

**CODE OF HYGIENIC PRACTICE FOR PRECOOKED
AND COOKED FOODS IN MASS CATERING**

CAC/RCP 39-1993¹

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¹ The Code of Hygienic Practice for Precooked and Cooked Foods in Mass Catering was adopted by the Codex Alimentarius Commission at its 20th Session in 1993. The Code has been sent to all Member Nations and Associated Members of FAO and WHO as an advisory text, and it is for individual governments to decide what use they wish to make of it. The Commission has expressed the view that codes of practice might provide useful checklists of requirements for national food control or enforcement authorities.

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AND COOKED FOODS IN MASS CATERING**

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EXPLANATORY PREFACE

- A. This Code has, as far as possible, been made consistent with the format and content of the General Principles of Food Hygiene.
- B. The need for this Code is based on the following considerations:
1. Epidemiological data show that many outbreaks of food poisoning are caused by food produced in mass catering.
 2. Large-scale catering operations are particularly hazardous because of the way the food is stored and handled.
 3. Outbreaks can involve large numbers of people.
 4. Persons fed by mass catering are often especially vulnerable - for instance children, the elderly and hospital patients, especially those who are immuno-compromised.
- C. The Hazard Analysis Critical Control Point (HACCP) system has been applied to the Code.
- The HACCP System consists of:
1. An assessment of hazards associated with growing, harvesting, processing/manufacturing, marketing, preparation and/or use of a given raw material or food product.
 2. Determination of critical control points required to control any identified hazard(s).
 3. Establishment of procedures to monitor critical control points.
- The critical control points have been identified in the Code and explanatory notes describing the risk and giving the type and frequency of controls to be applied, have been inserted in connection with the relevant paragraphs. (CCP - Notes) WHO/ICMSF 1982. Report of the WHO/ICMSF Meeting on Hazard Analysis, Critical Control Point System in Food Hygiene. World Health Organization VPH 82/37, Geneva, and also the ICMSF handbook on the principles and application of HACCP).
- D. Properly trained inspectors and personnel and an adequate sanitary infrastructure are necessary in order to implement the Code satisfactorily.

SECTION I - SCOPE

1. This Code deals with the hygienic requirements for cooking raw foods and handling cooked and precooked foods intended for feeding large groups of people, such as children in schools, the elderly either in old peoples homes or by means of "meals on wheels", patients in nursing homes and hospitals, persons in prisons, schools and similar institutions. These categories of people are supplied as groups with the same types of foods. In this social type of mass catering the consumer has limited choice in the food, he or she eats.

This Code is not intended for industrial production of complete meals, but may give guidance on specific points to those who are involved. For reasons of simplicity, foods served raw to the consumer, are not included. This does not necessarily mean that these foods will not constitute a hazard to health.

2. The foods covered in this code are defined at Section II paragraphs 2.6.a and 2.6.b. The information in the following paragraphs refers only to precooked foods as defined at paragraphs 2.6.b: Paragraphs 4.3.14.2, 4.3.14.3, 4.3.19.2, 7.6, 7.7, 7.8, 7.9.4 and 7.9.5.

SECTION II - DEFINITIONS

2. For the purposes of this Code the following expressions have the meaning stated:

2.1 **Catering** - the preparation, storage and, where appropriate, delivery of food for consumption by the consumer at the place of preparation or at a satellite unit.

2.2 **Catering Establishment** - a kitchen where food is prepared or reheated for catering.

2.3 **Chilled Food** - product intended to be maintained at temperatures not exceeding 4°C in any part of the product and stored for no longer than five days.

2.4 **Cleaning** - the removal of soil, food residues, dust, grease or other objectionable matter.

2.5 **Contamination** - the occurrence of any objectionable matter in the product.

2.6 a) **Cooked Food** - foods cooked and kept hot or reheated and kept hot for serving to the consumer.

b) **Precooked Foods** - foods cooked, rapidly chilled and kept refrigerated or frozen.

2.7 **Disinfection** - the reduction, without adversely affecting the food by means of hygienically satisfactory chemical agents or physical methods, of the number of micro-organisms to a level that will not lead to harmful contamination of food.

2.8 **Establishment** - any building(s) or areas(s) in which food is handled after harvesting and the surroundings under the control of the same management.

2.9 **Food Handling** - any operation in the preparation, processing, cooking, packaging, storage, transport, distribution and service of food.

2.10 **Food Handler** - every person handling or coming into contact with food, or with any equipment or utensil used in food handling.

2.11 **Food Hygiene** - all measures necessary to ensure the safety, soundness and wholesomeness of food at all stages from its growth, production or manufacture until its final serving to individuals.

2.12 **Frozen Food** - product maintained at a temperature equal to or below -18°C in any part of the product.

2.13 **Lot** - a definitive quantity of a cooked or pre-cooked food produced under essentially the same conditions at the same time.

2.14 **Mass Catering** - the preparation, storage and/or delivery and serving of food to a large number of people.

- 2.15 **Packaging Material** - any containers such as cans, bottles, cartons, boxes, cases and sacks, or wrapping and covering material such as foil, film, metal, paper, wax-paper and cloth.
- 2.16 **Pests** - Insects, birds, rodents and any other animal capable of directly or indirectly contaminating food.
- 2.17 **Meal Assembly** - composing or placing food for one person in or on a suitable container, where it will be kept until delivery to the consumer.
- 2.18 **Portioning** - division of food before or after cooking into single or multiple portions.
- 2.19 **Potentially Hazardous Food** - food capable of supporting rapid and progressive growth of infectious or toxigenic microorganisms.

SECTION III - HYGIENE REQUIREMENTS IN PRODUCTION/HARVESTING AREA

Are not covered in this Code.

For raw material Requirements: See Section VII.

SECTION IV -(A) PRODUCTION OR PREPARATION ESTABLISHMENT: DESIGN AND FACILITIES

This section covers the areas where the food is prepared, cooked, chilled, frozen and stored.

- 4.1 **Location** - Establishments should be located in areas which are free from objectionable odours, smoke, dust or other contaminants and are not subject to flooding.
- 4.2 **Roadways and areas used by wheeled traffic** - Roadways and areas serving the establishment which are within its boundaries or in its immediate vicinity should have a hard paved surface suitable for wheeled traffic. There should be adequate drainage and provision should be made to allow for cleaning.
- 4.3 **Buildings and facilities**
- 4.3.1 Buildings and facilities should be of sound construction and maintained in good repair. All construction materials should be such that they do not transmit any undesirable substances to the food.
- 4.3.2 Adequate working space should be provided to allow for satisfactory performance of all operations.
- 4.3.3 Buildings and facilities should be designed to permit easy and adequate cleaning and to facilitate proper supervision of food hygiene.
- 4.3.4 Building and facilities should be designed to prevent the entrance and harbouring of pests and the entry of environmental contaminants such as smoke, dust, etc.

4.3.5 Buildings and facilities should be designed to provide separation, by partition, location or other effective means, between those operations which may cause cross contamination.

Note: Cross-contamination is an important factor that contributes to foodborne outbreaks. Food can be contaminated with harmful organisms after cooking sometimes from a food handler, and often directly or indirectly from raw food. Operations such as the cleaning and washing of vegetables, the washing up of equipment, utensils, crockery and cutlery, and the unpacking, storage or refrigeration of raw materials should be performed in separate rooms or locations especially designed for that purpose. Managers and food inspectors should regularly check that the separation principle is properly applied. (See also CCP-Note in 4.4.1)

4.3.6 Buildings and facilities should be designed to facilitate hygienic operations by means of a controlled and regulated flow in the process from the arrival of the raw material at the premises to the finished product, and should provide for appropriate temperature for the process and product.

4.3.7 In food handling areas:

- **Floors**, where appropriate, should be of waterproof, non-absorbent, washable, and non-slip materials without crevices, and should be easy to clean and disinfect. Where appropriate, floors should slope sufficiently for liquids to drain to trapped outlets.
- **Walls**, where appropriate, should be of waterproof, non-absorbent and washable sealed materials and should be light coloured. Up to a height appropriate for the operation they should be smooth and without crevices, and should be easy to clean and disinfect. Where appropriate, angles between walls, between walls and floors, and between walls and ceilings should be sealed and coved to facilitate cleaning.
- **Ceilings** should be designed, constructed and finished to prevent accumulation of dirt and minimize condensation, mould development and flaking, and should be easy to clean.
- **Windows** and other openings should be constructed to avoid accumulation of dirt and those which open should be fitted with insect-proof screens. Screens should be easily movable for cleaning and kept in good repair. Internal window sills, if present, should be sloped to prevent use as shelves.
- **Doors** should have smooth, non-absorbent surfaces and, be self-closing and close fitting.
- **Stairs, lift cages and auxiliary structures** such as platforms, ladders, chutes, should be situated and constructed to prevent contamination to food. Chutes should be constructed with inspection and cleaning hatches.

4.3.8 In food handling areas all overhead structures and fittings should be installed in a manner to avoid contamination directly or indirectly of food and raw materials by condensation and drip, and should not hamper cleaning operations. They should be insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and to minimize condensation, mould development and flaking. They should be easy to clean.

4.3.9 Living quarters, toilets and areas where animals are kept should be completely separated from and should not open directly into food handling areas.

4.3.10 Where appropriate, establishments should be designed so that access can be controlled.

4.3.11 The use of material which cannot be adequately cleaned and disinfected, such as wood, should be avoided unless its use would clearly not be a source of contamination.

4.3.12 **Water Supply**

4.3.12.1 An ample supply of water, in compliance with the WHO "Guidelines for Drinking Water Quality", under adequate pressure and of suitable temperature should be available with adequate facilities for its storage, where necessary, and distribution, and with adequate protection against contamination.

Note: Samples should be taken regularly, but the frequency should depend upon the origin and the usage of the water, e.g. more frequent from private supplies than from public supplies. Chlorine or other suitable disinfectants may be used. If chlorination has been employed checks should be made daily by chemical tests for available chlorine. The point of sampling should preferably be at the point of usage, but occasionally it would be useful to sample at the point of entry of the water to the establishment.

4.3.12.2 There should be a system to ensure an adequate supply of hot potable water.

4.3.12.3 **Ice** shall be made from potable water and should be manufactured, handled and stored so as to protect it from contamination.

4.3.12.4 **Steam** used in direct contact with food or food contact surfaces should contain no substance which may be hazardous to health or may contaminate the food.

4.3.12.5 **Non-potable water** used for steam production, refrigeration, fire control and other similar purposes not connected with food should be carried in completely separate lines, identifiable preferably by colour, and with no cross-connection with or back-siphonage into the system carrying potable water.

4.3.13 **Effluent and waste disposal.** Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in good order and repair. All effluent lines (including sewer systems) should be constructed to avoid contamination of potable water supplies. All wastepipes should be properly trapped and lead to a drain.

4.3.14 **Refrigeration**

4.3.14.1 Establishments should have refrigerating and/or freezing cabinets large enough to accommodate raw materials at adequate temperature in order to comply with the requirements of Section 7.1.4 and 7.1.5.

Note: Cross contamination of pathogens from raw commodities to prepared foods frequently occurs in the refrigerator. Therefore, raw foods, particularly meat, poultry, liquid egg products, fish and shellfish, must be strictly separated from prepared foods, preferably by the use of different refrigerators.

4.3.14.2 Establishments should have refrigerating and/or freezing cabinets or equipment (freeze tunnel) for chilling and/or freezing in order to comply with requirements of Sections 7.7 and 7.8.

Note: A specially designed rapid chilling system is desirable. Rapid chilling or freezing of large quantities of food requires proper equipment capable of extracting the heat rapidly from the largest quantity of food likely to be produced.

4.3.14.3 Establishments should also have refrigerating and/or freezing cabinets or equipment for chilled and/or frozen storage of prepared food corresponding to the maximum daily activity of the establishment and in order to comply with requirements of Sections 7.7 and 7.8.

4.3.14.4 All refrigerated spaces should be equipped with temperature measurement devices. Where appropriate the use of temperature recording devices is recommended. They should be clearly visible when used and should be placed in a manner to record the maximum temperature of the refrigerated space as accurately as possible. If possible cabinets for chilled and or/frozen storage of food should be equipped with temperature alarms.

Note: The accuracy of the temperature-recording devices should be checked at regular intervals and tested for accuracy against a standard thermometer of known accuracy. Such tests should be performed prior to installation, and at least once a year thereafter or more frequently as may be necessary to assure their accuracy. A dated record of such tests should be kept.

4.3.15 **Changing facilities and toilets**

Adequate, suitable, and conveniently located changing facilities and toilets should be provided in all establishments. Toilets should be designed to ensure hygienic removal of waste matter. These areas should be well lit, ventilated and appropriately heated and should not open directly on to food handling areas. Hand washing facilities with warm or hot and cold water, a suitable hand-cleaning preparation, and with suitable hygienic means of drying hands, should be provided adjacent to toilets and positioned so that the employee must pass them when returning to the processing area. Where hot and cold water are available mixing taps should be provided. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near to each washing facility. Taps of a non-hand operable type are desirable. Notices should be posted directing personnel to wash their hands after using the toilet.

4.3.16 **Hand washing facilities in processing areas**

Adequate and conveniently located facilities for hand washing and drying should be provided wherever the process demands. Where appropriate, facilities for hand disinfection should also be provided. Warm or hot and cold water and suitable hand-cleaning preparation should be provided. Where hot and cold water are available mixing taps should be provided. There should be suitable hygienic means of drying hands. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility. Taps of a non-hand operable type are preferable. The facilities should be furnished with properly trapped waste pipes leading to drains.

4.3.17 **Disinfection facilities**

Where appropriate adequate facilities for cleaning and disinfection of working implements and equipment should be provided. These facilities should be constructed of corrosion resistant materials, capable of being easily cleaned, and should be fitted with suitable means of supplying hot and cold water in sufficient quantities.

4.3.18 Lighting

Adequate natural or artificial lighting should be provided throughout the establishment. Where appropriate, the lighting should not alter colours and the intensity should not be less than:

- 540 lux (50 foot candles) at all food preparation and inspection points
- 220 lux (20 foot candles) in work rooms
- 110 lux (10 foot candles) in other areas.

Light bulbs and fixtures suspended over food materials in any stage of production should be of a safety type and protected to prevent contamination of food in case of breakage.

4.3.19 Ventilation

4.3.19.1 Adequate ventilation should be provided to prevent excessive build-up of heat, steam condensation and dust and to remove contaminated air. The direction of the air flow within the plant should never be from a dirty area to a clean area. Ventilation openings should be provided with a screen or other protecting enclosure of non-corrodible material. Screens should be easily removable for cleaning.

A device for effectively removing cooking steam and vapors should be installed above cooking units.

In rooms where food is being handled after chilling the temperature should not exceed 15°C. However, if the temperature of 15°C cannot be maintained, food being handled or prepared should be exposed to room temperature for as short a time as possible; ideally, 30 minutes or less. (see 7.6)

4.3.20 Facilities for storage of waste and inedible material

Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment. These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination of food, potable water, equipment, building or roadways on the premises.

4.4 Equipment and Utensils

4.4.1 Materials

All equipment and utensils used in food handling areas and which may contact food should be made of material which does not transmit toxic substance, odour or taste, is non-absorbent, is resistant to corrosion and is capable of withstanding repeated cleaning, and disinfection. Surfaces should be smooth and free from pits and crevices. Suitable materials include stainless steel, synthetic wood and rubber substitutes. The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their use would clearly not be source of contamination. The use of different metals in such a way that contact corrosion can occur should be avoided.

CCP Note: Equipment and utensils constitute a source of potential cross-contamination. In addition to regular routine cleaning, it is essential that all equipment and utensils used for raw foods be thoroughly disinfected before they are used for cooked and precooked foods. If at all possible, separate utensils should be used for raw and cooked products. If this is not possible, thorough cleaning and disinfection is necessary.

4.4.2 Sanitary design, construction and installation

4.4.2.1 **All equipment and utensils** should be designed and constructed to prevent hygienic hazards and permit easy and thorough cleaning and disinfection and, where practicable, be visible for inspection. Stationary equipment should be installed in a manner to permit easy access and thorough cleaning.

Note: Only properly designed equipment is satisfactory for bulk cooking. Mass-catering cannot be performed safely merely by increasing size or quantity of the type of equipment traditionally used in conventional kitchens for preparation of individual dishes. The capacity of the equipment used should be adequate to permit the hygienic production of food.

4.4.2.2 **Containers for inedible material and waste** should be leak proof, constructed of metal or other suitable impervious material which should be easy to clean or disposable and able to be closed securely.

4.4.3 **Equipment identification**

Equipment and utensils used for inedible materials or waste should be so identified and should not be used for edible products.

4.4.4 **Equipment and utensil storage**

Portable equipment such as spoons, beaters, pots and pans, etc., should be protected from contamination.

SECTION IV - (B) SERVING ROOMS: DESIGN AND FACILITIES

This section covers the area where food is served which may include re-heating and storage.

In principle, the requirements mentioned in Section IV - A. apply also to serving rooms.

Where the foods served are those defined in paragraph 2-6 a, paragraphs 4.3.14.2, 4.3.14.3 and 4.3.19.2 do not apply.

SECTION V - ESTABLISHMENT: HYGIENE REQUIREMENTS

5.1 **Maintenance**

The buildings, equipment, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition. As far as practicable, rooms should be kept free from steam, vapour and surplus water.

5.2 **Cleaning and Disinfection - Washing up**

5.2.1 Cleaning and disinfection should meet the requirements of this Code.

For further information on cleaning and disinfection procedures, see Annex I of the General Principles of Food Hygiene (CAC/VOL. A-Ed. 2, 2nd Rev. (1985)).

5.2.2 To prevent contamination of food, all equipment and utensils should be cleaned as frequently as necessary and disinfected whenever circumstances demand.

Note: Equipment, utensils etc. in contact with food, particularly raw food, (Fish, meat, vegetables) will be contaminated with micro-organisms. This may adversely affect products handled subsequently. Therefore, cleaning including dismantling is necessary at frequent intervals during the day, at least after every break and when changing from one food product to another. The purpose of dismantling cleaning and disinfection at the end of each working day is to hinder build-up of possibly pathogenic microflora. Monitoring should be done by regular inspection.

5.2.3 Adequate precautions should be taken during cleaning or disinfection of rooms, equipment or utensils to prevent food from being contaminated by wash water, detergents and disinfectants. Cleaning solutions should be stored in adequately marked non-food containers. Detergents and disinfectants should be suitable for the purpose intended and should be acceptable to the official agency having jurisdiction. Any residues of these agents on a surface which may come in contact with food should be removed by thorough rinsing with potable water before the area or equipment is again used for handling food.

Note: High pressure hoses produce aerosols and therefore should not be used during production. Care should be taken when using high pressure hoses not to contaminate food contact surfaces with organisms from floors, drains, etc. Presence of moisture may promote the growth of Listeria monocytogenes and other pathogenic microorganisms and, therefore, equipment and floors should be kept as dry as possible.

5.2.4 Either immediately after cessation of work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of food handling areas should be thoroughly cleaned.

5.2.5 Maintenance, cleaning tools and cleaning chemicals such as brooms, mops, vacuum cleaners, detergents, etc. should be maintained and stored in a way that does not contaminate food, utensils, equipment or linens.

5.2.6 Changing facilities and toilets should be kept clean at all times.

5.2.7 Roadways and yards in the immediate vicinity of and serving the premises should be kept clean.

5.3 **Hygiene Control Programme**

A permanent written cleaning and disinfection procedure schedule should be drawn up for each establishment to ensure that all areas are appropriately cleaned and that critical areas, equipment and material are designated for special attention. A single individual who should preferably be a permanent member of the staff of the establishment and whose duties should be independent of production, should be appointed to be responsible for the cleanliness of the establishment. He should have a thorough understanding of the significance of contamination and the hazards involved. All cleaning personnel should be well-trained in cleaning techniques.

5.4 **Storage and Disposal of Wastes**

In kitchen and food preparation rooms, by-products and waste products should be collected in single-use leak-proof bags or in properly labelled re-usable containers. These should be sealed or covered and taken from the working area as soon as they are full or after each working period and placed (single-use bags) or emptied (re-usable containers) in covered waste bins which must never be introduced into the kitchen. Re-usable containers should be cleaned and disinfected each time they are taken back into the kitchen.

Waste bins should be kept in a closed area reserved for the purpose separate from the food storage rooms. The area should be kept at as low a temperature as possible, well ventilated, protected from insects and rodents and should be easy to clean, wash and disinfect. The waste bins should be cleaned and disinfected each time after use.

Cartons and wrappers should, as soon as they are empty, be removed under the same conditions as waste materials. Waste compressing equipment should be separated from any food handling area.

If a system of ducted waste disposal is in use, it is imperative that offal, scraps and waste be placed in closed single-use bags. The duct opening should be cleaned and disinfected daily.

5.5 Exclusion of Domestic Animals

Animals that are uncontrolled or that could be a hazard to health should be excluded from establishments.

5.6 Pest Control

5.6.1 There should be an effective and continuous programme for the control of pests. Establishments and surrounding areas should be regularly examined for evidence of infestation.

Note: Insects and rodents are known carriers of pathogenic bacteria from areas of contamination to prepared foods and food contact surfaces therefore their presence in food preparation areas should be prevented.

5.6.2 Should pests gain entrance to the establishment, eradication measures should be instituted. Control measures involving treatment with chemical, physical or biological agents should only be undertaken under direct supervision of personnel who have a thorough understanding of the potential hazards to health resulting from the use of these agents including those hazards which may arise from residues retained in the product. Such measures should only be carried out in accordance with the recommendations of the official agency having jurisdiction. Appropriate records of pesticide usage should be maintained.

5.6.3 Pesticides should only be used if other precautionary measures cannot be used effectively. Before pesticides are applied, care should be taken to safeguard all food, equipment and utensils from contamination. After application, contaminated equipment and utensils should be thoroughly cleaned to remove residues prior to being used again.

CCP-Note: Records of pesticide usage should be kept and periodically checked by a responsible supervisor.

5.7 Storage of Hazardous Substances

5.7.1 Pesticides or other non-food substances which may represent a hazard to health should be suitably labelled with a warning about their toxicity and use. They should be stored in locked rooms or cabinets used only for that purpose and disposed and handled only by authorized and properly trained personnel. Extreme care should be taken to avoid contamination of food. Food containers or containers which are used to handle food, should not be used to measure, dilute, dispense or store pesticides or other substances.

5.7.2 Except when necessary for hygienic or processing purposes, no substance which could contaminate food should be used or stored in food handling areas.

5.8 Personnel Effects and Clothing

Personal effects and clothing should not be deposited in food handling areas.

SECTION VI - PERSONNEL HYGIENE AND HEALTH REQUIREMENTS

6.1 Hygiene Training

Managers of establishments should arrange for adequate and continuing training of every food handler in hygienic handling of food and in personal hygiene so that they understand the precautions necessary to prevent contamination in food. Instruction should include relevant parts of this Code.

6.2 Medical Examination

Persons who come in contact with food in the course of their work should have a medical examination prior to their employment if the official agency having jurisdiction, acting on medical advice, considers that this is necessary, whether because of epidemiological considerations, the nature of food prepared in a particular establishment or the medical history of the prospective food handler. Medical examination of a food handler should be carried out at other times when clinically or epidemiologically indicated.

6.3 Communicable Diseases

The management should take care to ensure that no person, while known or suspected to be suffering from, or to be a carrier of a disease likely to be transmitted through food or while afflicted with infected wounds, skin infections, sores, or with diarrhoea, is permitted to work in any food handling area in any capacity in which there is any likelihood of such a person directly or indirectly contaminating food with pathogenic microorganisms. Any persons so affected should immediately report to the management that he/she is ill.

Note: If an employee is restricted from working in a food handling area because of a communicable disease, he/she should receive clearance from a competent medical professional before returning to work.

6.4 Injuries

Any person who has a cut or wound should not continue to handle food or food contact surfaces until the injury is completely protected by a waterproof covering which is firmly secured, and which is conspicuous in colour. Adequate first aid facilities should be provided for this purpose.

6.5 Washing of Hands

Every person engaged in a food handling area should wash his/her hands frequently and thoroughly with a suitable cleaning preparation under running warm, potable water while on duty. Hands should always be washed before commencing work, immediately after using the toilet, after handling contaminated material and whenever else necessary.

Hands should be washed and disinfected immediately after handling any material which might be capable of transmitting disease, or contaminating food or equipment. Notices requiring hand-washing should be displayed. There should be adequate supervision to ensure compliance with this requirement.

6.6 Personal Cleanliness

Every person engaged in a food handling area should maintain a high degree of personal cleanliness while on duty, and should at all times while so engaged wear suitable protective clothing including head covering and footwear, all of which articles should be cleanable unless designed to be disposed of and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged.

Aprons and similar items should not be washed and/or dried in food handling or preparation areas. During periods where food is manipulated by hand, any jewellery that cannot be adequately disinfected should be removed from the hands. Personnel should not wear any insecure jewellery when engaged in food handling.

6.7 Personal Behaviour

Any behaviour which could result in contamination of food, such as eating, use of tobacco, chewing (e.g. gum, sticks, betel nuts, etc.) or unhygienic practices such as spitting should be prohibited in food handling areas.

6.8 Gloves

Gloves, if used in the handling of food products, should be maintained in a sound, clean and sanitary condition. The wearing of gloves does not exempt the operator from having thoroughly washed hands.

Note: Gloves may be useful in protecting the food handler from the product and also may improve the sanitary handling of food. Torn or punctured gloves should be discarded to avoid leakage of any accumulated perspiration, which will contaminate food with high numbers of micro-organisms. Chain mail gloves are particularly difficult to clean and disinfect because of their construction: careful cleaning followed by heating or prolonged immersion in disinfectant is necessary. Gloves must be made from materials suitable for food contact. Some gloves made from reprocessed fibres may not be suitable when handling food.

6.9 Visitors

Precautions should be taken to prevent visitors to food handling areas from contaminating food. These may include the use of protective clothing. Visitors should observe the provisions recommended in paragraphs 5.8, 6.3, 6.4 and 6.7.

6.10 Supervision

Responsibility for ensuring compliance by all personnel with all requirements of paragraphs 6.1 - 6.9 inclusive should be specifically allocated to competent supervisory personnel.

SECTION VII - ESTABLISHMENT: HYGIENIC PROCESSING REQUIREMENTS

7.1 Raw Material Requirements

7.1.1 No raw materials or ingredient should be accepted by the establishment if known to contain parasites, microorganisms or toxic, decomposed or extraneous substances which will not be reduced to acceptable levels by normal plant procedures of sorting and/or preparation or processing.

7.1.2 Raw materials or ingredients should be inspected and sorted prior to the cooking process and where

necessary laboratory tests should be made. Only clean sound raw materials or ingredients should be used in preparation of food.

7.1.3 Raw materials and ingredients stored on the premises of the establishment should be maintained under conditions that will prevent spoilage, protect against contamination and minimize damage. Stocks of raw materials and ingredients should be supplied frequently and regularly, and excessive quantities should not be stored.

7.1.4 Chill stored raw foods of animal origin between 1 and 4°C. Other raw foods which require refrigeration, such as certain vegetables, should be stored at as low a temperature as quality permits.

Note: First in - first out is a good general principle. But age alone may be an imperfect indication of quality. The history of raw materials in terms of intrinsic quality and temperature history also needs to be taken into account so that different batches can be used in proper sequence. For chilled raw materials the colder the storage temperature, without freezing, the better. Some common human pathogens can grow, albeit slowly, at chill temperatures. Yersinia enterocolitica can grow very slowly at 0°C, Clostridium botulinum type E and non-proteolytic types B and F at 3.3°C and Listeria monocytogenes at 0°C.

7.1.5 Frozen raw materials which are not immediately used should be maintained or stored at or below -18°C.

7.2 Prevention of Cross-Contamination

7.2.1 Effective measures should be taken to prevent contamination of cooked and pre-cooked foods by direct or indirect contact with material at an earlier stage of the process. Raw food should be effectively separated from cooked and pre-cooked foods. (See also 4.4.1).

Note: Raw meat, poultry, eggs, fish and shellfish and rice are frequently contaminated with food-borne pathogens when they reach food service establishments. Poultry, for example, frequently harbours salmonellae which may be spread to surfaces of equipment, to the hands of workers and to other materials. The possibility of cross-contamination should always be considered.

7.2.2 Persons handling raw materials or semi-processed products capable of contaminating the end product should not come into contact with any end product unless and until they discard all protective clothing worn by them during the handling of raw materials or semi-processed products which have come into direct contact with or have been soiled by raw materials or semi-processed products and have changed into clean protective clothing.

7.2.3 Hands should be washed thoroughly between handling products at different stages of processing.

Note: Food handlers can be a source of contamination. For example, cooked ingredients in potato salad can become contaminated by food handlers during mixing and preparation. Hazard analysis should therefore include observations of food handling and hand-washing practices of the kitchen staff.

7.2.4 Potentially hazardous raw products should be processed in separate rooms, or in areas that are separated by a barrier, from areas used for preparing ready to eat foods.

7.2.5 All equipment which has been in contact with raw materials or contaminated material should be thoroughly cleaned and disinfected prior to being used for contact with cooked or pre-cooked foods. It is

preferable to have separate equipment for handling of raw materials and cooked pre-cooked foods, in particular apparatus for slicing and mincing.

7.3 Use of Water in the Food Process

Raw fruits and vegetables to be used in meals should be thoroughly washed in potable water before addition to the meals.

7.4 Thawing

7.4.1 Frozen products, especially frozen vegetables can be cooked without thawing. However, large pieces of meat or large poultry carcasses often do need to be thawed before cooking.

7.4.2 When thawing is carried out as an operation separated from cooking this should be performed only in:

- a) a refrigerator or purpose-built thawing cabinet maintained at a temperature of 4°C or below.
- or
- b) running potable water maintained at a temperature not above 21°C for a period not exceeding 4 hours.
- or
- c) a commercial microwave oven only when the food will be immediately transferred to conventional cooking units as part of a continuous cooking process or when the entire, uninterrupted cooking process takes place in the microwave oven.

CCP Note: Hazards associated with thawing include cross-contamination from drip and growth of micro-organisms on the outside before the inside has thawed. Thawed meat and poultry products should be checked frequently to make sure the thawing process is complete before further processing or the processing time should be increased to take into account the temperature of the meat.

7.5 Cooking Process

Note: The cooking process should be designed to maintain as far as possible the nutritional value of the food.

Note: Use only fats or oils destined for this purpose. Frying fats and oils should not be overheated. The temperature is dependent on the nature of the oil or fat used. Follow the instructions of the supplier or the jurisdictional requirements if they exist, but frying fats or oils should not be heated above 180°C.

Fats and oils should be filtered before each frying operation to remove particles of food with a filter especially adapted for this purpose. (Deep-fryer should be equipped with a tap to allow for evacuation of oil from the bottom). The quality of oil or fat should regularly be checked for odour, taste and smoking colour, and if necessary, changed. If the quality is suspect, the frying oil can be checked by commercial test kit. If the result of this test is positive, a sample can be further examined for smoke point, free fatty acids and especially for polar compounds.

CCP Note: Frying fats or oils can become dangerous for consumer's health. Quality of frying fats or oils should be strictly controlled.

Note: Frying fats and oils should not be over-heated. Fats and oils should be changed immediately as soon as any changes in colour, flavour or odour are evident.

7.5.1 The time and temperature of cooking should be sufficient to ensure the destruction of non-sporing pathogenic micro-organisms.

Note: Boned rolled joints of meat are convenient for cooking, but the operation of removing the bone and rolling the meat will transfer microbes from the surface to the centre, where they are better protected from the heat of cooking. For the safe production of rare cooked beef, the centre of joints must reach a minimum of 63°C in order to eliminate contaminating salmonellae. The proper use of other time/temperature combinations which would ensure safety is acceptable.

For large poultry carcasses which are not normally cooked to a rare state or eaten rare, and where salmonellae are also a hazard, salmonellae will be killed if a temperature of 74°C is achieved in the deep thigh muscle. It is not advisable to stuff the body cavity of large poultry carcasses because (a) the stuffing can be contaminated with salmonellae and may not achieve a temperature high enough to kill them, and (b) spores of *Clostridium perfringens* will survive cooking. Other techniques are available to allow for safe preparation of stuffed carcasses, such as limiting volume, establishing geometric center time/temperature controls and immediate removal of stuffing for service or to facilitate cooling. Stuffed birds cool very slowly and *Clostridium perfringens* will germinate and multiply during this time. The effectiveness of the cooking process should be checked regularly by measuring the temperature in the relevant parts of the foods.

7.5.2 When grilled, roasted, braised, fried, blanched, poached, boiled, or cooked products are not intended for consumption on the day they are prepared, the cooking process should be followed by cooling as quickly as possible.

7.6 Portioning Process

7.6.1 Strict conditions of hygiene should apply at this stage in the process. The portioning process should be completed within the minimum practicable period of time which should not exceed 30 minutes for any chilled product.

7.6.2 Only well cleaned and disinfected containers should be used.

7.6.3 Containers with lids are preferred so that the food is protected against contamination.

7.6.4 In large scale systems where the portioning process of cook-chilled foods can not be performed in 30 minutes, this portioning should take place in a separate area in which the ambient temperature should be 15°C. The temperature of the food should be monitored by temperature probes. The product should be served immediately or placed in cold storage at 4°C.

7.7 Chilling Process and Storage Conditions of Chilled Food

7.7.1 Immediately after preparation chilling should be carried out as quickly and efficiently as possible.

7.7.2 The temperature in the center of the food product should be reduced from 60°C to 10°C in less than two hours; the product should then be immediately stored at 4°C.

Note: Epidemiological information indicates that the most important factors contributing to the occurrence of food-borne disease outbreaks are related to operations that follow cooking; for instance, if cooling is far too slow, so that any part of the food stays for a dangerously long time in the temperature range between 60°C and 10°C where harmful micro-organisms may grow; therefore, the product should not be maintained in this temperature range for more than 4 hours. Hazard analysis must assess conditions of chilling.

7.7.3 As soon as the chilling is complete the products should be put into a refrigerator. The temperature should not exceed +4°C in any part of the product and should be maintained until final use. Regular monitoring of the storage temperature is necessary.

7.7.4 The storage period between the preparation of chilled food and consumption should not be longer than five days including both the day of cooking and the day of consumption.

Note: The storage period of five days is directly related to the storage temperature of +4°C.

7.8 Freezing Process and Storage Conditions of Frozen Food

7.8.1 Immediately after preparation freezing should be carried out as quickly and efficiently as possible.

7.8.2 Cooked-frozen foods should be kept at or below -18°C. Regular monitoring of the storage temperature is necessary.

7.8.3 Cooked-frozen foods can be stored at or below 4°C but for not more than five days and should not be refrozen.

7.9 Transport

7.9.1 Hygienic requirements inside vehicles transporting cooked and precooked foods are also applicable.

7.9.2 During transport the food should be protected against dust and other pollution.

7.9.3 Vehicles and/or containers intended for transporting heated food should be designed to maintain food at at least 60°C.

7.9.4 Vehicles and/or containers intended for transporting cooked-chilled food should be appropriate for this transport. The transport vehicle is designed to maintain the temperature of the already chilled food and not to chill the food. The temperature of the cooked-chilled foods should be maintained at 4°C but may rise to 7°C for a short period during transport.

7.9.5 Vehicles and/or containers intended for transporting cooked-frozen food should be appropriate for this transport. The temperature of the cooked-frozen food should be maintained at or below -18°C, but may rise to -12°C for a short period of time during transport.

7.10 Reheating and Service

7.10.1 Reheating the food should be carried out rapidly. The reheating process must be adequate: a temperature of at least 75°C should be reached in the centre of the food within one hour of removing the food from refrigeration. Lower temperatures may be used for reheating providing the time/temperature combinations used are equivalent in terms of destruction of microorganisms to heating to a temperature of 75°C.

Note: Reheating must also be rapid so that the food passes quickly through the hazardous temperature range between 10°C and 60°C. This will usually require the use of forced air ovens, infrared or microwave reheaters. The temperature of the heated food should regularly be checked.

7.10.2 The reheated food should reach the consumer as soon as possible and at a temperature of at least 60°C.

Note: To minimize the loss of the organoleptic properties of the food it should be kept at or above 60°C for as short a time as possible.

7.10.3 Any food not consumed should be discarded and neither reheated nor returned to chilled or frozen storage.

7.10.4 In self-service establishments the serving system should be such that the foods offered are protected from direct contamination which could result from the proximity or the action of the consumer. The temperature of the food should be either below 4°C or above 60°C.

7.11 Identification and Quality Control System

7.11.1 Each container of food should be labelled with the date of production, type of food, establishment name and lot number.

Note: Lot identification is essential for implementing any product recall which may be required. It is also required to enable the "First-in/First-out Principle" to be implemented.

7.11.2 Quality control procedures should be carried out by technically competent personnel who possess an understanding of the principles and practice of food hygiene, a knowledge of the provisions of this code and who employ the HACCP approach in the control of hygienic practice.

Note: The control of temperature and time at critical control points is the key to producing a sound product. Access to a food microbiology laboratory is useful in establishing the validity of the procedures instituted. Occasional checking at critical control points serves to monitor the continuing efficacy of the management systems.

7.11.3 Where appropriate for safety a sample of at least 150 g of each item of food taken from each lot should be kept in a sterile container at 4°C or below until at least three days after that whole lot has been consumed. Some organisms do not tolerate freezing and thus refrigeration of samples is recommended in lieu of freezing. The sample should be obtained from the lot at the end of the portioning period. These samples should be available for investigation in the event of any suspected food-borne disease.

7.11.4 The health authority will need for its own purposes a record of the catering establishments for which it is responsible and a registration scheme seems most appropriate.