susceptibilities to heat. As well, food characteristics affect the lethality of cooking temperatures. Heat penetrates into different foods at different rates. High fat content in food reduces the effective lethality of heat. High humidity within the cooking vessel and the moisture content of food aid thermal destruction. Heating a large roast too quickly with a high oven temperature may char or dry the outside, creating a layer of insulation that shields the inside from efficient heat penetration. To kill all pathogens in food, cooking must bring all parts of the food up to the required temperatures for the correct length of time.

3.3.5 Hot Holding

Potentially hazardous foods that have been prepared, cooked, and are to be served hot, shall be held at a temperature of at least 60°C (140°F).

3.3.6 Cooling after Cooking

Potentially hazardous foods that have been cooked and are intended to be kept under refrigerated storage prior to serving, are to be cooled from 60°C (140°F) to 20°C (70°F) or less within two hours and then from 20°C (70°F) to 4°C (40°F) or less within 4 hours as outlined in the parameters of Appendix B.

Rationale

Proper cooling requires removing heat from food quickly enough to prevent microbial growth. Excessive time for cooling of potentially hazardous foods has been consistently identified as one of the leading contributing factors to foodborne illness. During extended cooling, potentially hazardous foods are subject to the growth of a variety of pathogenic microorganisms, which may grow to a sufficient number to cause illness.

If the cooking step prior to cooling is adequate and no recontamination occurs, all but the spore-forming organisms such as *Clostridium perfringens* should be killed or inactivated. However, under poorly monitored conditions, other pathogens such as *Salmonella* may be reintroduced. Thus, cooling requirements have been based on growth characteristics of organisms that grow rapidly under temperature abuse conditions.

Large food items such as roasts, turkeys and large containers of rice, take longer to cool because of the mass and volume from which heat must be removed. By reducing the volume of the food in an individual container, the rate of cooling is dramatically increased and opportunity for pathogen growth is minimized. Commercial refrigeration equipment is designed to hold cold food temperatures, not cool large masses of food.

3.3.7 Cooling from Room Temperature

When potentially hazardous foods are prepared at room temperature and intended to be kept under refrigerated storage prior to serving, shall be cooled within 4 hours as outlined in the parameters of Appendix B. This includes those foods whose ingredients were canned or made from reconstituted foods.

3.3.8 Room Temperature Holding

- a) Potentially hazardous foods that are intended for immediate consumption, may be displayed or held for service at room temperature (not kept on ice or other equivalent methods) but for no more than 2 hours, after which, they must be discarded.
- b) The foods referred to in subsection (a), above, shall be marked with the time at which they were removed from temperature control.

Rationale

Potentially hazardous food may be held without temperature control for short time periods because there will be no significant growth or toxin production possible in that limited time.

3.3.9 Reheating Potentially Hazardous Foods for Hot Holding

- a) Potentially hazardous foods that have been cooked, then cooled to 4°C (40°F) shall be reheated to 74°C (165°F) or higher in a manner that they will pass through the Danger Zone, 4°C to 60°C (40°F to 140°F) as quickly as possible.
- b) Potentially hazardous foods that have been cooked, cooled to 4°C (40°F), reheated and then recooled to 4°C (40°F), must be reheated to 74°C (165°F) or higher with the total time between 4°C and 74°C (40°F and 165°F) not to exceed 2 hours.

Rationale

Proper reheating provides a major degree of assurance that pathogens will be eliminated. It is especially effective in reducing the numbers of *Clostridium perfringens* that may grow in meat, poultry or gravy if these products were improperly held. The generation time for *C. perfringens* is very short at temperatures just below adequate hot holding.

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

3.3.10 Reheating Potentially Hazardous Food for Immediate Service

- a) Potentially hazardous foods that have been cooked, and then cooled to 4°C (40°F) once, can be served, if for immediate service, at any temperature, provided the time the food spends between 4°C and 60°C (40°F and 140°F) does not exceed 2 hours.
- b) Potentially hazardous foods that have been cooked, cooled to 4°C (40°F), reheated and then recooled to 4°C (40°F) must be served, if for immediate service, after being reheated to 74°C (165°F) or higher.

Rationale

Many foods are at risk during preparation and service. As foods are thawed, cooked, held, served, cooled, and reheated, they pass several times through the temperature "danger zone" of between 4°C and 60°C (40°F and 140°F). The amount of time that potentially hazardous foods are in the danger zone will have an impact on the shelf life of the product.

3.3.11 Use of Microwave for Cooking or Reheating

- a) Potentially hazardous foods, cooked or reheated in microwave, shall be rotated or stirred throughout or midway during cooking to compensate for uneven distribution of heat, and heated to a temperature of at least 74⁰C (165⁰F) in all parts of the food.
- b) Allowed to stand covered for a minimum of 2 minutes after cooking to obtain temperature equilibrium.

Rationale

Since cold spots may exist in food cooking in a microwave oven, it is critical to measure the food temperature at multiple sites when the food is removed from the oven, and then allow the food to stand covered to allow thermal equalization and exposure.

3.3.12 Freezing for Parasite Destruction

- a) Fish that is intended to be consumed raw, including raw-marinated and partially cooked fish, shall either be:
 - i) frozen by the supplier in the manner described below, and obtained from the supplier in a frozen state; or
 - ii) frozen within the food establishment, as described below.
- b) The fish described in a) above should be frozen either:
 - i) to a temperature of -20°C (-4°F) or below for 7 days; or
 - ii) to a temperature of -35°C (-31°F) or below until solid and stored at -35°C (-31°F) for 15 hours.

Rationale

Foods of animal origin may contain food-borne disease micro-organisms including parasites. Because these foods are intended to be eaten in a raw state and not subject to cooking temperatures, they must be treated in a manner that will provide assurance that disease organisms including parasites are effectively destroyed. Subjecting these foods to cold temperatures, as described above, is an acceptable method for parasitic destruction.

3.4 Water

3.4.1 Water in Contact with Food

Only potable water in either form of liquid, steam or ice shall come in direct or indirect contact with food during food handling, processing, and cleaning. Potable water shall conform to the standards outlined in Health Canada's *Guidelines for Canadian Drinking Water Quality*.

3.4.2 Steam

Non-potable water used for the production of steam shall not come in contact with food or food contact surfaces.

3.4.3 Ice as an Ingredient

Ice added as an ingredient to any food shall be made from potable water. Ice used for cooling exterior surfaces of food containers must not be used as a food or food ingredient.

3.5 Preventing Contamination

3.5.1 Microbial Contamination

- a) Access to food preparation areas shall be restricted, as much as practically possible, to designated food handlers.
- b) Where the public has access to food other than unprocessed fruit and vegetables, or food specifically served to a customer by a worker of the food establishment, the food shall be protected from public handling and contamination by the use of packaging, display cases, or salad bar sneeze guards (food guards), and be provided with suitable utensils or effective dispensing methods.
- c) Food handlers shall avoid contact with exposed areas of ready-to-eat foods with their bare hands and use, as much as practically possible, clean and sanitized utensils such as tongs, spatulas, disposable gloves or other food dispensing apparatus.
- d) Raw or unprocessed food shall be kept separate from ready-to-eat foods.
- e) Raw fruits and vegetables shall be thoroughly washed in potable water to remove soil and other contaminants before being cut, combined with other ingredients, cooked, served, or offered for human consumption in ready-to-eat form. This does not apply to whole raw fruits and vegetables that are intended for washing by the consumer following point of sale.
- f) Cleaning and sanitizing of food contact surfaces between uses shall be carried out as described in Section 4 of this *Code*.
- g) Food shall not come into contact with surfaces of utensils and equipment that have not been cleaned and sanitized in accordance with procedures described in Section 4 of this *Code*.
- h) Any utensil used for tasting must be cleaned and sanitized before each use.
- i) Foods that have been previously purchased and returned to the retailer or food service operation may not be re-offered for sale to another consumer, unless those foods are of low risk and are in their unopened original package (i.e., creamers, crackers, condiments).
- j) Prepared ready to eat foods and raw vegetables under refrigerated storage must not be stored below raw meat and fish products.

Rationale

The food industry faces the threat that the food it serves may endanger workers or customers. Microbes are everywhere. Pathogenic microorganisms pose the greatest danger by causing foodborne illnesses. Good policies and procedures for preventing microbial contamination serve as barriers to these disease-causing organisms.

3.5.2 Physical and Chemical Contamination, and Allergens

- a) The operator of a food premise shall ensure that food is stored, displayed, prepared, transported and served in a manner that prevents the food from becoming contaminated.
- b) Non-food items shall be stored in designated areas away from any food, food equipment or food contact surfaces.
- c) Food operators shall be familiar with common food allergens which can be life threatening to some customers. Should consumers have inquiries in regard to the presence of allergens in a food, it is suggested that they be provided with a list of ingredients (e.g., from the recipe; from the master package; from all packages used) and referred to their physician. Appendix C provides information in regard to typical food allergies.
- d) Foods may not contain unapproved food additives or food additives in excess of the amounts listed in *Canada's Food And Drugs Act*.

3.6 Packaging

3.6.1 Protection of Food Content

Food packages shall be in good condition and protect the integrity of the contents so that the food within is not exposed to adulteration, damage or potentially harmful contaminants.

3.6.2 Food Grade Packaging

Packaging materials or atmospheric packaging gases, where used:

3.6.2.1 shall not cause harm to people exposed to them;

3.6.2.2 shall not pose a threat to the safety and suitability of food under the specified conditions of storage and use; and

3.6.2.3 shall be approved for use according to the CFIA's *Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products*.

3.6.3 Food Containers

- a) The operator of a food establishment must ensure that only food grade containers are used to store food in.
- b) High-acid foods (pH below 4.6) must not be stored or cooked in containers coated with, made of, or containing:
 - i) lead or lead-based products, including lead-glazed ceramics, china, crystal or pewter;
 - ii) zinc, such as galvanized containers;
 - iii) enamelware, which may chip and expose the underlying metal;
 - iv) copper and copper alloys such as brass; and
 - v) cast iron.
- c) Cast iron may be used **only** under the following conditions:
 - i) as a surface for cooking;
 - ii) in utensils for serving food, if the utensils are used only as part of an un-interrupted process from cooking through service.

3.6.4 Reusable Packaging

Reusable packaging shall be durable, clean, and if required, able to withstand sanitizing.

3.6.5 Storage of Packaging Supplies

Packaging supplies shall be stored so as to be free of contact with hazardous materials.

3.6.6 Returnables, Cleaning-for-Refilling

- a) Except as specified in (b), returned empty containers intended for cleaning, sanitizing and refilling with food, shall be cleaned, sanitized and refilled only in an approved food establishment.
- b) Food specific containers for beverages may only be refilled in a food establishment, if:
 - i) the beverage is not a potentially hazardous food;
 - ii) the design of the container, the rinsing described in (iii), and the nature of the beverage, when considered together, allow for effective cleaning at home or in the food establishment;
 - iii) facilities for rinsing the containers with un-recirculated hot water under pressure are part of the dispensing system;
 - iv) the consumer-owned container returned to the food establishment for refilling is refilled only for the same consumer;
 - v) re-usable containers are sanitized prior to re-use (review Bottled Water and Packaged Ice Guideline)

Rationale

Separating food from non-food items by creating designated storage areas will ensure that accidental contamination from foreign matter (dirt, broken glass and crockery, and other objects) and toxic chemicals (cleaning agents, sanitizers, detergents, pesticides) will be minimized.

Chemical contamination can occur during cooking or storage when certain metals contact high-acid foods. Potentially toxic metals include lead, copper, brass, zinc coating, antimony, and cadmium. Some foods that have been involved in metal poisoning are sauerkraut, tomatoes, fruit gelatins, lemonade, fruit punches, and carbonated beverages.

Damaged or incorrectly applied packaging may allow the entry of foreign matter or other contaminants into the food. Canned foods shall be closely inspected for imperfections or damage, such as punctures, bulging or seam defects.

3.7 Transportation, Storage and Distribution of Food Products

During all phases of transportation, storage and distribution of food products, foods shall be held at appropriate temperatures and maintained in a sanitary condition.

3.7.1 Verification

Foods shall be routinely monitored during transportation, storage and distribution to ensure that:

- foods are protected from all possible forms of contamination;
- foods are protected from all types of damage that may render the food unfit for human consumption;
- a protective environment is provided to effectively control the growth of pathogenic or spoilage microorganisms, such as safe holding temperatures of 4°C (40°F) or below, or 60°C (140°F) or above; and
- all temperature control equipment is suitable and maintained for the purposes intended.

3.7.2 Food Transportation, Storage and Distribution Units

- a) Food transportation, storage and distribution units shall be designed, constructed, maintained and used in a manner that protects food products from being contaminated.
- b) Food transportation, storage or distribution units should be inspected to ensure they are free of possible contaminants, and that they are suitable for the purposes intended.
- c) Food transportation equipment that is intended to be in direct contact with food products must be constructed with non-toxic materials, which are easy to maintain and clean. Examples include stainless steel and food-grade plastic containers. (See Section 4 of this *Code*.)
- d) Where both food and non-food products are transported, stored and distributed together, procedures shall be in place to ensure that food products are not exposed to potential contamination from non-food products.

Rationale

Even if the food establishment does not directly transport or distribute food, stock received by a supplier may have been subject to contamination or temperature abuse while being delivered. The food premise operator should make every reasonable attempt to verify that the food supplies have been protected from contamination and temperature abuse.

Off-site caterers and premises involved in the preparation and distribution of foods from centralized kitchens need to verify the food transportation, storage and distribution units which they utilize, and in particular the temperature control systems of these units.

3.7.3 Handling and Transfer of Foods

- a) Inspection of foods is required to ensure that any signs of contamination, deterioration of foods or their container systems are observed.
- b) Potentially hazardous foods must be monitored to ensure that proper temperatures are maintained during their transportation, storage and distribution. Ideally, temperature-recording devices, which produce a graphic temperature history of the food product and/or storage environment, should be used. Products should be checked on being received and recorded if found to be in variance to required temperatures.
- c) Food should not be handled or transferred in any way that may cause damage, contamination or adulteration of the food. Food handlers responsible for filling display coolers should be completely familiar with capacity levels and restrictions to loading such units, including volume limits, air flow, temperature range variances, etc., in order to maintain the minimum/maximum temperature needs of the products being placed therein.
- d) When transferring potentially hazardous foods, these foods must be quickly moved into temperature controlled storage, to minimize the time in which they are in the Danger Zone, between 4°C and 60°C (40°F and 140°F).
- e) Contaminated or adulterated foods must be discarded or disposed. Damaged food containers must be thoroughly examined and if the food is contaminated or adulterated, it should be discarded or effectively segregated until returned to the supplier or otherwise disposed of.

Rationale

The careful inspection of transported food will help to minimize the potential of contamination or deterioration of the food product. The prompt handling of foods being transported, stored or distributed serves to minimize the amount of time that perishable foods are in the "danger zone" for growth of pathogenic organisms. Minimizing the amount of handling also minimizes the chance of contamination.

Adequate and properly functioning temperature control systems are essential. The routine use of temperature monitoring devices is necessary to confirm that potentially hazardous foods have been kept out of the "danger zone" for bacterial growth.

3.7.4 Storage Procedures

- a) Rotation of food stocks in storage areas should occur frequently to ensure that the "first-in-first-out" rule is followed. Food products removed from storage should always be the oldest food stocks present.
- b) Refrigerated ready-to-eat potentially hazardous foods, prepared and held for more than 24 hours, shall be marked with the date of preparation or the "consume by" date. In general, refrigerated ready-to-eat potentially hazardous foods shall be discarded if not consumed within 7 days from the date of preparation.
- c) In transportation, storage and distribution units, foods should be stored off the floor and away from walls.

Rationale

Proper rotation of food stocks limits spoilage and potential infestation/contamination by pests. Spills and spoilage can contribute to insect and rodent problems. Defective stock and/or their containers can be identified to the suppliers for appropriate replacement and follow-up.

3.7.5 Temperature Controls

- a) All potentially hazardous foods requiring temperature controlled environments to extend their shelf lives or limit microbial growth should be transported, stored or distributed in equipment that consistently maintains those temperature controls.
- b) Equipment units must have accurate and reliable temperature control and monitoring. All such units and devices should be calibrated and verified for accuracy.
- c) Temperature control units must be maintained at temperatures that are consistent with Section 3.3 of this *Code*.

Rationale

Temperature control is an effective way to prevent microbial growth and product deterioration. Temperature abuse during transportation, storage or distribution increases the potential for foodborne illness.

4.0 Maintenance and Sanitation

A food establishment shall have effective systems in place to:

- i) ensure adequate and appropriate maintenance and cleaning of the facilities and equipment;
- ii) control pests;
- iii) remove wastes; and
- iv) monitor and record the effectiveness of maintenance and sanitation procedures.

Rationale

Buildings, materials, utensils and all equipment in a food establishment, including wastewater and refuse collection systems, all present a potential source of contamination of food and food products. These areas should be kept clean, free of pests and maintained in good order.

Equipment, materials and utensils that come into contact with foods, especially raw products (fish, meat, vegetables, and poultry) are generally considered to be contaminated by microorganisms. These microorganisms could contaminate other products. For this reason, it is necessary to have well established programs in place to ensure that physical structures, including equipment and utensils, are maintained in a clean and sanitary condition. In order to achieve thorough sanitation, equipment may require dismantling, cleaning and sanitizing at the end of each day or more frequently to prevent microbiological proliferation.

4.1 Equipment

4.1.1 Location

- a) Equipment used in a food establishment should be located so that it:
 - i) is not exposed to any sources of contamination unrelated to the normal operations of the food establishment;
 - ii) may be maintained, cleaned and sanitized;
 - iii) may be inspected;
 - iv) may be properly vented when required; and
 - v) functions in accordance with its intended use.
- b) Equipment used in processing, handling and storage of foods (including single-service and single-use articles) should not be located in staff locker rooms; toilet rooms; garbage storage rooms; mechanical rooms; under sewer or water lines not shielded to intercept leakage/condensate; under open stairwells; or any area where the equipment may become contaminated.

Rationale

Equipment used in a food establishment should be kept in a clean and sanitary condition to minimize the risk of contamination of food by equipment surfaces. Therefore, when considering the location of equipment, several factors should be taken into account, including ease of cleaning, the intended use of equipment, and the prevention of contamination of the equipment. Special care should be taken in the placement of food equipment that will be used to process, handle or store food. Such equipment should not be located in areas where it may become contaminated, since the surfaces of the equipment will be coming in direct contact with food.

4.1.2 Fixed Equipment

Equipment that is fixed (i.e., not easily moved) should be either:

- i) sealed to adjoining walls, floors and equipment; or
- ii) spaced in such a manner to allow for cleaning under and around equipment.

4.1.3 Design

- a) Equipment and utensils should be designed and constructed to be durable and to retain their characteristic qualities under normal use and conditions.
- b) Ideally, food service equipment and utensils should comply with international sanitation standards such as those administered by third parties such as NSF International (NSFI) and Underwriters' Laboratories of Canada (ULC).

Rationale

The food contact surfaces on equipment must be maintained in a clean and sanitary condition to prevent contamination of food. Therefore, these surfaces should be designed so that they are smooth, non-absorbent and easily cleanable to eliminate harbourage for microorganisms and other contaminants.

4.1.4 Food Contact Surfaces

Food contact surfaces of equipment should be:

- i) made of materials that are corrosion resistant;
- ii) made of materials that do not pass on colours, odours or tastes to food and do not allow migration of unsafe substances into food;
- iii) smooth and non-absorbent;
- iv) free from breaks, cracks, open seams, chips, pits and similar imperfections, should these be shown to impede effective cleaning and sanitizing;
- v) free from sharp internal angles, corners and crevices;

- vi) finished to have smooth welds and joints; and
- vii) accessible for cleaning and inspection (by disassembly, if necessary).

Rationale

Furthermore, food contact surfaces should not introduce substances into food, which are harmful or change food characteristics. Examples of surfaces which can be of concern include copper (due to copper migration into acidic foods or beverages), cast iron (due to heavy metals migration into the food), lead glazed utensils and galvanized metal.

4.1.5 Use of Wooden Food Contact Surfaces

- a) Wood is not recommended for cutting, especially meat and poultry.
- b) Wood is not normally acceptable as a food contact surface, except hard maple or an equivalently hard, close-grained wood may be used for:
 - i) cutting boards; cutting blocks; bakers' tables; and utensils such as rolling pins, doughnut dowels; and
 - ii) wooden paddles, which are used in confectionery operations for pressure scraping kettles when manually preparing confections at a temperature of 110⁰C (230⁰ F) or above.
- c) Whole, uncut, raw fruit and vegetables and nuts in the shell may be kept in the wooden shipping containers in which they were received until these foods are used.

Rationale

The limited acceptance of wood as a food contact surface is determined by the nature of the food and the type of wood used. Moist foods may cause the wood surface to deteriorate and the surface may become difficult to clean. In addition, wood that is treated with preservatives may lead to illness due to the migration of the preservative chemicals in the wood, into the food. Therefore, only approved preservatives are allowed.

4.1.6 Non-Food Contact Surfaces

In order to minimize the likelihood of food contamination, non-food contact surfaces of food equipment should be:

- i) free from unnecessary ledges, projections and crevices; and
- ii) designed and constructed to allow easy cleaning and to facilitate maintenance.

4.1.7 Clean In Place Equipment (CIP)

Equipment that is intended to be "Clean In Place (CIP)" should be designed and constructed so that:

- a) Cleaning and sanitizing solutions circulate through a fixed system and contact all interior food contact surfaces.
- b) The system is self-draining or capable of being completely drained of cleaning and sanitizing solutions.
- c) There are inspection access points to ensure all interior food contact surfaces throughout the fixed system are being effectively cleaned.
- d) It is maintained as it was originally intended.

Rationale

The interior food contact surfaces of CIP equipment should be cleaned and sanitized to prevent contamination of food passing through the equipment. The equipment design should allow for interior surfaces to be inspected verifying that these surfaces are clean.

4.1.8 Filters and Grease Extraction Equipment

- a) Filters or other grease extracting equipment should be:
 - i) designed to be readily removable for cleaning and replacement if not designed to be cleaned in place; and
 - ii) cleaned regularly.
- b) Exhaust ventilation hood systems in food preparation and ware washing areas, including components such as hoods, fans, guards, and ducting, should be designed to prevent grease or condensation from draining or dripping onto food, food contact surfaces, equipment, utensils, linens, and single-service and single-use articles.
- c) Ventilation hood systems and devices should be sufficient in number and capacity to prevent grease or condensation from collecting on walls and ceilings.

Rationale

Dripping grease can contaminate food being prepared on the cooking surface below. Grease buildup in food preparation areas can lead to pest infestation and contamination. Both the National Building Code and the National Fire Prevention Act 96 deal with ventilation and grease extraction in commercial premises.

4.1.9 Maintenance

Equipment shall be maintained in good repair, so that it functions in accordance with its intended use.

4.1.10 Maintenance of Cutting Surfaces

Surfaces such as cutting blocks and boards that are subject to scratching and scoring should be resurfaced if they can no longer be effectively cleaned and sanitized, or discarded if they are not capable of being resurfaced.

Rationale

Inadequately maintained equipment could result in food being held at unsafe temperatures (e.g., malfunctioning refrigeration equipment) or in food becoming contaminated (e.g., chipped or cracked equipment).

4.1.11 Heating and Cooling Equipment

- a) Equipment used to cook, heat treat, cool, store or freeze potentially hazardous food shall be designed and operated to achieve the required food temperatures as described in Section 3.3 of this *Code*.
- b) Equipment in the food establishment must be sufficient in capacity to maintain all potentially hazardous food at the temperatures specified in Section 3.3 of this *Code*.
- c) Heating and cooling equipment that impacts on food safety must be equipped with devices to monitor and control temperatures.
- d) Temperature measuring devices shall be easily readable and accurate to $\pm 1.0^{\circ}\text{C}$ ($\pm 2.0^{\circ}\text{F}$) in the operating range, and calibrated on a regular basis to ensure correct functioning. Calibration records should be maintained for each piece of equipment, and records of corrective action taken as required.

Rationale

Maintaining all potentially hazardous foods at the required temperatures is an essential component of keeping food free from spoilage and disease-causing microorganisms. Equipment used to store potentially hazardous foods at safe temperatures must have the capacity to raise or lower the temperature of the food to safe levels as rapidly as possible.

4.1.12 Glass Temperature Monitoring Equipment

Food temperature measuring devices should not have sensors or stems constructed of glass unless they are encased in a shatterproof sleeve.

Rationale

Temperature measuring equipment that has a glass stem should be encased in a shatterproof sleeve to prevent the contamination of food in the event that the device breaks.

4.1.13 Containers for Waste and Inedible Substances

Containers for waste, by-products, and inedible substances should be:

- i) specifically and properly labeled to identify the contents;
- ii) leak-proof;
- iii) constructed of an impervious material which is easy to clean or disposable;
- iv) covered; and
- v) securely closeable, if appropriate.

Rationale

To prevent foods from becoming contaminated, wastes, by-products and inedible substances should be stored in containers clearly identified to prevent these substances from being mistakenly used as food. The container should be easy to clean to prevent the build-up of contaminants, and must be covered and securely closeable (if appropriate) to minimize objectionable odours and discourage pests such as insects, rodents and birds.

4.2 Cleaning and Sanitation

4.2.1 Written Sanitation Program

Food establishment shall have a written sanitation program in place to monitor and control all elements in Section 4.0 of this *Code*, which generally should:

- a) Outline the parameters to be controlled in the food establishment to ensure safety of the food product.
- b) Include sanitation procedures for equipment, utensils or refrigeration units that impact on food safety, which should specify:
 - i) areas, items of equipment and utensils to be cleaned;
 - ii) the designated food handler(s) responsible for the cleaning and sanitizing;
 - iii) the chemicals and/or cleaning products (including concentrations) and process to be used;
 - iv) the procedures used;
 - v) the frequency of cleaning and sanitizing; and
 - vi) inspection and monitoring records.
- c) Document that the sanitation program is monitored and its effectiveness verified.
- d) Reflect the level of risk of the food products as determined by the management plan required in Section 3.0 of this *Code*.

Rationale

The requirement for a written sanitation program is very similar to the requirement, in Section 3.1.3 of this *Code*, for management principles to control food hazards. The objective of the sanitation program is to provide reasonable assurance that the food establishment is being cleaned and sanitized effectively and consistently.

While the detailed program described above may do this, the costs of such a detailed program in necessary time and resources must be balanced by the benefits. As well, particularly in a smaller food establishment with simple operations, the cleaning and sanitation may be made up of only a few relatively simple steps. The complexity of the required written sanitation program should reflect the complexity of the cleaning and sanitizing of the operation.

4.2.2 Cleaning Frequency: Non-Food Contact Surfaces

Non-food contact surfaces of equipment should be cleaned at a frequency that will prevent the accumulation of dust, dirt, food residue and other debris.

4.2.3 Cleaning Frequency: Food Contact Surfaces

- a) Food contact surfaces of cooking equipment should be cleaned and sanitized at a frequency that prevents the accumulation of grease deposits and other residues.
 - i) Some types of equipment, which do not pose a public health risk (e.g., pizza pans, baking dishes), need not be cleaned at the frequency outlined in (a).
- b) Equipment that is used continuously at room temperature for the handling of potentially hazardous foods should be cleaned and sanitized at least every four hours (e.g., deli meat slicers).

4.2.4 Cleaning of Reusable Food Equipment

Cleaning processes for all reusable food equipment and utensils in the food establishment should effectively remove food residues and dirt from the item.

- a) Cleaning should involve:
 - i) removing gross debris from surfaces;
 - ii) washing by applying a detergent solution to loosen soil and bacterial film and hold them in solution and suspension;
 - iii) rinsing with water to remove loosened soil and residues of detergent;
 - iv) sanitizing (see Section 4.2.5 of this *Code*); or
 - v) alternative methods of cleaning that effectively remove residues and debris.

Rationale

Reusable food equipment should be effectively cleaned to remove gross debris, soil and bacterial film to prevent the contamination of food which may come into contact with the equipment.

4.2.5 Sanitizing of Equipment Food Contact Surfaces and Utensils

- a) Once cleaned in the manner described above, the food contact surfaces of equipment and utensils should then be sanitized by heat or chemical means.
 - i) Surfaces are effectively sanitized when, after application on a cleaned surface, a 5 log reduction of disease-causing microorganisms is achieved.
 - ii) The standard sanitizing methods contained in this *Code* (see Sections 4.2.6, 4.2.7, and 4.2.8) have been shown to attain this standard; alternative methods will be evaluated against achievement of this standard.
- b) The food contact surfaces should be handled in a sanitary manner after sanitizing, and air-dried.
- c) If applicable, they should be stored in a place and manner that prevents contamination.

- d) Wiping cloths used for wiping food spills on food contact surfaces:
- i) should not be used for other purposes such as wiping raw animal foods;
 - ii) should be routinely cleaned and when not in use kept in separate sanitizing solution which is maintained at a concentration as specified in Section 4.2.6.

Rationale

Utensils should be allowed to air dry after sanitizing; towel-drying or storage on a dirty surface or where splashing may occur may lead to re-contamination of the cleaned and sanitized surface.

4.2.6 Mechanical Dishwashing: Chemical Sanitizing Methods

Mechanical dishwashing machines employing chemical agents to sanitize tableware, utensils and equipment should apply the sanitizing solution as specified below:

- a) A chlorine solution should have a minimum temperature based on the concentration and pH of the solution as listed in the following chart.

| Minimum Concentration mg/L (ppm) | Minimum Temperature pH 8 to 10 | Minimum Temperature pH 8 or less |
|-------------------------------------|-----------------------------------|-------------------------------------|
| 25 | 49°C (120°F) | 49°C (120°F) |
| 50 | 38°C (100°F) | 24°C (75°F) |
| 100 | 13°C (55°F) | 13°C (55°F) |

- b) An iodine solution used as a sanitizing agent should have:
- i) a minimum temperature of 20°C (75°F);
 - ii) a pH of 5.0 or less, unless the manufacturer's specifications state otherwise; and
 - iii) a concentration between 12.5 mg/L and 25 mg/L.
- c) A quaternary ammonium compound solution used as a sanitizing agent should:
- i) have a minimum temperature of 24° C (75°F);
 - ii) have a concentration of 200 mg/L or as indicated in the manufacturer's specifications; and
 - iii) be used only in water with a hardness concentration of less than 500 mg/L.
- d) Other chemical solutions may be used as sanitizers if the regulatory authority is satisfied that such chemicals can safely achieve the desired results and is used in accordance with the manufacturer's use directions included in the labeling.

- e) The operator should check the temperatures of the water and the sanitizer concentration frequently to ensure that effective results are occurring. Sanitizer test kits/strips should be obtained from the sanitizer/detergent supplier and stored for convenient use near the dishwasher.
- f) Operators should keep records of sanitizer concentrations and temperatures.

Rationale

The sanitizer concentrations, pH and temperatures referenced here are contained in the US FDA Food Code and have been evaluated for effective results against the standard swab test referenced in Section 4.2.5 of this Code.

4.2.7 Mechanical Dishwashing

Wash Solution Temperature:

- a) The temperature of the wash solution in spray type ware washers that use hot water to sanitize may not be less than:
 - i) for a stationary rack, single temperature machine, 74⁰ C (165⁰F);
 - ii) for a stationary rack, dual temperature machine, 66⁰ C (151⁰F);
 - iii) for a single tank, conveyor, dual temperature machine, 71⁰ C (160⁰F); and
 - iv) for multitank, conveyor, multitemperature machine, 66⁰ C (151⁰F).

Hot Water Sanitizing Temperature:

- b) Mechanical dishwashing machines employing water temperature as a means of sanitizing tableware, utensils and equipment should ensure that dishware is exposed to clean rinse water for at least 10 seconds, at a temperature (measured at the manifold) of:
 - i) 74⁰C (165⁰F) for stationary rack, single temperature machines; or
 - ii) 82⁰C (180⁰F) for all other machines.

Rationale

The temperatures referenced here are contained in the US FDA Food Code and have been evaluated for effective results against the standard swab test referenced in Section 4.2.5 of this Code.

4.2.8 Manual Dishwashing

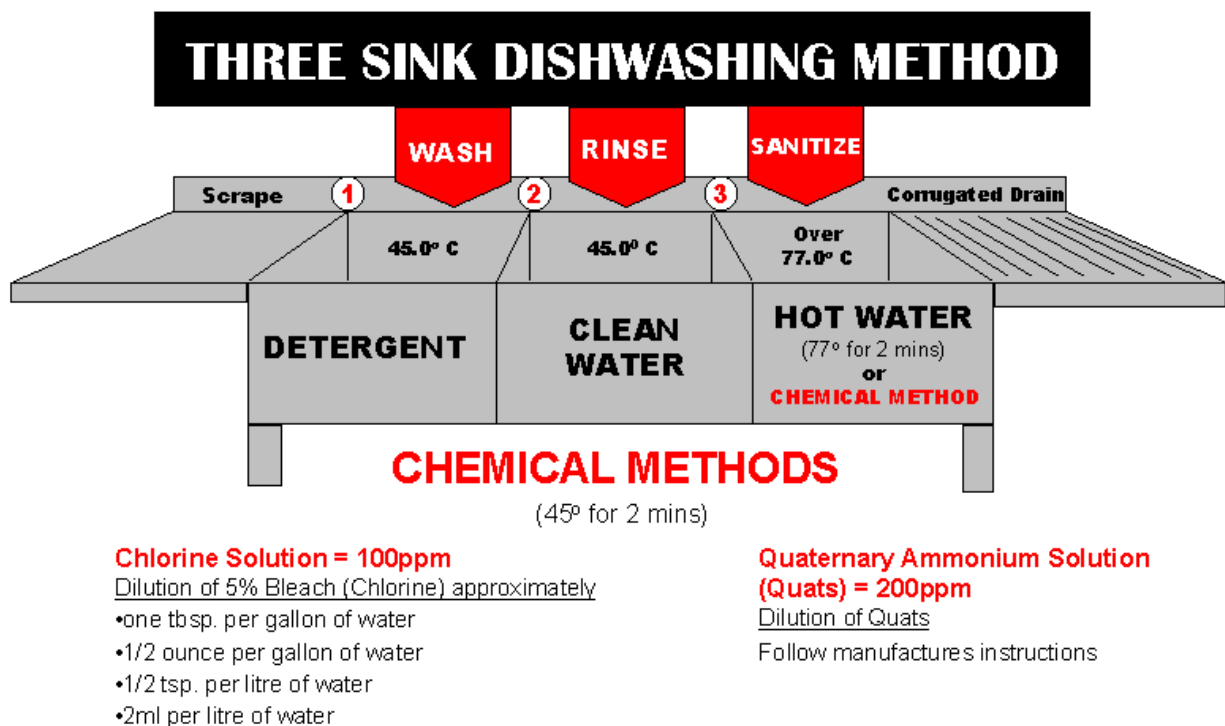
- a) Where manual dishwashing procedures are used for cleaning and sanitizing equipment or cooking utensils, the manual dishwashing equipment should include:
- i) at least a double sink of non-corrodible metal of sufficient size to permit complete immersion of the utensils to be sanitized;
 - ii) draining boards (if they are to be provided) of non-corrodible and non-absorbent material;
 - iii) a thermometer capable of measuring temperatures between 0°C and 100°C (32° F and 212° F); and
 - iv) testing equipment to determine the strength of any chemical used as the sanitizing agent.
- b) When relying on the manual method for washing and sanitizing dishware and serving/dining utensils, the operator should use a three compartment sink and the following procedure. Dishes should be:
- i) thoroughly scraped clean of visible foreign materials and food scraps;
 - ii) washed in the first compartment sink in detergent solution capable of removing grease and food particles and that is maintained at a temperature of not less than 45°C (113° F);
 - iii) rinsed in the second compartment sink in clean potable water maintained at a temperature of not less than 45°C (113° F); and
 - iv) sanitized in the third compartment sink by immersion, in one of the following methods:
 - for at least 2 minutes in water at a temperature of at least 77°C (171° F);
 - for at least 2 minutes in a chlorine solution of 100 - 200 mg/L available chlorine at a temperature of not less than 45°C (113° F);
 - for at least 2 minutes in a solution containing a quaternary ammonium compound having a strength of not higher than 200 mg/L consistent with efficacy at a temperature of not less than 45°C (113° F);
 - for at least 2 minutes in a solution containing not higher than 25 mg/L iodine at a temperature of not less than 45°C (113° F); or
 - in accordance with any other method that has been scientifically proven to produce results equivalent to those achieved by use of any of the methods in this subclause (iv).
- NOTE: The solutions used for the methods outlined in (iv) should be completely changed often enough to prevent utensils from becoming soiled and to maintain the bactericidal effect of the solution.
- v) air-dried, if possible.

c) The operator should test the temperatures of the water and the sanitizer concentration frequently to ensure that effective sanitizing is occurring.

Rationale

Once food equipment has been cleaned, food contact surfaces and utensils must be sanitized through mechanical or manual methods, to reduce the risk of food becoming contaminated with microorganisms when coming in contact with the utensil or surface. The approved sanitizing method or agent should be applied at the proper concentration and/or temperature and for the appropriate length of time to achieve the necessary reduction in bacterial levels. Regular monitoring of temperatures and/or sanitizer concentrations is necessary to ensure effective results, since sanitizer effectiveness decreases with time and temperature. Sanitizers should not be used at concentrations well above the recommended levels.

To assist food workers using chemical methods of sanitizing, a posted sign can be useful. A sample is printed below.



4.3 Pest Management

4.3.1 Immediate Corrective Action

- a) The presence of birds, rodents or insects should be treated immediately by inspecting and discarding any adulterated food.
- b) Inspection should be followed by:
 - i) removing dirt, soil or filth if present;
 - ii) verifying cleaning procedures;
 - iii) cleaning and sanitizing surfaces contaminated by pests;
 - iv) destroying and sealing off nests and breeding places; and
 - v) protecting the food establishment against the entrance of pests.

Rationale

A pest infestation in a food establishment can result in food becoming contaminated by foreign matter (e.g., insect parts, rodent hair, etc.), pest urine/faeces, and/or pathogenic microbes carried by pests. Food establishment, which have become infested, must be thoroughly cleaned to eliminate pest harborage. Surfaces contaminated by pests must be cleaned and sanitized to destroy microbial pathogens which might be present and which might contaminate foods.

4.3.2 Eradication of Pests: Methods

- a) Pest control devices should be designed and located to effectively control the presence of pests in a food establishment.
- b) Insect control devices that are used to electrocute flying insects should be located at least 2 metres (6 feet) away from any food handling area. They should be equipped with an escape resistant trap, and they should be emptied and cleaned regularly.
- c) Insect control devices designed to trap insects by adhesive or devices that may expel the insects or insect fragments should be installed so that the dead insects or insect fragments cannot fall onto exposed food or equipment. To be effective, insect traps (sticky tapes or similar devices) should be changed regularly or when loaded with insects.
- d) Eradication of uncontrolled pests should be carried out by a certified pest control operator utilizing approved chemicals and methods. Integrated pest management approaches utilizing the minimal amount of chemical control possible are highly encouraged.

Rationale

The presence of pests increases the likelihood of contamination of food. Properly designed and installed pest control devices can be used as a means of eliminating pests.

Food establishment operators should rely on certified pest control services and emphasize integrated pest management practices that minimize the reliance on chemical controls, in order to minimize the risk of contamination of food products by pesticides.

4.3.3 Use of Rodenticides/Insecticides

- a) Rodenticides and insecticides used in a food establishment should be used in such a manner as to prevent the contamination of food. It is preferable that they not be applied while food production/preparation is taking place. Where, due to the nature of the food operation (e.g., 24-hour restaurants) this cannot be adhered to, reliance on traps and non-spray solutions should be emphasized, and open food should be protected from contamination.
- b) All material used should be identified on a list of approved rodenticides and insecticides which confirms that these may be used in a commercial food establishment.

4.3.4 Documentation

- a) Pest control measures shall be documented. Owners/operators should take note of information the pest control technician may need for follow-up.
- b) Documentation should include:
 - i) the name of the pest control operator responsible;
 - ii) the chemicals used for pest control (with the concentrations applied);
 - iii) the procedures and methods used;
 - iv) the frequency of application; and
 - v) records of inspection and monitoring.

Rationale

To ensure that pests are properly, effectively and safely eradicated, pest control measures requiring the application of chemicals in food establishment must be carried out only by individuals certified in pest control operations. Since chemicals used to eradicate pests may also be toxic to humans, food must be adequately protected while these substances are being applied in the food establishment. To verify that appropriate pest control measures have been undertaken, all aspects of pest control operations must be documented and monitored.

4.4 Use of Chemicals and Toxic Substances

- a) Chemicals, cleaning and disinfecting compounds and other toxic substances kept in a food establishment should be:
 - i) used in compliance with the manufacturer's labeling, directions or specifications; and
 - ii) used only in such a manner and under such conditions that the substances do not contaminate food, food equipment and food contact surfaces, or cause a health hazard.
- b) The chemicals, cleaning and disinfecting compounds and other toxic substances should be stored:
 - i) in a compartment separate from food, food contact surfaces and utensils; and
 - ii) in clearly labeled, non-food containers, which are (where appropriate) lockable.

Rationale

Special care should be taken when handling dangerous or toxic substances in food establishment. They should be used according to manufacturer's specifications, not only to ensure they function as intended but also to ensure worker safety.

To prevent the adulteration of food products, dangerous or toxic chemicals should be kept in containers which are clearly labeled to identify the contents, and stored in areas separate from food and food equipment. Locked containers or storage facilities can prevent malicious or accidental contamination of food.

4.5 Waste Management

4.5.1 Waste, Refuse and Recyclable Materials

Waste, refuse and recyclable materials should be removed from the food establishment at a frequency that will minimize the development of objectionable odours and other conditions that attract or harbour insects and rodents. Generally, these materials must be removed daily.

4.5.2 Sewage and Other Liquid Waste

Sewage waste systems and other non-sewage liquid conveyance and disposal systems should be flushed clean on a periodic basis.

4.6 General Maintenance Schedules

Surfaces, such as floors, walls and ceilings, should be cleaned at a frequency that will prevent the accumulation of dust, dirt, food residue and other debris.

5.0 Hygiene and Communicable Diseases

All operators and personnel of food establishments are responsible for ensuring that food products are handled (throughout storage, preparation, display, service and presentation) in a manner that prevents contamination.

5.1 Training

Food handlers should be trained in safe food handling techniques that are appropriate for their level of responsibility. Review sessions should be done on a regular basis.

5.2 Clothing

All personnel in food preparation areas shall wear clean outer garments. If food preparation causes the clothing to become soiled, the clothing should be changed as necessary.

5.3 Aprons

Food handlers that change workstations from raw food preparation activities to ready-to-eat activities should remove any soiled clothing, such as aprons.

5.4 Hair

Personnel involved in food preparation and any person entering a food preparation or storage area should wear hair restraints such as clean hats or a hair net. Where required, beards should be completely covered with beard nets.

5.5 Personal Habits

- a) Food handlers who engage in activities which may result in the transfer of bacteria (e.g., sneezing, touching hair/eyes/mouth/nose, etc.), must wash their hands before resuming food service activities and food handling.
- b) Food handlers shall not smoke while handling food, utensils or food surfaces.

5.6 Handwashing

Food handlers are to thoroughly wash their hands before commencing work. In particular, food handlers shall wash their hands each time after using the washroom, after returning from a break, after snacking or eating, after handling raw food products, or after any other activity or instance where hands may become soiled.

- a) A thorough hand washing includes vigorously rubbing together the surfaces of the lathered hands and exposed arms for at least 20 seconds followed by a thorough rinsing with warm clean water.
- b) In addition to the procedure outlined in (a), it is recommended that a nailbrush and soap be used to clean underneath the nails, followed by a thorough rinsing with warm clean water. As well, particular attention must be given to the tips of the fingers and between all fingers. This is particularly important after using the washroom.

5.7 Personal Effects and Jewelry

Food handlers should remove their watches, rings and jewelry before working with food. Loose fitting jewelry (e.g., earrings) which could become detached and contaminate food should not be worn while engaging in food handling activities.

5.8 Illness and Disease (also reference Communicable Diseases Regulation)

- a) The operator of a food establishment shall ensure that all personnel who come into contact with food are free from any symptomatic signs of illness or communicable disease that are transmissible through food. If a food handler is suffering from an illness or communicable disease, managers are responsible for ensuring appropriate action is taken, that may include excluding that individual from activities that involve the handling of food or food contact surfaces, or authorizing the individual's absence from the work place.
- b) Any employee suffering from a communicable disease, that is communicable through food, must advise management. Any employee suffering from a temporary illness should obtain medical leave or, depending on the nature of the illness, be reassigned to work that will not allow contamination of the food.
- c) When returning to work after medical leave or illness, food handlers should have written clearance from the treating physician, particularly in the case of diagnosed, reportable communicable diseases.
- d) Generally, a person is considered to be suffering from a communicable disease in the following situations:
 - i) they have one or more of the symptoms associated with an acute gastro-intestinal illness, such as diarrhea, fever, vomiting, jaundice and/or sore throat with fever;
 - ii) they are suspected of causing or being exposed to a confirmed communicable disease outbreak; or
 - iii) they live in the same household as a person who is diagnosed with a communicable disease.

Rational

Several types of communicable diseases can be transmitted through the ingestion of food. The role of the food handler is critical in eliminating the opportunity for pathogenic microorganisms to be transferred to the food.

Food handlers can carry communicable diseases, especially if they themselves have been infected or are in contact with persons or objects that may carry the harmful microbes of those diseases. Consequently, food handlers may spread these diseases throughout the food establishment if they do not maintain an appropriate level of personal hygiene and avoid habits that may contaminate food.

5.9 Injuries

- a) Personnel with open wounds should not participate in food handling activities. This applies to persons who have a lesion containing pus that is open and draining, and is:
- on the hands or wrists, unless an impermeable cover protects the lesion and a single-use glove is worn over the affected area;
 - on the arms, unless the lesion is protected by an impermeable cover; or
 - on other parts of the body, unless the lesion is covered with a dry, tight-fitting bandage.
- b) Personnel with cuts and/or bandages must wear vinyl gloves or refrain from handling foods entirely.

5.10 Visitors

Any visitor to a food preparation area should observe the same hygiene and dress code as food handlers, including handwashing and hair restraint policies. They should refrain from coming into proximity or contact with food and food equipment, and from any activities that could contaminate food.

6.0 Education and Training

6.1 Educational Programs

Those engaged in food operations who come directly into contact with food should be trained in food hygiene to a level appropriate to the operations they are to perform.

6.2 Mandatory Educational Programs

- a) Mandatory educational programs should be required in all jurisdictions for managers/supervisors of food establishments, or a designated person in their absence.
- b) The programs should be based on the level of food safety risk in the food establishment. The criteria to measure the level of risk can include items such as:
 - i) the number of meals served daily,
 - ii) the type of clientele (i.e., higher risk populations), and
 - iii) the type of menu items or the complexity of the processes used (i.e., prepared-from-scratch menu items versus preparation or reheating of prepackaged, ready-to-eat foods.
- c) These programs should be described relative to the expected learning outcomes and certification standards. (See Section 6.5.1 in this *Code*.)

Rationale

Food safety is dependent on many factors. Safety depends not only on the environment but also on the ways in which food is handled by employees.

Training is fundamentally important as food handlers are constantly making decisions and taking actions which could affect food safety.

One of the best assurances that an operator of a food establishment can have that the food or food product will be safe, is the employment of personnel that have the necessary knowledge and skills to process and handle products in a safe and sanitary manner.

Moreover, all personnel should be familiar with their role and responsibility in protecting food from contamination.

6.3 Training Programs

6.3.1 Responsibility

- a) Food training programs shall be recognized by the regulatory authority having jurisdiction.
The certification of the trainer should be the responsibility of the regulatory authority.
- b) The training of operators or food handlers can be undertaken by a third party who is authorized by the regulatory agency.

Rationale

All regulatory authorities provide education programs, since they play an important role in achieving compliance with food safety regulations. Some jurisdictions require mandatory food handler education programs while others prefer voluntary training programs.

6.3.2 Food Handler Training

Every operator of a food establishment must ensure that food handlers have the necessary knowledge and skills to enable them to handle food hygienically.

6.3.3 Continuing Educational Training

Every food premise should promote food safety education through ongoing training, which may include additional classroom instruction, on-the-job training, food safety certification from a recognized program of instruction, seminars, and employee meetings.

Rationale

Studies have demonstrated that the quality of food handling techniques improves for the six months following a formalized training program. However, after that period, food handling practices can deteriorate to pre-education levels.

It is recognized that inspections by a regulatory authority or by an internal inspecting body can help alleviate the problem, by re-emphasizing the principles of good food handling practices.

However, food safety is too important to rely solely upon monitoring and auditing conducted by the regulatory authority. The food industry should take responsibility for adequately preparing food handlers to fulfil their job requirements, and to significantly contribute to a safe food industry.

6.3.4 Time Expiration of Training Programs

It is recommended that certification resulting from training courses should be valid for five years after completion of the course. After five years, operators or food handlers should be required to participate in a refresher or updating course.

6.4 Components of Food Safety Training Courses

6.4.1 Certification Programs

Courses should meet the learning outcomes described in Section 6.5 of this *Code*, and participants should be able to demonstrate competencies through standard testing recognized by the regulatory authority.

6.4.2 Course Content

The course content of food safety educational programs may be generic to all aspects of food safety. However, given the diversity of the food industry and the influx of new technologies and food science discoveries, consideration should be given to educational courses that are tailor made to address specific food venues or operations such as those developed by foodservice chain operations. The course presented should contain a minimum of 10 hours of instruction.

Rationale

When course content is specific, both educators and trainers can ensure that the principles taught are relevant to the people in attendance and the work that they do. This approach increases knowledge retention and program success rates.

6.4.3 Course Selection

Educational programs may originate from institutions; industry or regional health authorities, provided these programs satisfy the requirements of the learning criteria and are recognized by the regulatory authority.

Rationale

While a wide variety of training programs are appropriate, the objective is to harmonize standards, so that training and certification are applicable across jurisdictions.

6.5 Learning Outcomes

6.5.1 Operators

Upon successful completion of a sanitation course leading to the writing of the Provincial Food Sanitation and Hygiene Examination, a person will be able to:

- a) Describe why personal hygiene of a food service employee is important to the prevention of food borne disease.
- b) Describe the appropriate steps to be taken, by the person in charge, in dealing with an employee who has a condition that may cause food borne illness in others.
- c) List the most common diseases that are transmittable through food and describe the symptoms associated with these diseases.
- d) Explain the significance of time and temperature relationships in the growth of microorganisms associated with food borne illnesses.
- e) Identify the hazards involved in the consumption of raw or under cooked high-risk foods including (but not limited to) meat, poultry, eggs, fish, fruits and vegetables.
- f) Describe why proper food handling practices are important for the prevention of food borne illness.
- g) List the required temperatures for the safe freezing, thawing, refrigeration, cooking, cooling, hot holding, cold holding and reheating of potentially hazardous food.
- h) Explain the importance of providing proper equipment and facilities for the prevention of food borne illness.
- i) Describe the correct procedures for cleaning and sanitizing utensils and food-contact surfaces.
- j) List the acceptable sources of potable water for a food establishment and measures taken to assure that the water remains protected from contamination.
- k) List the procedures to safely store, dispense and dispose of poisonous and/or toxic materials.
- l) Identify the critical control points of a food operation that may contribute to food borne illness and the proper steps taken to assure that those points are controlled.
- m) Describe the correct procedures for dealing with a food borne illness complaint.

- n) Identify relevance of the Alberta Food Regulation.
- o) Identify the government agencies relevant to food service sanitation and explain their roles.
- p) Explain the importance of knowing acceptable methods of insect and rodent control within a food establishment relevant to food protection.

6.5.2 Food Handlers

- a) Educational courses and programs provided to food handlers should be designed to effectively meet or exceed the learning objectives outlined below, including knowledge of:
 - i) the food handler's role and responsibility in protecting food from contamination and deterioration;
 - ii) the main properties of common foods;
 - iii) the main types of microorganisms, their sources, the physical and chemical factors that affect their growth, reproduction, activity and death, and the difference between harmful and harmless microorganisms;
 - iv) the common causes of foodborne illnesses, their characteristics, and the procedures and practices that will prevent and control their incidence;
 - v) the basic elements of HACCP; and
 - vi) the allergenic properties of certain foods.
- b) Operators should maintain records indicating which employees have taken courses, the dates, and any relevant additional information.

Appendices

APPENDIX A: Potentially Hazardous Foods

APPENDIX B: Time/Temperature Control — Raw Animal Foods

APPENDIX C: Typical Food Allergies

I. Strategies to Prevent Adverse Reactions

II. Prevention Notes for Consumers and Restaurant Staff

APPENDIX D: Recall Manuals

APPENDIX E: Selected Information Sources

APPENDIX F: Health Guidelines for Bottled Water and Packaged Ice Facilities

APPENDIX G: Bed and Breakfast Food Guidelines

APPENDIX H: Meat Facility Standards

APPENDIX A: Potentially Hazardous Foods

While many foods can be hazardous under specific circumstances, this review is provided to supply background information about the factors involved in dealing with those foods which have the greatest potential to be hazardous by supporting microbial growth.

Potentially hazardous foods are generally defined as foods in a form or state that is capable of supporting the rapid and progressive growth of infectious and/or toxigenic microorganisms. Such foods include, but are not limited to, milk or dairy products, eggs, meat, poultry, fish, shellfish (edible mollusca and crustaceans), tofu products and sprouts.

Other foods that fall into the "potentially hazardous" category include certain baked goods (e.g., those with cream filling) and some types of vegetables. Not included are foods which have a pH level of 4.6 or below, and foods which have a water activity of 0.85 or below.

1. What are potentially hazardous foods?

The term "*potentially hazardous*" is used in a microbiological, not a chemical, or toxicological sense.

It must be understood that the term "potentially hazardous" refers largely to foods that are prone to temperature abuse (that is, they may be kept in the "danger zone" at temperatures greater than 4°C (40°F) when they are supposed to be refrigerated, or kept at temperatures below 60°C (140°F) when they are supposed to be kept hot).

Exposure to temperature-abuse could occur due to inadvertent delays during preparation, transportation, marketing or handling by the consumer.

2. What is pH and water activity?

The pH of a food product is a scale by which the acidity and/or alkalinity of a product is measured. By definition it denotes the hydrogen ion concentration or, more simply, the acidity level of the product. The lower the pH number, the more acid is in the product. pH values range from 0 to 14. Potentially hazardous foods have a pH greater than 4.6 which favours growth of food poisoning organisms.

The term water activity, denoted by the symbol " a_w ", refers to the amount of water in the food product that is available to the growing microorganism.

Water activity has been defined as the ratio of the water vapour pressure of the food and the vapour pressure of pure water at the same temperature. For this reason, water activity values range from 0 to 1 but never exceed 1. Potentially hazardous foods have water activity values favouring growth of food poisoning organisms (i.e., greater than 0.85).

3. What are the *general characteristics* of these potentially hazardous food products?

Potentially hazardous foods are low-acid ($\text{pH} > 4.6$) and high water activity ($a_w > 0.85$) foods, and include those products marketed as ready-to-eat refrigerated foods. Such products generally do not receive sufficient heat to kill spore-forming microorganisms (e.g., *Clostridium botulinum* and others) which may be present in the raw ingredients.

Typical packaging may include loose wrapping on supporting paperboard or Styrofoam trays, hermetically sealed containers such as glass jars, metal cans, plastic containers, plastic pouches or paperboard containers. The shelf-life of some of these products may have been extended by vacuum or modified atmosphere-packaging. Typically, these products are retailed in the refrigerated dairy, meat or delicatessen sections of food stores.

4. Are all raw foods potentially hazardous?

No. Raw foods are considered potentially hazardous if they support the growth of food-poisoning organisms. (Note that foodborne illness is generally caused by infectious and/or toxigenic microorganisms.)

Raw meats, raw fish, raw eggs, and unpasteurized milk must be cooked, pasteurized or otherwise prepared in order to kill any food-poisoning and spoilage bacteria they may carry.

5. What kinds of foods are *excluded* from the potentially hazardous foods category?

Foods which **do not** fall into the potentially hazardous category are:

- (a) Frozen foods which remain frozen up to the time of cooking.
- (b) Commercially canned, shelf stable foods which are safely stored in their original intact containers at normal room temperatures; (for example, canned pâté, canned corned beef or canned vegetables). Once the container has been opened, these foods are potentially hazardous because all contaminating bacteria can grow rapidly in the absence of competing micro flora.
- (c) Acidified foods ($\text{pH} < 4.6$) such as sauerkraut, pickles, etc., and/or low-moisture ($a_w < 0.85$) foods such as peanuts and cereals.

6. Why are sprouts and raw mushrooms considered potentially hazardous?

On several occasions, sprouts have been responsible for food poisoning, probably as a result of contamination with and subsequent growth of *Salmonella*, *Bacillus cereus* or *Klebsiella*.

Clostridium botulinum spores occur frequently in cultivated mushrooms. In laboratory experiments, it has been shown that *Clostridium botulinum*, if present, will grow and produce toxin in raw mushrooms which have been tightly wrapped and stored at room temperatures. It has therefore been recommended that raw mushrooms be refrigerated, and that packaging allow free exchange of air.

7. What are the concerns about extending the shelf-life of modified atmosphere-packaged or vacuum-packaged and sous-vide type foods?

The concerns are that pathogens such as *Clostridium botulinum* and *Listeria monocytogenes*, if present, may grow during the unduly extended shelf-life of these refrigerated products. These and other microorganisms are capable of growth and/or toxin production under the conditions created by the new technologies without any obvious signs of spoilage in the food itself.

Note: Several measures can be taken to minimize these concerns. The items should not be used after the date (shelf life code) provided by the manufacturer; they should be continually stored at 4°C or less before being used, and any items remaining in a partially used container should be treated like any other potentially hazardous food (i.e., generally the products should be used within 5 days after opening).

8. What factors in general control the growth of food poisoning organisms in food?

Factors controlling the growth of disease-causing microorganisms include: water activity (a_w), acidity (pH), temperature and time, the surrounding atmosphere, the inherent resistance of the food itself and other factors. An understanding of these factors is important in food processing as this knowledge can be used to assure food safety.

Potentially hazardous foods require careful monitoring of temperatures. In many cases, adherence to proper temperature control -- either refrigeration at 4°C (40°F) or less, or hot holding above 60°C (140°F) — is the sole means of preventing, or at least limiting, the growth of food poisoning microorganisms.

9. Why is the water activity of a food product so important?

Water activity is important in foods because it is a major factor in determining whether a microorganism will or will not grow. Different microorganisms have characteristic minimum, optimum, and maximum water activity values permitting growth. One can prevent growth of pathogens by adjusting the water activity of a given food to a value below the minimum water activity permitting growth.

Supplementary Note

High-risk foods are non-acidic or slightly acidic, moist, and protein foods. These food products require a number of complex control steps to ensure product safety (i.e., proper temperature requirements at various stages of preparation). These foods include meat and meat products, milk and dairy products, eggs, poultry, fish and shellfish, tofu products, and sprouts, as well as gravies, puddings, custards, cream-filled baked goods, potato and other mayonnaise-based salads, cream-based soups and sauces, and unpasteurized products, such as juice, cider and cheeses.

Medium-risk foods are food products which require a certain step to minimize potential health risk (i.e., proper cold holding techniques). These foods include packaged vegetables, cooked cereals, soft cheeses, fresh, uncooked meat and meat sandwich spreads.

Low-risk foods are food products which do not pose significant health hazards by themselves. These products include ready to eat foods, peanut butter, bread, crackers, butter, dry cereals, and all foods in cans and flexible pouches until the cans or pouches are opened.

APPENDIX B: Time/Temperature Control - Raw Animal Foods

Pathogen reduction involves a time-temperature relationship. The following minimum guidelines should be adhered to. Other time-temperature regimens might be suitable, if it can be demonstrated, with scientific data, that the regimen results in a safe food.

Note: To kill microorganisms, food should be held at a sufficient temperature for a sufficient time. Cooking is a scheduled process in which each of a series of continuous temperature combinations can be equally effective. For example, in cooking a beef roast, the microbial lethality achieved at an internal temperature of 54°C (130°F) for 121 minutes is the same lethality attained as if it was cooked to an internal temperature of 63°C (145°F) for 3 minutes.

| Critical Step | Temperature Requirement |
|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Refrigeration | 4°C (40°F) or less |
| Freezing: | minus 18°C (0°F) or less |
| Parasite Reduction: Raw Fish | minus 20°C (minus 4°F) for 7 days in a freezer or, frozen at minus 35°C (minus 31°F) for 15 hours |
| Cooking: Food Mixtures containing Poultry, Eggs, Meat, Fish or other potentially hazardous foods | Internal Temperature of 74°C (165°F) for at least 15 seconds |
| Pork, Lamb, Veal, Beef (whole cuts) | SEE NEXT PAGE |
| Rare Roast Beef | Internal temperature of 63°C (145°F) for 4 minutes |
| Poultry | Internal temperature of 74°C (180°F) for 15 seconds |
| Stuffing in, or containing of, poultry, fish, meat | 74°C (165°F) for 15 seconds |
| Ground Meat ¹ | 71°C (160°F) for 15 seconds |
| Eggs ² | 63°C (145°F) for 15 seconds |
| Fish ³ | 68°C (154°F) for 15 seconds |
| Reheating | 74°C (165°F) for 15 seconds |
| Holding Hot Foods | 60°C (140°F) |
| Cooling | 60°C (140°F) to 20°C (70°F) within 2 hours 20°C (70°F) to 4°C (40°F) within 4 hours |

1. This includes chopped, ground, flaked or minced beef, pork, or fish.
2. Customers requiring a runny yolk egg must recognize that pathogens are not destroyed until yolk has completely coagulated.
3. Customers wishing raw marinated fish and raw molluscan shell fish should be aware that it should be cooked to assure safety.

Whole cuts shall be cooked:

(1) In an oven that is preheated to the temperature specified for the roast's weight in the following chart and that is held at that temperature:

| Oven Type | Oven Temperature Based on Weight | |
|----------------------------|----------------------------------|-------------------------|
| | Less than 4.5 kg (10 lbs) | 4.5 kg (10 lbs) or more |
| Still dry | 177°C (350°F) or more | 121°C (250°F) or more |
| Convection | 163°C (325°F) or more | 121°C (250°F) or more |
| High Humidity ¹ | 121°C (250°F) or less | 121°C (250°F) or less |

¹ high humidity greater than 90% for at least 1 hour as measured in the cooking chamber or exit of the oven; or in a moisture-impermeable bag that provides 100% humidity.

And;

(2) As specified in the following chart, to heat all parts of the food to a temperature and for the holding time that corresponds to that temperature:

| Temperature °C(°F) | Time in Minutes | Temperature °C(°F) | Time in Seconds |
|--------------------|-----------------|--------------------|-----------------|
| 54.4 (130) | 112 | 62.8 (145) | 4 |
| 55.0 (131) | 89 | 63.9 (147) | 134 |
| 56.1 (133) | 56 | 65.0 (149) | 85 |
| 57.2 (135) | 36 | 66.1 (151) | 54 |
| 57.8 (136) | 28 | 67.2 (153) | 34 |
| 58.9 (138) | 18 | 68.3 (155) | 22 |
| 60.0 (140) | 12 | 69.4 (157) | 14 |
| 61.1 (142) | 8 | 70.0 (158) | 0 |
| 62.2 (144) | 5 | | |

APPENDIX C: Typical Food Allergies

Numerous incidents of allergic and sensitivity reactions to both domestic and imported foods are being reported to the Canadian Food Inspection Agency (CFIA). It is important to be aware of the potentially serious consequences of such adverse reactions and to develop strategies to prevent their occurrence.

Labelling of Foods Causing Allergies and Sensitivities

New allergen labelling regulations for most foods sold in Canada came into force in August 2012. The new labelling rules apply to the list of “priority allergens”, which have been identified as most likely to cause serious allergic reactions for Canadians. They will help Canadians who suffer from food allergies make more informed choices about the foods they buy.

A variety of foods contain ingredients that can cause adverse reactions in hypersensitive individuals. Most adverse food reactions are caused by the following priority allergens and their derivatives:

- **Peanuts**
- **Tree nuts** (almonds, Brazil nuts, cashews, hazelnuts [filberts], macadamia nuts, pecans, pinenuts, pistachios, walnuts)
- **Sesame seeds**
- **Milk**
- **Eggs**
- **Seafood (fish, crustaceans, (e.g. crab, crayfish, lobster, shrimp) and shellfish (e.g. clams, mussels, oysters, scallops)**
- **Soy**
- **Wheat**
- **Mustard**
- **Sulphite**

If these foods, or their derivatives, are not labelled or are incorrectly labelled, or if inadvertent carry-over occurs during manufacture, the results can be serious and sometimes fatal. Although this list represents the foods causing the most common and serious reactions, a wide variety of other foods have been reported to cause adverse reactions in certain individuals.

The Canadian Food and Drug Regulations require almost all prepackaged foods to have a complete list of ingredients and components (ingredients of ingredients). It is your responsibility to ensure that the foods you manufacture, import, sell or distribute are safe and meet the labelling requirements of this legislation. Therefore, the CFIA urges you to ensure that the above foods are included in the ingredient list on your labels when present as ingredients or components. To further assist consumers in making safe food choices, the CFIA encourages you to identify the plant source of ingredients, such as hydrolysed plant proteins, starches, modified starches and lecithin (e.g., hydrolysed soy protein, wheat starch, modified wheat starch, soy lecithin).

The CFIA recognizes the efforts by many members of the food industry to improve the accuracy of ingredient declarations and to implement controls to reduce carry-over of ingredients. As food safety is paramount to consumers, the food industry, and government, the CFIA also urges you to develop strategies, such as an allergen prevention plan, to manage the risks associated with those foods known to cause severe adverse reactions. Part of your strategy should include a thorough evaluation of your manufacturing and ingredient control procedures. It is also your responsibility to ensure that all prepackaged foods you import are fully and correctly labelled, and preferably are sourced from suppliers having an allergy prevention plan in place.

Undeclared ingredients may occur in foods as a result of:

- **carry-over** of product through incomplete cleaning of food contact surfaces and utensils, sometimes because of poor equipment design;
- **inappropriate use of rework** containing allergenic ingredients;
- **ingredient changes**, substitutions or additions not reflected on the label;
- **incorrect labels** put onto products;
- **incorrect or incomplete** list of ingredients;
- **unknown ingredients in raw materials**;
- **misrepresentation of common names** to describe products/ingredients (e.g. mandelonas for reformed, reflavoured peanut);
- **labelling exemptions** under the *Food and Drug Regulations*.

Prevention Notes for Consumers and Restaurant Staff

Should consumers who have food allergies and/or who are the parents of children who have food allergies wish to purchase products that are not supplier packaged and/or do not carry an ingredient list, it is suggested that they request a copy of the ingredient list or recipe. Should they have any doubts, it is recommended that they review the ingredient list or recipe with their physician prior to purchasing such a product.

To receive more information about allergens in the food service sector, please contact:

Restaurants Canada

Telephone: 416-923-8416

Toll-free: 1-800-387-5649

Fax: 416-923-1450

Website: www.restaurantscanada.org/en/

Anaphylaxis Canada

Telephone: 416-785-5666

Toll-free 1-866-785-5660

Fax: 416-785-0458

Website: www.anaphylaxis.ca

APPENDIX D: Recall Manuals

Recall procedure: A guide for food businesses

Canadian Food Inspection Agency

<https://www.inspection.gc.ca/recall-procedure/eng/1535516097375/1535516168226>

APPENDIX E: Selected Information Sources

Antiseptic Skin Cleanser

http://webprod.hc-sc.gc.ca/nhpid-bdipsn/atReq.do?atid=antiseptic_antiseptique

The Benefits of Hand Washing

<http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/diseases-maladies/hands-mains-eng.php>

CFIA Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products

The Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products is a list of materials and non-food chemicals which have been found by the CFIA to be acceptable for use in establishments operating under the authority of the Agency.

Although the Reference Listing of Accepted Construction Materials, Packaging Materials and Non-food Chemical Products is still posted on the Canadian Food Inspection Agency website, it is no longer maintained or updated by the Agency. So, any new material intended to be used in food premises are subjected to an assessment performed by the Bureau of Chemical Safety from Health Canada which may issue a letter of no objection (LONO).

The reference listing will continue to be available on the CFIA website as a reference only.

<https://food-nutrition.canada.ca/food-safety/referencelist/index-en.php>

Compositional Standards for Meat Products

The Meat Inspection Regulations of the Canada Meat Inspection Act contain precise information concerning compositional standards for meat products ranging from ground meat and sausage to stews, dinners and shortening. See Schedule 1.

Website: <http://laws-lois.justice.gc.ca/eng/regulations/sor-90-288/index.html>

Consumer Packaging and Labelling Act and Regulations

Act: <http://laws-lois.justice.gc.ca/PDF/C-38.pdf>

Regulations: <http://lois-laws.justice.gc.ca/PDF/C.R.C., c. 417.pdf>

Food and Drugs Act and Regulations

Act: <http://laws-lois.justice.gc.ca/PDF/F-27.pdf>

Regulations: <http://laws-lois.justice.gc.ca/PDF/C.R.C., c. 870.pdf>

Guidance on Mandatory Labelling for Mechanically Tenderized Beef (MTB)

This guidance document is intended to provide information to the food industry on the labelling requirements for MTB sold in Canada.

<https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/guidance-documents/guidance-mandatory-labelling-mechanically-tenderized-beef.html>

Guide for Preparing Food Processing Aid Submissions

<http://www.hc-sc.gc.ca/fn-an/legislation/guide-ld/guide-fpa-ata-eng.php>

Guidelines for Canadian Drinking Water Quality

The Guidelines for Canadian Drinking Water Quality are established by the Federal-Provincial-Territorial Committee on Drinking Water (CDW) and published by Health Canada.

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/water-quality/drinking-water/canadian-drinking-water-guidelines.html>

Guidelines for Incidental Additive Submissions

These guidelines have been prepared to assist manufacturers in the preparation of submissions to the Bureau of Chemical Safety (BCS), Food Directorate, Health Products and Food Branch, Health Canada, respecting the acceptability of incidental additive products intended for use in food processing plants, under the authority of the *Food and Drugs Act and Regulations*.

http://www.hc-sc.gc.ca/fn-an/legislation/guide-ld/guide_incidental_addit_indirects-eng.php

Health Canada Decision Making Framework for Identifying, Assessing and Managing Health Risks – August 1, 2000

http://www.hc-sc.gc.ca/ahc-asc/pubs/hpfb-dgpsa/risk-risques_tc-tm-eng.php

Model Guideline for Food Safety in Food Banks

This guideline is a revision of an original document prepared in Saskatchewan in 1992 which was provided to the Federal/Provincial/Territorial Committee on Food Safety Policy (FPTCFSP). It has been subsequently reformatted and altered by the FPTCFSP. It has received national review from community food providers (food banks), Environmental Health Officers throughout the country and all levels of government.

http://www.hc-sc.gc.ca/fn-an/legislation/guide-ld/food_bank-banque_alimentaire01-eng.php

National Sanitation Foundation (NSF) Standards

NSF International (formerly the National Sanitation Foundation) maintains a comprehensive listing of standards for food equipment, from food carts to dispensing freezers, dinnerware to dishwashers.

Publications are for sale.

NSF International

Tel: 734-769-8010

Toll-free: 800-NSF-MARK

Fax: 734-669-0109
Email: info@nsf.org
Website: www.nsf.com

Packaging Materials

<http://www.hc-sc.gc.ca/fn-an/securit/packag-emball/index-eng.php>

Pesticide Product Information Database

The Pesticide Product Information Database was developed to allow interested members of the public to browse information on specific products, active ingredients, or programs related to pesticides that are regulated by Health Canada.

<http://www.hc-sc.gc.ca/cps-spc/pest/part/protect-proteger/publi-regist/index-eng.php#ppid>

Reference Manual for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations

http://www.hc-sc.gc.ca/ewh-semt/pubs/occup-travail/ref_man/ref_manual_index-eng.php

Risk Categorization Model for Food Retail / Food Service Establishments

The purpose of the Risk Categorization Model (RCM) is to provide a risk management tool that will allow food regulatory authorities to provide a consistent approach to inspection planning and resource allocation, giving greater attention to higher risk establishments and therefore improving public health protection through food safety.

<https://www.canada.ca/en/health-canada/corporate/about-health-canada/reports-publications/health-products-food-branch/risk-categorization-model-food-retail-food-service-establishments-second-edition.html>

Safe internal cooking temperatures

Using a food thermometer, chart of safe internal cooking temperatures, recommended storage times

<https://www.canada.ca/en/health-canada/services/general-food-safety-tips/safe-internal-cooking-temperatures.html#s1>

Smoked Fish: Storage Conditions

The purpose of this information is to advise all firms that manufacture, distribute or retail smoked fish products that are sealed to exclude air of the requirements of Division B.21.025 of the Food and Drug Regulations. CFIA Bulletin: Smoked fish, Storage Conditions

<https://www.inspection.gc.ca/food-safety-for-industry/archived-food-guidance/retail-food/information-bulletins/smoked-fish/eng/1331662809395/1331662880980>

Safe Food Storage

<https://www.canada.ca/en/health-canada/services/general-food-safety-tips/safe-food-storage.html>

Health Guidelines for Bottled Water and Packaged Ice Facilities

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I. INTRODUCTION

Purpose

Bottled water and packaged ice are considered food products and, as such, are regulated under the Public Health Act – Food Regulation AR 31/2006. The purpose of this guideline is to set minimum requirements to ensure that bottled water and packaged ice products are processed, packaged, shipped and stored in a safe and sanitary manner.

Scope

This document applies to all facilities processing and/or packaging water or ice for human consumption.

Approval of a facility

All bottled water and packaged ice facilities are required to obtain a food handling permit and approval to operate from the regional health authority. This document will be used as the principle guideline in conjunction with the Alberta Food Regulation AR 31/2006 when reviewing an application for a bottled water or packaged ice facility.

II. DEFINITIONS

| | |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bottled Water | Means water that is sealed in containers, or other single or multi-use containers and intended for human consumption. |
| Bottled Water Facility | Means any place or establishment in which bottled water is prepared, processed, or packaged. |
| Equipment | Means any item or apparatus used in the preparation, processing, serving, dispensing or storage of bottled water or packaged ice; |
| Packaged Ice | Means water in a frozen state that is sealed in a container or package and intended for human consumption. |
| Packaged Ice Facility | Means any place or establishment in which ice is prepared, processed and packaged. |
| Facility Operator | Means any person who owns or operates a bottled water or packaged ice facility. |
| Sanitize | Means to treat by a process which destroys most microorganisms, including all pathogens. |
| Utensil | Means equipment that is used in the preparation, processing, service, storage, and dispensing of bottled water or packaged ice, but does not include tabletops, counter tops or similar working surfaces. |

III. OPERATIONAL REQUIREMENTS

Premises

1. No person shall operate a Bottled Water Facility or Packaged Ice Facility without first obtaining a food handling permit from the regional health authority.
2. Bottled water and packaged ice facilities shall be entirely separate from any areas used for living, sleeping, dining, or other activities that may compromise the safe and sanitary processing of bottled water and packaged ice.
3. The facilities shall be maintained in good repair at all times.
4. Floors, walls and ceilings in the work area(s) of the facility shall be constructed of materials that are durable, non-absorbent and are easy to wash and sanitize.
5. The facilities shall be equipped with effective screening and tight fitting closures to prevent the entry of insects and rodents.
6. Sufficient and effective lighting shall be provided in all work areas. Light bulbs, fixtures, skylights, or other glass fixtures suspended over processing areas shall be shielded or of a type that, in the event of breakage, will prevent the scattering of broken glass onto water, ice or equipment.
7. Work surfaces shall be smooth, impervious and able to withstand regular wet washings and sanitizing.
8. The plumbing and drainage systems within the facility shall be clear of any potential means of back-syphonage or cross contamination and maintained in proper operating condition.
9. Sufficient storage space shall be provided for the storage of supplies and be kept free of items that may interfere or otherwise compromise the safe and sanitary processing of bottled water and/or packaged ice.

Water Supply

10. Facility operator(s) are responsible for ensuring that the final products are tested according to the following prescribed criteria:
 - a) monthly, for microbiological parameters;
 - b) annually, for chemical parameters, or
 - c) as required by the Executive Officer of the Regional Health Authority.

Note: The testing as described above must be carried out by trained technical personnel using standard operating procedures or by an accredited laboratory.

11. All bottled water and packaged ice shall not exceed the microbiological parameters as outlined in Division 12 of the Food and Drugs Act and Regulations. (please see Appendix 1)
12. Records of all sample test results shall be retained for one year and available for review by an Executive Officer of the Regional Health Authority.
13. Satisfactory sample results of final products shall be a prerequisite requirement to receiving a Food Establishment Permit.

Equipment

14. All equipment and utensils used in facility production areas shall be easily cleaned, maintained in good repair and stored in a sanitary manner. Materials used on contact surfaces shall be smooth, non-toxic and non-absorbent.
15. Contact surfaces, including storage bins, conveyors, packaging equipment and hand utensils shall be kept clean and in good repair. All contact surfaces shall be cleaned and sanitized as often as necessary to insure that no contamination of the product occurs.
16. Equipment lubricants shall not contaminate the product and lubricants shall be safe for food use.
17. All portable equipment, utensils and bottle caps shall be maintained in a clean and sanitary condition and protected from contamination.
18. Equipment or utensils that may contact the floor or are otherwise subjected to contamination shall be thoroughly cleaned and sanitized before re-use.
19. Equipment and utensils used in the facility shall be free of corrosion.
20. Bottles and/or containers shall be:
 - a) safe for food use;
 - b) washed and sanitized prior to being used;
 - c) stored in a clean and well maintained area, and
 - d) transported in clean vehicles once filled.

Note: The process for item (b), above, shall include a detergent wash, a clear rinse, and a final sanitizing rinse, either in an automated system or a manual, three-compartment

system. Chemicals used for sanitizing or disinfecting should be used in accordance with the manufacturer's instruction and are listed in the "*Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products*" published by Agriculture and Agri-Food Canada or the manufacturer has "a letter of no objection" from Health Canada. Some of these are identified by a drug identification number (DIN) located on the label.

<https://www.canada.ca/en/health-canada/services/drugs-health-products/drug-products/fact-sheets/drug-identification-number.html>.

21. Fill nozzles shall be sanitized prior to each production run or as often as necessary to ensure that potential for product contamination is minimized.

Personnel

22. Unauthorized persons shall not be allowed in any area of the facility where production is occurring.
23. All persons, while working on production shall be clean in their person, free from communicable disease, wear clean clothing and footwear, refrain from smoking, and keep their hair effectively under control.

General Practices

24. Handwashing signs should be strategically posted throughout the facility.
25. A procedure for effective and expedient product recall shall be maintained (see example in Appendix 2)
26. A detailed written cleaning and sanitizing schedule shall be maintained and followed.
27. Proper labeling falls within the Food and Drugs Act and Regulations; the Consumer Packaging and Labeling Act and Regulations; and the Guide to Food Labeling and Advertising, administered by the Canadian Food Inspection Agency. (see example in Appendix 3)
28. A generic process flow is included for reference. (Appendix 4)
29. Water dispenser/cooler maintenance guidelines. (Appendix 5)

APPENDIX F-1 Division 12 – excerpt from the Food and Drugs Regulation (in part)

DIVISION 12

PREPACKAGED WATER AND ICE

[SOR/80-633, s. 1]

Bottled water

Water represented as mineral water or spring water,

- shall not contain any coliform bacteria,

No person shall sell water in sealed containers, other than water represented as mineral water or spring water, if it contains,

- any coliform bacteria,
- more than 100 total aerobic bacteria per millilitre,

Packaged Ice

No person shall sell prepackaged ice if it contains

- any coliform bacteria

APPENDIX F-2 RECOMMENDED RECALL PLAN

Rationale:

Product recall is an effective method of removing products from the market place that are identified as presenting a potential health hazard to consumers. This action is typically taken on a voluntary basis by the producer or distributor or as an order of the Regional Health Authority or other legislative authority.

Methodology:

To facilitate the implementation of a product recall or advisory, each container shall be marked to identify the manufacturer and the lot number. The lot number is an identifier of units produced under identical conditions. It includes the date/time of production and other processing data that allows the product to be effectively distinguished from other manufactured and distribution lots. The facility operator shall maintain records of lot numbers and their distribution (i.e. to whom the various lot numbers were sold).

To facilitate the prompt recall of a product, a written plan is required. The plan should include:

- Person or persons responsible,
- Means of implementing a recall,
- How to determine the extent of the recall,
- Means of notifying affected customers, and
- Control measures for securing the returned product.

This could include customer lists, distribution, contact persons (with phone numbers), and location of distribution.

APPENDIX F-3 EXAMPLE OF GENERAL LABELING REQUIREMENTS – excerpt from Division 12, Food and Drugs Regulation - Canadian Food Inspection Agency (for information only)

The principal display panel of the label on a container of water represented as mineral water or spring water shall carry a statement

- (a)) of the geographical location of the underground source from which it is obtained;
- (b)) of the total dissolved mineral salt content expressed in parts per million;
- (c)) of the total fluoride ion content expressed in parts per million; and
- (d)) of any addition of fluoride or ozone thereto.

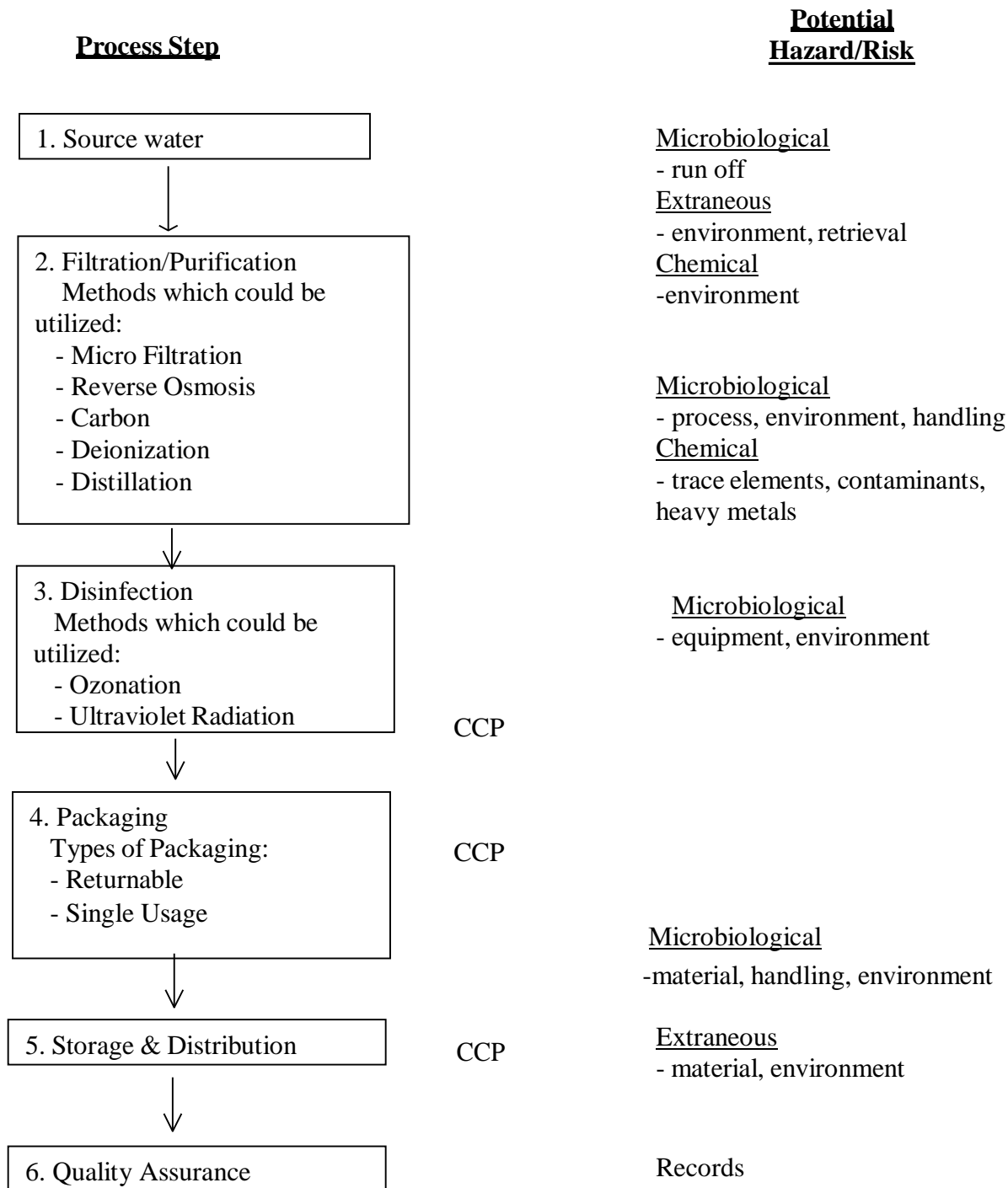
A statement of the total fluoride ion content expressed in parts per million shall appear on the principal display panel of the label on a sealed container of water, other than water represented as mineral water or spring water and on the label on a container of prepackaged ice.

The label on a sealed container of water, other than water represented as mineral water or spring water, shall bear a description on its principal display panel of any treatment the water has undergone (*ie. demineralized water by reverse osmosis*) with the exception of the following:

- (a) the addition of an ingredient declared in the list of ingredients;
- (b) chlorination followed by the removal of the agent used for the chlorination together with any chlorine and compounds of chlorine produced in the water;
- (c) decantation; and
- (d) filtration.

This specific label typesetting is a requirement of the CFIA.

APPENDIX F-4 Generic Process Flow Bottled Water



APPENDIX F-5 WATER DISPENSER/COOLER MAINTENANCE GUIDELINES

1. Customers and clients of water dispenser and cooler units shall be provided with a maintenance guide which should include the following minimum cleaning and sanitizing procedures:
 - a) Maintain the area around the cooler in a clean condition.
 - b) Do not use sprays or mists around the cooler.
 - c) Store full bottles in a clean, dust-free area.
 - d) When changing bottles, wash your hands, clean and sanitize cooler bottle seat and the neck of the full bottle. (Ensure that hands do not come into contact with the neck or top of the bottle).
 - e) Refilling instructions:
 - I. Unplug the unit and remove the bottle.
 - II. Drain reservoir and fill it with the sanitizing solution (see below).
 - III. Let stand for 2 minutes.
 - IV. Drain through faucets.
 - V. Wipe down exterior components of cooler with bleach solution.
 - VI. Place new bottle on cooler and plug in.
 - f) Sanitize cooler units routinely (suggested once every 3 months).
 - g) Regularly clean drip tray by washing tray and screen in mild detergent; rinse well.

Sanitizing Solution:

An effective sanitizing solution can be made using the following concentrations of water and household bleach.

- ◆ 14mL (1Tbsp, ½ oz) chlorine (ie household bleach) in 4.5L (1 imp. gallon) of water, or
- ◆ 2mL (½ tsp.) of chlorine (ie. household bleach) in one litre of water.

Note: These examples are approximations based on 5% available chlorine or household bleach). Other disinfecting solutions may be suitable. Check with your water cooler supplier.

2. Maintenance of hot and cold water dispensers should follow special manufacturer instructions.

APPENDIX G: Bed and Breakfast Food Protection Guidelines

1. An adequate supply of hot and cold potable water shall be provided. A private source of drinking water shall be subject to the approval of the Regional Health Authority and tested annually.
2. All food preparation surfaces shall be smooth, impervious to moisture and easily cleanable.
3. All food must come from an approved/inspected source. The use of home-canned food, with the exception of fruit jams, jellies, pickles, is prohibited.
4. All foods are to be protected from contamination.
5. Perishable foods or potentially hazardous foods must be kept refrigerated at a temperature of 4°C(40°F) or lower or held at 60°C(140°F) or greater. The Bed and Breakfast operator shall keep a food grade thermometer in the refrigerator(s) to monitor the temperature.
6. All frozen food items must be stored at a temperature of -18°C(0°F)
7. Once served to a guest, open portions of leftover food must not be reused.
8. All utensils (dishes, silverware, etc.) must be stored in a clean and sanitary condition.
9. All reusable utensils are to be effectively cleaned and sanitized by using one of the following methods:
 - (a) A manual three-compartment sink procedure, or
For example:
If your kitchen has only a two-compartment sink, either refilling the second sink with a sanitizing solution after rinsing or using a tub or basin with a sanitizing solution can incorporate the three-compartment method. This can be discussed with your Public Health Inspector.
 - (b) An approved commercial dishwasher, or
 - (c) A domestic or home-style dishwasher provided the following criteria are met and have been approved by the local Public Health Inspector.
 - i. The dishwasher must effectively remove physical soil from all surfaces of dishes,
 - ii. The dishwasher must sanitize the dishes. ie. by the application of sufficient

- accumulative heat (sani cycle) or by the addition of chemical sanitizer and
 - iii. The dishwasher must be installed and operated according to the manufacturer's instructions for the highest level of sanitization possible.
10. Pets may be present on the premises, but must be kept out of preparation and dining areas during food preparation and serving for the guests.
 11. Where laundry facilities are not physically separated from the kitchen, soiled laundry shall not be stored or processed during food preparation and service.
 12. A food handler while engaged in food handling shall:
 - a) be clean in his person,
 - b) be free from infected sores or wounds,
 - c) wear only clean clothing,
 - d) refrain from smoking or chewing tobacco, and
 - e) keep his hair effectively under control.
 13. It is recommended that the food handler complete a FOOD SANITATION AND HYGIENE training course.
 14. A food handler must exhibit cleanliness and good personal hygiene.
 15. Soap and paper towels shall be provided at the kitchen sink.
 16. The residential kitchen should be restricted to cooking staff only during food preparation and service.

APPENDIX H: Meat Facility Standards - Establishment: Design and Maintenance

1. Plans for all new construction, whether it be for new meat facilities or renovation of existing meat facilities, shall be submitted to the appropriate ministry (ie. AAFRD, Regional Health Authority).
2. Plans submitted shall include:
 - layout of facility;
 - equipment in the facility;
 - sewer/water provisions;
 - lighting;
 - surface finishes;
 - product/personnel flow;
 - sanitation program.
3. Walls and ceilings are made of waterproof, non-absorbent, washable materials. Where appropriate, angles between walls, between walls and floors, between walls and ceilings should be sealed and coved for easy cleaning and sanitation.
4. Floors are constructed of waterproof, non-absorbent, washable and non-slip materials which are easy to clean and sanitize. Floors should be sloped for sufficient drainage of liquids and each processing area is provided with sufficient drains to prevent water accumulation.
5. The plumbing system and the sanitary drainage system or private sewage disposal system, as the case may be, including drains, fixtures, stacks, traps, vents, waste disposal facilities, pump-out tanks and septic tanks, are maintained in proper operating condition and free from defects.
6. Lighting systems in the meat facility are capable of providing lighting adequate for the purposes of the facility, do not alter food color and are maintained in operating condition.
7. Lighting fixtures are located and are of safety type or protected to prevent contamination of food in case of breakage.
8. A supply of hot and cold potable water sufficient to meet the needs of the meat facility is available.
9. Handwashing stations adequate in number and location shall be available to ensure convenient access to all employees. Sinks must be supplied with hot and cold running water, soap, hot air dryers or single service paper towels and a waste bin.
10. The meat facility must be equipped with appropriate equipment for cleaning and sanitation.

(i.e. a high pressure washer for cleaning and sanitizing the premise and large equipment, and a two compartment sink for cleaning and sanitizing smaller equipment.)

11. Depending on the operation, adequate facilities are available for heating, cooking, cooling and freezing and for storing refrigerated or frozen meat and meat products. Temperature monitoring equipment is a requirement (e.g. thermometers). Temperature for coolers shall be less than 4°C (40°F). Temperature for freezers shall be less than -18°C (0°F).
12. Adequate facilities for the storage of food, ingredients and non-food chemicals (e.g. cleaning materials) should be provided.
13. Windows and other openings should be constructed to permit easy cleaning and those which are open should be fitted with screens to prevent the entry of pests.
14. Doors should have smooth, non-absorbent surfaces and be close fitting.
15. Overhead structures and fittings are installed and maintained in a manner that avoids direct or indirect contamination of meat and meat products by condensation, drip and dirt. They also should not interfere with cleaning and sanitation.
16. Ventilation is provided to prevent excessive heat, steam condensation and dust and to remove contaminated air. The direction of airflow is never from a dirty area to a clean area. Ventilation openings are screened or protected to prevent entry of pests. Screens are easily removable for cleaning.
17. Adequate and conveniently located employee facilities are to be are provided. These areas should be well lit and ventilated; and located and built in a manner to prevent cross contamination between these facilities and meat processing areas (e.g. washrooms must not open directly onto processing areas). Adequate facilities for washing, sanitizing and drying hands must be provided.
18. The water supply shall be potable, with characteristics within limits recommended in the latest edition of "Guidelines for Canadian Drinking Water Quality" published by Health Canada.
19. All water storage facilities need to be maintained, cleaned and sanitized on a regular basis to prevent contamination of water.
20. Surrounding areas under the establishment's control are properly maintained to control the entry of dust, run off and other potential sources of contamination to the manufacturing/processing area.

Equipment: Design and Maintenance

Objective:

The equipment used in the manufacture of food shall be designed, constructed, maintained, operated and arranged in a manner that:

- permits the effective cleaning of its surfaces;
- prevents contamination of the food; and
- permits it to function in accordance with its intended use.

Rationale:

The purpose of these requirements is to prevent the contamination of food by microorganisms, dust and foreign material such as rust, lubricant and parts coming from the equipment. In addition, this is to prevent cross-contamination with other food, which may be of concern to people with food allergies. Poor design and construction may result in equipment that is difficult to clean and requires a higher degree of maintenance. Contamination problems may also arise from poor maintenance, misuse of equipment, exceeding the capacity of the equipment, use of worn-out equipment and improper modification of equipment.

Equipment arranged in an orderly manner permits cleaning of adjacent areas, does not interfere with other processing operations and minimizes cross-tracking by personnel.

1. Equipment is designed, constructed and installed to ensure that it is capable of delivering the requirements of the manufacturing process.
2. Food contact surfaces of equipment and utensils are smooth, non-corrosive, non-absorbent, non-toxic, free from pitting, cracks or crevices.
3. All equipment and utensils are designed, constructed and installed to permit adequate cleaning and sanitizing.

Examples of coatings, paints, chemicals, lubricants and other material used for food contact surfaces or equipment are listed in the "Reference Listing of Accepted Construction, Packaging Materials and Non-Food Chemical Agents", published by the Canadian Food Inspection Agency (CFIA).

4. Procedures are in place for maintenance and calibration of equipment that could have an impact on food safety.
5. Climate control spaces (e.g. freezers, refrigerators, smoke houses, curing and drying rooms, etc.) are equipped with appropriate measurement or recording devices (e.g. temperature, humidity, air flow, etc.).

6. Containers for inedible material and waste are leak-proof, easily distinguishable from other containers, constructed of an impervious material, which is easy to clean or disposable and, where appropriate, can be closed securely.
7. Equipment and utensils used for inedible material or wastes are identified as such and are not used for edible material.

Establishment: Sanitation and Pest Control

Appendices

January 2003

Objective:

To establish effective sanitation and pest control programs ensuring

- proper cleaning and sanitation of facilities, equipment and utensils;
- control of pests; and
- effective monitoring of cleaning and sanitation procedures.

Rationale:

Sanitation and pest control in a meat processing facility directly influences the safety and quality of meat and meat products. Production of safe high quality products requires that they be produced in equipment and in an area that is free from environmental and microbiological contamination. Sanitation and pest control programs, written, practiced and monitored, provide assurance that levels of cleanliness and sanitation are maintained.

1. Written sanitation and pest control programs are to be developed, implemented, maintained and reviewed periodically and should contain procedures for:
 - cleaning requirements for the facility, processing and storage areas; including coolers, floors, walls, cooling units;
 - cleaning requirements for equipment and utensils;
 - method of cleaning;
 - frequency of cleaning;
 - cleaning and sanitation agents, their concentrations and equipment to be used;
 - method of pest control;
 - chemicals, their concentration and frequency of application;
 - where applicable, the name of the pest control company or individual contracted for the pest control program;
 - the personnel responsible for carrying out sanitation and pest control programs.
2. All approved cleaning and sanitizing chemicals must be used in accordance with the manufacturer's instructions, examples are listed in the "Reference Listing of Accepted Construction, Packaging Materials and Non-Food Chemical Agents", published by the Canadian Food Inspection Agency (CFIA).
3. Pesticides used are registered under the Agriculture and Agri-Food Canada, *Pest Control Product Act and Regulations* and "Reference Listing of Accepted Construction, Packaging Materials and Non-Food Chemical Agents", published by CFIA.
4. Cleaning and sanitation programs should be in place to ensure that all areas, equipment and utensils are cleaned and sanitized on a daily basis.
5. Buildings should be kept in good repair. Cracks and crevices, drains and other places where pests are likely to gain access should be kept sealed.
6. Suitable provision must be made for the removal and storage of waste.

Training**Objectives:**

To ensure that those who come directly or indirectly into contact with food are not likely to contaminate food by:

- maintaining an appropriate degree of personal cleanliness and hygiene; and
- following proper food handling practices

Rationale:

People, who do not maintain an appropriate degree of personal cleanliness, have certain illnesses or conditions or behave inappropriately, may contaminate food and transmit illness to consumers.

To prevent food contamination and transmission of disease to consumers:

1. Food handlers should maintain personal cleanliness, wear suitable protective clothing, hair restraints and footwear. Protective clothing, aprons and gloves should be cleaned frequently and maintained in a good state of repair.
2. Food handlers engaged in food handling activities should refrain from behavior (e.g. smoking, spitting, chewing or eating) which could result in contamination of food.
3. All removable jewelry should be removed prior to working and personal effects and clothing should not be kept in food handling areas.
4. Personnel should always wash their hands when personal cleanliness may affect food safety, for example:
 - at the start of food handling activities;
 - immediately after using the toilet;
 - after handling raw food or any contaminated material, where this could result in contamination of other food items;
 - after sneezing or picking items off the floor.

Objective:

To provide individuals handling meat and meat products with appropriate training and to establish an understanding of the importance of proper food handling practices and manufacturing controls to ensure production of safe meat products.

Rationale:

Training in food handling and manufacturing controls is fundamentally important to any meat-processing establishment. It is important that personnel employed in the production of meat products understand their duties relative to food safety. Inadequate training and supervision of all people involved in meat production and handling poses a threat to the safety of meat products and to the health of the consumer.

Transportation and Storage

Objectives:

Measures should be taken to ensure that meat and meat products are transported or stored under conditions that:

- protect meat from potential sources of contamination;
- protect meat from damage likely to render the meat unusable for consumption; and
- provide an environment which effectively controls the growth of pathogenic or spoilage microorganisms and the production of toxins in meat and meat products.

Rationale:

Meat may become contaminated, or may not reach its destination in a suitable condition for consumption, unless effective control measures are taken during transport even where adequate hygiene control measures have been taken earlier in the food chain.

1. Adequate sanitation of the storage premises and of the transportation vehicle is practiced to prevent contamination of meat products with any chemical, microbiological or foreign material hazards.
2. Meat and meat products, stored and distributed, refrigerated or frozen, are continuously kept at the required temperatures to prevent growth of microorganisms. The temperature of storage and transportation for refrigerated and/or frozen products is monitored.
3. Meat and meat products are stored and transported in a manner that minimizes physical damage to packaging and protects the food product from conditions which may cause product contamination.
4. Transportation of meat products takes place in carriers dedicated to food use only. In instances where dual use of carriers may be practiced, procedures are in place to restrict the type of non-food loads to those that do not pose a risk to food loads in the same shipment or to subsequent food loads after acceptable cleaning.
5. There are procedures in place to verify that the shipment of ingredients or meat and meat products was stored and transported in accordance with these regulations prior to its receipt.
6. Provide effective protection from contamination, including dust and fumes.
7. Inspected and uninspected meat must be separated to prevent cross-contamination.

Manufacturing Controls

Objectives:

Individuals handling or processing meat and meat products shall establish procedures to ensure that products are handled/processed in such a manner that does not pose a risk to human health, including:

- documentation of handling/processing procedures;
- controls and monitoring required to ensure product safety;
- documentation to show that control procedures were achieved; and
- verification that these procedures are complete and effective.

Rationale:

It is more effective to ensure product safety by implementing process controls than by testing the finished product. Incorporation and adherence to processing controls enhance product safety.

1. Procedures for handling/processing of meat and meat products should be based on potential food safety hazard(s) associated with ingredients, processing steps and the finished product. These hazards could be of a microbiological, chemical or physical nature.
2. Procedures should identify:
 - hazards requiring control;
 - where these hazards will be controlled;
 - the criteria that need to be met to control the hazards;
 - procedures for monitoring criteria, including record keeping;
 - what action will be taken if the criteria are not met;
 - verification that food safety hazards are controlled.

Recalls for processors

Objectives:

Manufacturers and distributors of meat and meat products, whose products are entering the retail/wholesale market, shall have in place a method to effectively recall any lot of product posing a risk to human health, including:

- a product coding system, permanent legible code or lot numbers on package;
- product distribution records and retention of these records for at least one year after expiration date or "Best Before" date, or if there is no expiration date two years after the product was released for sale
- notification of Health Canada and Regional Health Authority if a recall is initiated.

Rationale:

A recall is an effective method of removing products from the market when they pose a health hazard to consumers. A product coding system and a product distribution list are essential for identifying products that represent risks to health and their effective removal from the market place.

1. A recall procedure should ensure that the recall of meat and meat products is efficient and can be put into practice at any time. A recall plan should include:
 - person(s) responsible for recall (names, phone numbers);
 - how the recall is to be coordinated and implemented;
 - means of notifying affected customers;
 - means of locating and controlling recalled product;
 - way of assessing the progress and efficiency of the recall.
2. Each prepackaged product should have permanent, legible code markings or lot numbers on the package. The code should identify the meat facility, the day, month and year the product was produced or packaged.
3. Ability to show that all affected product has been identified and removed from the market place. This can be shown by:
 - records of customer names, addresses, phone numbers;
 - records of production, inventory and distribution by lot;
 - verifying that all affected product has been accounted for, based on production, inventory and distribution records.
4. Distribution records should contain the following information:
 - product identification and amount;
 - code or lot number;
 - quantity;
 - customer names, addresses, phone numbers to the initial level of product distribution.

5. If a recall is initiated, notification to CFIA and the Regional Health Authority is required with the following information:

- product name, code markings or lot numbers;
- total quantity of recalled product produced;
- total quantity of recalled product distributed up to this time;
- where recalled product has been distributed;
- quantity of product the customer still has in their possession;
- reason for recall.