

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 establishment 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 Solid Waste Disposal

- a) Sewage disposal systems must meet all local or provincial/territorial requirements.
- b) Disposal of sewage and solid wastes should be done in a sanitary manner that does not expose the food establishment or food products to potential contamination.
- c) Solid waste 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) Garbage storage rooms and containers should be emptied, cleaned and sanitized as often as necessary.
- e) Solid waste 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 food establishment, except those defined as a Bed and Breakfast or permitted as a country vacation.
- b) Living or sleeping quarters located adjacent to a 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 Vendors

For a variety of reasons, temporary food establishment, mobile food vending operations 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 4⁰C (40⁰F) 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 60⁰C (140⁰F) 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 Vendors

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 vending cart should refrain from smoking in or around the food preparation area.
- c) The cart 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 vendors shall be adequately ventilated to prevent the accumulation of smoke, condensation and odours.
- f) Vending carts shall be constructed of durable materials, and be designed with smooth impervious surfaces for easy cleaning.

Rationale

Because mobile vendors 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 vendors 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 vendors outlined in Section 2.18.2 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) Means shall be provided to protect the food from contamination from the elements 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.

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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-syphonage 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.