

**CALIFORNIA RETAIL FOOD CODE
ANNEX**

**PUBLIC HEALTH
REASONS**

Prepared by

Central Valley Food Technical Advisory Committee

By the direction of the

California Conference of Directors of Environmental Health

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Public Health Reasons

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FORWARD

The California Retail Food Code (CRFC) was formulated using the United States Food and Drug Administration's (FDA) model food code as a guide. In developing this annex to the CRFC, the FDA's model food code was also used as a model. Additional information was obtained from various other agencies or sources, specifically, FDA's Food Safety and Applied Nutrition public information website (<http://vm.cfsan.fda.gov>), the United States Department of Agriculture website (www.usda.gov), the American Public Health Association's Control of Communicable Diseases Manual, and the Joint Institute for Food Safety and Applied Nutrition website (www.jifsan.umd.edu) among others.

The CRFC Public Health Reasons Annex (PHRA) has been written to provide a better understanding of the contents of California Retail Food Code. The PHRA will assist regulatory authorities in applying the provisions of CRFC effectively. The chapter and section numbers in this annex parallel the chapter numbers and section of CRFC. To find the public health reason for a particular section of the CRFC, simply look for the same chapter and section in the annex.

It is anticipated that this annex will be updated as changes to CRFC occur or new science and/or best management practices are developed. The Central Valley Food Technical Advisory Committee (CVFTAC) was given the task by the California Conference of Environmental Health Director's Food Safety Policy Committee (FSPC). It is expected that the CVFTAC will continue to review and update this annex as needed. Outside review and comments are welcomed.

CHAPTER 1 GENERAL PROVISIONS

113700 California retail food code

The California Retail Food Code is part of the California Health and Safety Code (CHSC), specifically Division 104, Part 7 of the CHSC. The term “this part” in the published text refers to this part of the CHSC and allows reference to this part of the CHSC to be known and cited as the California retail food code.

113703 Food safety, illness prevention, and honest presentation **113705 Legislative intent to preempt local standards** **113707 Regulations** **113709 Authority to establish local standards**

These sections establish the purpose and intent of the CRFC. Authority is given to the Department of Health Services (DHS) to develop regulations. Local governing bodies are given certain authorities in order for them to assess and regulate their community’s needs and goals.

113713 Primary responsibility for enforcement

Enforcement authority is granted to local agencies so they may monitor food facilities in their jurisdiction. DHS retains the right to regulate any programs or take any enforcement action necessary for the protection of the public health and safety.

When appropriations are made that allow for staffing, DHS will be responsible for the tasks listed in this section, to include a local agency retail food program evaluation at least once every three years to ensure that they are enforcing this part in a satisfactory manner.

113715 Compliance with applicable codes

In addition to this part, food facility reviews and inspections allow the enforcement agency to determine if food facilities are in compliance with other codes necessary for protecting the public’s health and safety prior to beginning operation.

113725 Food facility inspection format

The standardized format for food facility inspections is based upon the five major risk factors for food-borne illnesses in order to reduce the behaviors or actions that may contribute to food-borne illnesses.

113725.1 Inspection report availability

Requiring the inspection report to be available for review allows patrons to make an informed decision whether they want to consume food purchased at particular locations.

113725.3**Reporting procedures**

Legislation was passed (SB 180) that requires all enforcement agencies to conduct reporting procedures in a standardized format to avoid confusing operators who cross-jurisdictional lines throughout the state. Having all jurisdictions use the same inspection information allows operators to cross these lines and be assured that they will be treated the same throughout the state.

CHAPTER 2 DEFINITIONS

113728 Applicability and Terms Defined

Defined words and terms are capitalized in the text of the CRFC published by the California Association of Environmental Health Administrators (CAEHA). Capitalization of a word or term in the text of the publication indicates that there is a specific meaning assigned to those words and terms and that the meaning of a provision is to be interpreted in the defined context.

CHAPTER 3 MANAGEMENT AND PERSONNEL

Chapter 3 Article 1 SUPERVISION

113945 Person in charge

Designation of a person in charge during all hours of operations ensures the continuous presence of someone who is responsible for monitoring and managing all food establishment operations and who is authorized to take actions to ensure that CRFC's objectives are fulfilled. In the day-to-day operation of a food establishment, a person who is immediately available and knowledgeable in both operational and CRFC requirements is needed to respond to questions and concerns and to resolve problems.

113945.1 Responsibilities of the person in charge

A primary responsibility of the person in charge is to ensure compliance with CRFC requirements. Any individual present in areas of a food establishment where food and food-contact items are exposed presents a potential contamination risk. By controlling who is allowed in those areas and by assuring that only authorized personnel are allowed in the food preparation areas the person in charge establishes an important barrier to food contamination.

Chapter 3 Article 2 EMPLOYEE KNOWLEDGE

113947 Adequate knowledge for all food employees

Common sense dictates that the more knowledgeable a food worker is about their specific tasks, the less chance there may be an unintentional contamination or adulteration of a food product. In a practical sense, food safety knowledge by all employees produces additional protection from liability from lawsuits arising from food-borne illnesses or other food mishaps.

113947.1 Food safety certification exam

Having at least one person certified in food safety at each facility that handles unpackaged potentially hazardous foods ensures that there is someone available to monitor food safety that is knowledgeable about the subject. The person certified in food safety is required to educate other food employees in the food safety principles of their specific task. Due to the amount of time necessary for this task, a person who is acting as the certified person at one facility cannot reasonably be expected to serve as the certified person at any other facility.

113947.2 Examination elements

113947.3 Approved and accredited exams

Food safety certification occurs when individuals demonstrate through a certification program that they have met specified food safety knowledge standards.

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Food safety certification program accreditation occurs when certification organizations demonstrate through an accreditation program that they have met specified program standards.

Accreditation is a conformity assessment process through which organizations that certify individuals may voluntarily seek independent evaluation and listing by an accrediting agency based upon the certifying organization's meeting program accreditation standards. Such accreditation standards typically relate to such factors as the certifying organization's structure, mission, policies, procedures, and the defensibility of its examination processes. These standards are intended to affirm or enhance the quality and credibility of the certification process, minimize the potential for conflicts of interest, ensure fairness to candidates for certification and others, and thereby increase public health protection.

Program accreditation standards known to be relevant to food protection manager certification programs include those contained in the draft Standards for the Training, Testing, and Certification of Food Protection Managers available from the Conference for Food Protection, 1085 Denio Avenue, Gilroy, CA 95020-9206. Also included is the National Commission for Certifying Agencies' Standards for Accreditation of National Certification Organizations available through the National Organization for Competency Assurance, 1200 19th Street, NW, Suite 300, Washington, DC 20036-2422.

Allowing food protection managers to demonstrate their required food safety knowledge through passing a test that is part of an accredited program is predicated on the fact that their credentials have been issued by certifying organizations that have demonstrated conformance with rigorous and nationally recognized program standards.

Chapter 3 Article 3 EMPLOYEE HEALTH

113949 Prevention of Disease Transmission

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Infected employees may transmit a wide range of communicable diseases and infections to consumers through food, utensils, or poor personal hygiene practices. Proper management of a food facility operation begins with employing healthy people and instituting a system of identifying employees who present a risk of transmitting foodborne pathogens to food or to other employees. In order to protect the health of both consumers and employees, information concerning the health status of food employees, if the status applies to transmission of disease through food, must be disclosed to the person in charge.

Restriction or exclusion of food employees suffering from a disease or medical symptom listed in the California Retail Food Code is necessary due to the increased risk that the food being prepared will be contaminated with a pathogenic organism transmissible through food.

Chapter 3 Article 4 HANDWASHING

113952 Handwashing

The hands are particularly important in transmitting food-borne pathogens. Food employees with dirty hands and/or fingernails may contaminate the food being prepared. Even seemingly healthy employees may transfer pathogenic organisms to food. *Staphylococcus aureus*, for example, can be found on the skin and in the mouth, throat, and nose of many employees. The hands of employees can be contaminated by touching their nose or other body parts. Performing cleaning duties, using the restroom, handling money, and other activities may also contaminate the hands of employees who may later engage in food preparation. Therefore, any activity that may contaminate the hands must be followed by thorough handwashing.

113953 Handwashing facilities

Effective handwashing is essential for minimizing the likelihood of the hands becoming a vehicle of cross contamination. It is important that handwashing be done at a properly equipped handwashing facility in order to help ensure that food employees effectively clean their hands.

Warm water is more effective than cold water in removing the fatty soils encountered in kitchens. An adequate flow of warm water will cause soap to lather and aid in flushing soil quickly from the hands. An inadequate flow or temperature of water may lead to poor handwashing practices by food employees. A mixing valve or combination faucet is needed to provide properly tempered water for handwashing. Steam mixing valves, which inject steam into the water stream, are not allowed for this use because they are hard to control and injury by scalding is a possible hazard.

It is inappropriate to wash hands in a food preparation sink since this may result in avoidable contamination of the sink and the food prepared therein. Service sinks may not be used for food employee handwashing since this practice may introduce additional hand contaminants because these sinks may be used for the disposal of mop water, toxic chemicals, and a variety of other liquid wastes. Such wastes may contain pathogens from the floors of food preparation areas and toilet rooms and discharges from ill persons.

Because handwashing is such an important factor in the prevention of foodborne illness, sufficient facilities must be available to make handwashing not only possible, but also likely.

113953.1 Using a handwashing facility

Handwashing facilities must be maintained in a condition that promotes handwashing and are restricted for that use. Convenient accessibility of a handwashing facility encourages timely handwashing, which provides a break in the chain of contamination from the hands of food employees to food or food-contact surfaces. Facilities, which are blocked by portable equipment or stacked full of soiled utensils and other items, are rendered unavailable for regular employee use. Nothing must block the approach to a handwashing facility thereby discouraging its use. Sinks used for food preparation and warewashing can become sources of contamination if used as handwashing facilities by employees returning from the toilet or from duties that have contaminated their hands.

113953.2 Handwashing supplies

Hands are probably the most common vehicle for the transmission of pathogens to foods in a food facility. Hands can become soiled with a variety of contaminants during routine operations. Some employees are unlikely to wash their hands unless properly equipped handwashing facilities are accessible in the immediate work area. A facility that is kept clean and well stocked with soap and sanitary towels encourage frequent use.

113953.3 Handwashing procedure

Handwashing is a critical factor in reducing fecal-oral pathogens that can be transmitted from hands to ready-to-eat food as well as other pathogens that can be transmitted via cross contamination from raw to ready-to eat foods. Many employees fail to wash their hands as often as necessary and even those who do may use a flawed technique.

The greatest concentration of microbes exists around and under the fingernails of the hands. The area under the fingernails, known as the "subungual space", has by far the largest concentration of microbes on the hand and this is also the most difficult area of the hand to decontaminate.

There are two different types of microbes on the hands, transient and resident microbes. Transient microbes consist of contaminating pathogens which are loosely attached to the skin surface, do not survive nor multiply, and a moderate number of organisms can be removed with adequate washing. Resident microbes consist of a relatively stable population that survive and multiply on the skin, and are not easily washed off the hands. Resident microbes on the hands are usually not a concern for potential contamination in food service.

All aspects of proper handwashing are important in reducing transient microbes on the hands. However, friction and water have been found to play the most important role. This is why the amount of time spent scrubbing the hands is critical in proper handwashing. It takes more than just the use of soap and running water to remove the transient pathogens that may be present. It is the abrasive action obtained by vigorously rubbing the surfaces being cleaned that loosens the transient microbes on the hands.

Research has shown a minimum 10-15 second scrub is necessary to remove transient

pathogens from the hand. Every stage in handwashing is equally important and has an additive effect in transient microbe reduction. Therefore, effective handwashing must include scrubbing, rinsing, and drying the hands. When done properly, each stage of handwashing further decreases the transient microbial load on the hands.

Handwashing done properly can result in a 2-3 logarithmic reduction in transient bacteria and a 2-log reduction in transient viruses and protozoa.

Chapter 3 Article 5 PERSONAL CLEANLINESS

113953.4 Hand sanitizers

Hand sanitizers are not an acceptable substitute for proper handwashing. This provision is intended to ensure that an alcohol based antimicrobial product applied to the hands is; 1) used in conjunction with handwashing, 2) a safe food additive when applied to bare hands that will come into direct contact with food, and 3) safe and effective when applied to human skin.

113961 Bare Hand Contact refer to PHRA section 113952

113968 Fingernails

The requirement for fingernails to be trimmed, filed, and maintained is designed to address both the cleanability of areas beneath the fingernails and the possibility that fingernails or pieces of the fingernails may end up in the food due to breakage. Failure to remove fecal material from beneath the fingernails after defecation can be a major source of pathogenic organisms. Ragged fingernails present cleanability concerns and may harbor pathogenic organisms.

113969 Hair restraints

Consumers are particularly sensitive to food contaminated by hair. Hair can be both a direct and indirect vehicle of contamination. During a normal day, humans may lose as many as 70-80 hairs that could potentially end up in food products. Food employees may contaminate their hands when they touch their hair. A hair restraint keeps dislodged hair from ending up in the food and may deter employees from touching their hair.

113971 Clothing

Dirty clothing such as aprons and hats may harbor disease organisms that are transmissible through food. Food employees who inadvertently touch their dirty clothing may contaminate their hands. This could result in contamination of the food being prepared. Food may also be contaminated through direct contact with dirty clothing. It is desirable to encourage employees to put on work garments in a dressing room or change area to avoid contamination of garments from home to work. In addition, employees wearing dirty clothes send a negative message to consumers about the level of sanitation in the food facility

Chapter 3 Article 6 HYGENIC PRACTICES

113973 Use of gloves

Gloves used in handling ready-to-eat food are defined as a utensil. All gloves used in direct contact with food must meet FDA criteria for indirect food additives. The FDA, Office of Premarket Approval, Indirect Additives, reviews gloves submitted for food-contact use in the food industry on the basis of the glove's formulation or components.

Multiuse gloves, especially when used repeatedly and soiled, can become breeding grounds for pathogens that could be transferred to food. Soiled gloves can directly contaminate food if stored with ready-to-eat food or may indirectly contaminate food if stored with articles that will be used in contact with food.

Natural rubber latex gloves have been reported to cause allergic reactions in some individuals who wear latex gloves during food preparation, and even in individuals eating food prepared by food employees wearing latex gloves. This information should be taken into consideration when deciding whether single-use gloves made of latex will be used during food preparation.

Slash-resistant gloves are not easily cleaned and sanitized. Their use with ready-to-eat foods could contaminate the food.

Items of jewelry such as rings, bracelets, and watches may collect soil and the construction of the jewelry may hinder routine cleaning. Another hazard associated with jewelry is the possibility that pieces of it or even the entire article itself might fall into the food during preparation. Hard foreign objects in food may cause medical problems for consumers, such as chipped and/or broken teeth and internal cuts and lesions.

113974 Employees with cold or flu symptoms

Discharges from the eyes, nose, or mouth through persistent sneezing or coughing by food employees can directly contaminate exposed food, equipment, utensils, linens, and single-service and single-use articles.

113977 Eating, drinking, or using tobacco

Proper hygienic practices practiced by food employees in performing assigned duties will ensure the safety of the food by preventing the introduction of foreign objects into the food, and minimizing the possibility of transmitting disease through food. Smoking or eating by food employees in food preparation areas is prohibited because of the potential that the hands, food, and food-contact surfaces may become contaminated. Unsanitary personal practices such as scratching the head, placing the fingers in or about the mouth or nose, and indiscriminate and uncovered sneezing or coughing may result in food contamination. Poor

hygienic practices by employees may also adversely affect consumer confidence in the food facility.

CHAPTER 4 GENERAL FOOD SAFETY REQUIREMENTS

Chapter 4 Article 1 PROTECTION FROM CONTAMINATION

113980 Requirements for food **113982 Food Transportation**

A primary line of defense in ensuring that food meets the requirements of ' 113980 is to obtain food from approved sources, the implications of which are discussed below. However, it is also critical to monitor food products to ensure that, after harvesting and processing, they do not fall victim to conditions that endanger their safety, make them adulterated, or compromise their honest presentation. The regulatory community, industry, and consumers should exercise vigilance in controlling the conditions to which foods are subjected and be alert to signs of abuse. FDA considers food in hermetically sealed containers that are swelled or leaking to be adulterated and actionable under the Federal Food, Drug, and Cosmetic Act. Depending on the circumstances rusted and pitted or dented cans may also present a serious potential hazard.

Food, at all stages of production, is susceptible to contamination. The source of food is important because pathogenic microorganisms may be present in the breeding stock of farm animals, in feeds, in the farm environment, in waters used for raising and freezing aquatic foods, and in soils and fertilizers in which plant crops are grown. Chemical contaminants that may be present in field soils, fertilizers, irrigation water, and fishing waters can be incorporated into food plants and animals.

Sources of molluscan shellfish are a particular concern because shellfish are frequently consumed raw or in an undercooked state and thus receive neither heat nor any other process that would destroy or inactivate microbial pathogens. For safety, these foods must be accompanied by certification that documents that they have been harvested from waters that meet the water quality standards contained in the National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish. Certification also provides confidence that processing, packaging, and shipping have been conducted under sanitary conditions.

Food should be purchased from commercial suppliers under regulatory control. Home kitchens, with their varieties of food and open entry to humans and pet animals, are frequently implicated in the microbial contamination of food. Because commercial items seldom are eaten right away, the home kitchen's limited capacity for maintaining food at proper temperatures may result in considerable microbial growth and toxin production by microorganisms introduced through the diverse sources of contamination. Controlled processing is required for the safe preparation of food entering commerce.

113984 Food preparation area, protection from contamination

Food preparation activities may expose food to an environment that may lead to the food's contamination. Just as food must be protected during storage, it must also be protected during preparation. Direct hand contact with ready to eat foods should be minimized to avoid

introducing pathogens into food. Sources of environmental contamination may include splash from cleaning operations, drips from overhead air conditioning vents, or air from an uncontrolled atmosphere such as may be encountered when preparing food in a building that is not constructed according to California Food Code requirements.

113986 Food and ingredient contamination

Cross contamination can be avoided by separating raw animal foods from ready-to-eat foods. Cross contamination may also occur when raw unprepared vegetables contact ready-to-eat potentially hazardous foods. Raw animal foods must also be separated from each other because required cooking temperatures are based on thermal destruction data and anticipated microbial load. These parameters vary with different types of raw animal foods.

Food that is inadequately packaged or contained in damaged packaging could become contaminated by microbes, dust, or chemicals introduced by products or equipment stored in close proximity or by persons delivering, stocking, or opening packages or overwraps.

Packaging must be appropriate for preventing the entry of microbes and other contaminants such as chemicals. These contaminants may be present on the outside of containers and may contaminate food if the packaging is inadequate or damaged, or when the packaging is opened. The removal of food product overwraps may also damage the package integrity of foods under the overwraps if proper care is not taken.

113988 Protection from unapproved additives

Use of unapproved additives or the use of approved additives in amounts exceeding those allowed by food additive regulations could result in foodborne illness, including allergic reactions. For example, many adverse reactions have occurred because of the indiscriminate use of sulfites to retard "browning" of fruits and vegetables or to cause ground meat to look "redder" or fresher.

It is imperative for safety that food supplies come from sources that are in compliance with laws regarding chemical additives and contaminants.

Food additives are substances, which, by their intended use, become components of food, either directly or indirectly. They must be strictly regulated. Additives may be harmful to the consumer in excess amounts or if an unapproved additive is used. Unintentional contaminants or residues also find their way into the food supply. The tolerances or safe limits designated for these chemicals are determined by risk assessment evaluations based on toxicity studies and consumption estimates.

113990 Ice used as exterior coolant, prohibited as ingredient

Ice that has been in contact with unsanitized surfaces or raw animal foods may contain pathogens and other contaminants. For example, ice used to store or display fish or packaged foods could become contaminated with microbes present on the fish or packaging. If this ice is then used as a food ingredient, it could contaminate the final product.

113992 **Washing produce**

Pathogenic organisms and chemicals may be present on the exterior surfaces of raw fruits and vegetables. Washing removes the majority of organisms and/or chemicals present. If nondrinking water is used, the fruits and vegetables could become contaminated.

Toxic or undesirable residues could be present in or on the food if chemicals used for washing purposes are unapproved or applied in excessive concentrations.

On October 26, 1998 a voluntary guidance document that addresses practices commonly used by fresh fruit and vegetable producers was issued jointly by FDA, USDA, and CDC. This voluntary guidance document contains useful information related to washing fruits and vegetables as well as the application of antimicrobial agents. The Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables is available from FDA's Food Safety Initiative staff and also on the Internet at <http://www.fda.gov>.

Chapter 4 Article 2 TIME AND TEMPERATURE RELATIONSHIPS

113996 **Hot and cold holding, potentially hazardous food**

Bacterial growth and/or toxin production can occur if potentially hazardous food remains in the temperature "Danger Zone" (41°F to 135°F) too long. Up to a point, the rate of growth increases with an increase in temperature within this zone. Beyond the upper limit of the optimal temperature range for a particular organism, the rate of growth decreases. Operations requiring heating or cooling of food should be performed as rapidly as possible to avoid the possibility of bacterial growth.

113998 **Diligent Preparation**

Diligent preparation refers to preparing food products in a careful, steady effort. For potentially hazardous foods, it is required that the food be returned for refrigeration or hot holding after two hours. After two cumulative hours at room temperature some pathogens begin entering the log phase of growth where the multiplication of microbes replicates logarithmically to produce enough toxins or pathogens to cause illness if ingested.

114000 **Time as a public health control**

Refrigeration helps prevent food from becoming a hazard by significantly slowing the growth of most microbes. The growth of some bacteria, such as ***Listeria monocytogenes***, is significantly slowed but not stopped by refrigeration. Over a period of time, this and like organisms may increase to hazardous levels in ready-to-eat foods. The date by which the food must be consumed takes into consideration the differences in growth of ***Listeria monocytogenes*** at (41°F) and (45°F). Based on a predictive growth curve-modeling program for ***Listeria monocytogenes***, ready-to-eat, potentially hazardous food may be kept at (41°F) a total of 7 days or at (45°F) a total of 4 days. Therefore, the period of time allowed

before consumption is shortened for food in refrigerators incapable of maintaining food at (41°F) but capable of maintaining it at (45°F) or below. Food, which is prepared and held, or prepared, frozen, and then thawed, must be controlled by date marking to ensure its safety is based on the total amount of time it was held at refrigeration temperature and the opportunity for *Listeria monocytogenes* to multiply before freezing and after thawing. Potentially hazardous refrigerated foods must be consumed or discarded by the expiration date.

Potentially hazardous food may be held without temperature control for short time periods not exceeding four hours because there will be no significant growth or toxin production possible in that limited time. Time in the danger zone is cumulative and all time in the danger zone must be counted.

Recipes in which more than one egg is combined carry an increased risk of illness and possible serious consequences for certain people. It is due to this increased risk, and documented occurrences of foodborne illness and death among highly susceptible populations from temperature-abused raw shell eggs contaminated with *Salmonella enteritidis*, that the use of time as a public health control in institutional settings is not allowed.

114002 Cooling

Proper cooling requires removing heat from food quickly enough to significantly slow 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. A longer time near ideal bacterial incubation temperatures, (70°F - 120°F), is to be avoided. If the food is not cooled in accordance with this Code requirement, pathogens may grow to sufficient numbers to cause foodborne illness.

114002.1 Cooling methods

Large food items, such as roasts, turkeys, and large containers of rice or refried beans, take longer to cool because of the mass and volume from which heat must be removed. A reduction in the volume of food significantly increases the rate of cooling and minimizes the opportunity for pathogen growth. If a hot food container is tightly covered, the rate of heat transfer is reduced, i.e., the time required for cooling and the time the food is exposed to optimal temperatures for bacterial multiplication or toxin production are increased.

Alternatives to conventional methods include avoiding the need to cool larger masses by preparing smaller batches closer to periods of service or chilling while stirring hot food in containers that have been placed in an ice water bath. Commercial refrigeration equipment is designed to hold cold food temperatures, not cool large masses of food. Rapid chilling equipment is designed to cool the food to acceptable temperatures quickly by using very low temperatures and high rates of air circulation.

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

A separate method for cooling shell eggs is allowed in food facilities because of the cumulative information that has been gathered about the specific dynamics of the particular pathogen of concern in intact shell eggs. Aside from the recognized need for an integrated approach to the cooling of eggs from farm to table, there are several germane facts that support unique provisions for cooling eggs at retail.

- § There is only one type of microorganism, pathogenic to humans, which appears to be passed transovarially, i.e., ***Salmonella*** spp.
- § ***Salmonella enteritidis*** has been shown to have an extended lag phase in shell eggs due to inhibitory characteristics of the albumen. Research indicates that the organisms are physically located near the exterior of the yolk membrane, in contact with the bacteriostatic components. Growth does not appear until the yolk membrane is weakened by age or physically breached and the yolk nutrients, such as iron, become available to the organisms.
- § Traditional methods of rapidly cooling eggs after washing by the producer or packer can cause damage to the eggs. The eggs may develop cracks and/or checks because of temperature gradients, which could lead to migration through the shell of microorganisms on the surface.

Federal regulations effective August 27, 1999, require shell eggs to be transported and distributed under refrigeration at an ambient temperature not to exceed 45°F. Packed shell eggs must be labeled indicating that refrigeration is required. Imported shell eggs packed for consumer use are required to include a certification that the eggs, at all times after packing, have been stored and transported at an ambient temperature of no greater than 45°F.

Shell eggs are allowed longer than 4 hours to cool to the temperature required under the Code provided they are placed immediately after receipt in refrigerated equipment that is capable of maintaining food temperatures as required by the Code. With the newly established federal requirement for eggs to be in an ambient storage and transportation temperature of 45°F, and with refrigeration of eggs at retail as described above, the overall time that eggs are stored at temperatures that allow the growth of ***Salmonella*** spp. should be shortened. Upon receiving shell eggs, food facility operators should maximize the circulation of cooled air in refrigeration units by separating flats, cases, and multiple cartons of eggs.

114004

Cooking temperature of raw animal foods

Cooking, to be effective in eliminating pathogens, must be adjusted for a number of factors. These include the anticipated level of pathogenic bacteria in the raw product, the initial temperature of the food, and the food's bulk, which affects the time to achieve the needed internal product temperature. Other factors to be considered include post-cooking heat rise and the time the food must be held at a specified internal temperature.

Greater numbers and varieties of pathogens generally are found on poultry than on other raw animal foods. Therefore, a higher temperature, in combination with the appropriate time is needed to cook these products.

To kill microorganisms, food must be held at a sufficient temperature for the specified time. Cooking is a scheduled process in which each of a series of continuous time/temperature combinations can be equally effective. For example, in cooking a beef roast, the microbial lethality achieved at 112 minutes after it has reached (130°F) is the same lethality attained as if it were cooked for 3 minutes after it has reached (145°F).

Cooking requirements are based in part on the biology of pathogens. The thermal destruction of a microorganism is determined by its ability to survive heat. Different species of microorganisms have different susceptibilities to heat. Also, the growing stage of a species (such as the vegetative cell of bacteria, the trophozoite of protozoa, or the larval form of worms) is less resistant than the same organism's survival form (the bacterial spore, protozoan cyst, or worm egg).

Food characteristics also 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. Thermal destruction of pathogenic bacteria is aided by high humidity within the cooking vessel and the moisture content of food.

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.

The temperature and time combination criteria specified in Part 3-4 of this Code is based on the destruction of *Salmonellae*. This includes temperature and time parameters that provide "D" values (decimal log reduction values) that may surpass 7D. For example, at (145°F), a time span of 15 seconds will provide a 3D reduction of ***Salmonella enteriditis*** in eggs (e.g. reducing bacteria populations from 1,000 down to 1 would be a 3D log reduction). This organism, if present in raw shell eggs, is generally found in relatively low numbers. Other foods, uncomminuted fish and meats including commercially raised game animal meat, specified as acceptable for cooking at this temperature and time parameter are expected to have a low level of internal contamination. The parameters are expected to provide destruction of the surface contaminants on these foods.

Seared Steak

The provision for allowing seared steaks was reviewed by the National Advisory Committee for Microbiological Criteria for Foods (NACMCF) and USDA. Paragraph 3-401.11(C) includes their recommendations.

For the purposes of this discussion, steak is a whole beef muscle. It does not include whole beef muscle that has been pinned, injected, or chopped and formed. It may be cut cross grain, such as sirloin, chuck, or porterhouse; or it may be cut with the grain, such as flank, skirt, or Chateaubriand. Other species, such as poultry, pork and lamb, are not included. Due to the low probability of pathogenic organisms being present in or migrating from the external surface to the interior of beef muscle, cuts of intact muscle (steaks) should be safe if the external surfaces are exposed to temperatures sufficient to affect a cooked color change. In addition, the cut (exposed) surfaces must receive additional heat to affect a complete sear across the cut surfaces. Grill or char marks may be applied to the complete surface searing. The meat should be seared on both top and bottom surfaces utilizing a heating environment (e.g., grill or broiling oven) that imparts a temperature at the surface of the intact steak of at least 145°F to achieve a cooked color change on all external surfaces. The searing of all surfaces should be continuous until the desired degree of doneness and appearance are attained. This is considered a ready to eat food.

As reflected in the definition of whole-muscle, intact beefsteak, marinating is a food safety concern. The concern arises when the fascia (exterior surface) of the steak is broken by scoring or other means. This allows the marinade to penetrate, and potentially contaminate, the interior of the steak. In such cases, the Code allowance for undercooking without a consumer advisory is negated.

Pork

In pork, *Trichinella spiralis*, *Toxoplasma gondii*, and *Taenia solium*, parasites causing foodborne illness, are inactivated at temperatures below 145°F. Therefore, pork roasts can be cooked like beef roasts (e.g., 145°F for 3 minutes) and pork chops cooked like steaks to achieve an internal temperature of 145°F for 15 seconds.

Based on the Goodfellow and Brown study, a 5D reduction of organisms is achieved at 68°C (155°F) for 15 seconds for the following foods: ratites and injected meats and comminuted: fish, meat, game animals commercially raised for food, and game animals that come under a USDA voluntary inspection program. Ratites such as ostrich, emu, and rhea are included in this list of raw animal foods because when cooked to a temperature greater than 68°C (155°F), ratites exhibit a (metallic) "off" taste.

When USDA established the time and temperature parameters for 9 CFR 318.23 (known as the "patty rule"), the Agency based the 5D for Salmonella on extrapolations applied to the research done by Goodfellow and Brown to account for the lack of a "come up, come down" time in the thin, small mass beef patties. Consequently, there is no linear relationship between the patty rule and roast beef time and temperature parameters. The patty rule also provided for an 8D reduction in the number of *E. coli*. The time and temperature requirements in the Food Code for comminuted meats are comparable to the USDA requirements.

Temperature for comminuted meat at less than 1 second

In the Report of the Task Force on Technical Issues Arising from the National Advisory Committee for Microbiological Criteria for Foods (NACMCF) Review of the Meat Patty Proposal (undated), it is stated on page 7, in Option (A), that:

Based on the 1998 research data ... and an assumption that instantaneous is defined as eight seconds, manufacturers would be required to process fully-cooked meat patties at a temperature of 157°F. Given the lack of any significant margin of safety in this process, there should be no deviation below the 158°F requirement.

In November, 1997, the NACMCF Meat and Poultry Subcommittee revisited the time and temperatures for cooking hamburger and advised FDA that cooking hamburger to 158°F for less than one second is an adequate cook based on the following:

1. The cooking recommendations contained in the Food Code and in USDA guidance provide a large margin of safety for killing vegetable enteric pathogens;
2. The concept of integrated lethality (the kill imparted during the entire heating and cooling process) adds to the margin of safety; and
3. The time component of the time and temperature requirement will be exceeded before the temperature can be determined.

The parameters for cooking poultry, wild game animal meats, stuffed food products, etc., of (165°F) or above for 15 seconds yield greater than a 7D reduction.

114008 Microwave cooking

The rapid increase in food temperature resulting from microwave heating does not provide the same cumulative time and temperature relationship necessary for the destruction of microorganisms, as do conventional cooking methods. In order to achieve comparable lethality, the food must attain a temperature of (165°F) in all parts of the food. 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 for two minutes post microwave heating to allow thermal equalization and exposure. Although some microwave ovens are designed and engineered to deliver

energy more evenly to the food than others, the important factor is to measure and ensure that the final temperature reaches (165°F) throughout the food.

"The factors that influence microwave thermal processes include many of the same factors that are important in conventional processes (mass of objects, shape of objects, specific heat and thermal conductivity, etc.). However, other factors are unique in affecting microwave heating, due to the nature of the electric field involved in causing molecular friction. These factors are exemplified by moisture and salt contents of foods, which play a far more important role in microwave than conventional heating." (Reference: Hedderson and Doores)

114010 Plant food cooking for hot holding

Fruits and vegetables that are fresh, frozen, or canned and that are heated for hot holding need only to be cooked to the temperature required for hot holding. These foods do not require the same level of microorganism destruction, as do raw animal foods since these fruits and vegetables are ready-to-eat at any temperature. Cooking to the hot holding temperature of (135°F) prevents the growth of pathogenic bacteria that may be present in or on these foods. In fact, the level of bacteria will be reduced over time at the specified hot holding temperature.

114012 Pasteurized eggs, substitute for raw shell eggs for certain recipes

Raw or undercooked eggs that are used in certain dressings or sauces, such as Bernais, Hollandais, Caesar, are particularly hazardous because the virulent organism ***Salmonella enteriditis*** may be present in raw shell eggs. Pasteurized eggs provide an egg product that is free of pathogens and is a ready-to-eat food. The pasteurized product should be substituted in a recipe that requires raw or undercooked eggs.

114014 Preparation for Immediate Service

Any potentially hazardous ready-to-eat (RTE) food taken from a commercially processed, hermetically sealed container, or from an intact package from a food processing plant that is inspected by the food regulatory authority that has jurisdiction over the plant is generally considered safe to eat without heating to the temperatures specified in the preceding sections. Any additional heating is usually conducted for the consumer's preference of hot food over cold food. For this, no specific temperature is required for the consumer's protection.

114016 Reheating for hot holding

When food is held, cooled, and reheated in a food facility, there is an increased risk from contamination caused by personnel, equipment, procedures, or other factors. If food is held at improper temperatures for enough time, pathogens have the opportunity to multiply to dangerous numbers. 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. Vegetative cells of ***C. perfringens*** can cause foodborne illness when they grow to high

numbers. Although it takes as many as 1 million cells to cause foodborne illness, the generation time for *C. perfringens* is very short at temperatures just below adequate hot holding. Highly resistant *C. perfringens* spores will survive cooking and hot holding. If food is abused by being held below adequate hot holding temperatures, spores can germinate to become rapidly multiplying vegetative cells.

Although proper reheating will kill most organisms of concern, some toxins such as that produced by *Staphylococcus aureus*, cannot be inactivated through reheating of the food. It is imperative that food contamination be minimized to avoid this risk.

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

Refer also to the public health reason for ' 114008.

114018 Frozen food
114020 Thawing

Freezing prevents microbial growth in foods, but usually does not destroy all microorganisms. Improper thawing provides an opportunity for surviving bacteria to grow to harmful numbers and/or produce toxins. If the food is then refrozen, significant numbers of bacteria and/or all preformed toxins are preserved.

Chapter 4 Article 3 FOOD FROM APPROVED SOURCE

114021 Compliance with Food Law
Food prepared in private homes

A primary line of defense in ensuring that food meets the requirements of ' 114021 is to obtain food from approved sources, the implications of which are discussed below. However, it is also critical to monitor food products to ensure that, after harvesting and processing, they do not fall victim to conditions that endanger their safety, make them adulterated, or compromise their honest presentation. The regulatory community, industry, and consumers should exercise vigilance in controlling the conditions to which foods are subjected and be alert to signs of abuse. Depending on the circumstances rusted and pitted or dented cans may also present a serious potential hazard. Food, at all stages of production, is susceptible to contamination. The source of food is important because pathogenic microorganisms may be present in the breeding stock of farm animals, in feeds, in the farm environment, in waters used for raising and freezing aquatic foods, and in soils and fertilizers in which plant crops are grown. Chemical contaminants that may be present in field soils, fertilizers, irrigation water, and fishing waters can be incorporated into food plants and animals.

Food purchased from approved commercial sources under regulatory control poses less of a

public health risk than unregulated, private, home-owned sources. Commercial items are generally manufactured or prepared under controlled processes required for the safe preparation of food products entering public commerce. The home kitchen's limited capacity for maintaining food at proper temperatures, lack of adequate dishwashing equipment for sanitizing kitchenware and utensils, and the diverse sources of possible contaminating factors may result in significant microbial growth and toxin production.

114023 Food in a hermetically sealed container

Processing food at the proper high temperature for the appropriate time is essential to kill bacterial spores that, under certain conditions in an airtight container, begin to grow and produce toxin. Of special concern is the lethal toxin of *Clostridium botulinum*, an organism whose spores (i.e., survival stages for non-growth conditions) are found throughout the environment. Even slight under processing of low acid food, which is canned can be dangerous, because spoilage microbes are killed and there are no signs to warn consumers that botulinum spores have germinated into vegetative cells and produced their toxin. If these foods are not processed to be commercially sterile, they must be received frozen or under proper refrigeration. Foods that are in a hermetically sealed container from a food processing plant that is regulated by a food regulatory agency are monitored to prevent or detect the presence of *C. botulinum* and to ensure that Best Manufacturing Practices (BMP's) are observed throughout the process. Home-canned foods are not monitored or tested for toxins; therefore, it is essential that all foods hermetically sealed be received from an approved source.

114025 Ice

Freezing does not invariably kill microorganisms; on the contrary, it may preserve them. Therefore, ice that comes into contact with food to cool it or that is used directly for consumption must be as safe as drinking water that is periodically tested and approved for consumption.

114027 Fish

Hazards known to be associated with specific fish species are discussed in the FDA Fish and Fishery Products Hazards and Controls Guide, available from the FDA Office of Seafood. Species-related hazards include pathogens, parasites, natural toxins, histamine, chemicals, and drugs.

The seafood implicated in histamine poisoning are the scombroid toxin-forming species, defined in 21 CFR 123.3(m) as meaning bluefish, mahi-mahi, tuna, and other species, whether or not in the family **Scrombridae**, in which significant levels of histamine may be produced in the fish flesh by decarboxylation of free histidine as a result of exposure of the fish after capture to temperatures that allow the growth of mesophilic bacteria.

Ciguatera toxin is carried to humans by contaminated fin fish from the extreme southeastern U.S., Hawaii, and subtropical and tropical areas worldwide. In the south Florida, Bahamian,

and Caribbean regions, barracuda, amberjack, horse-eye jack, black jack, other large species of jack, king mackerel, large groupers, and snappers are particularly likely to contain ciguatoxin. Many other species of large predatory fishes may be suspect. In Hawaii and throughout the central Pacific, barracuda, amberjack, and snapper are frequently ciguatoxic, and many other species both large and small are suspect. Mackerel and barracuda are frequently ciguatoxic from mid to northeastern Australian waters.

114029M Molluscan shellfish

Pathogens found in waters from which molluscan shellfish are harvested can cause disease in consumers. Molluscan shellfish include: 1) oysters; 2) clams; 3) mussels; and, 4) scallops, except where the final product is the shucked adductor muscle only. The pathogens of concern include both bacteria and viruses.

Pathogens from the harvest area are of particular concern in molluscan shellfish because: 1) environments in which molluscan shellfish grow are commonly subject to contamination from sewage, which may contain pathogens, and to naturally occurring bacteria, which may also be pathogens; 2) molluscan shellfish filter and concentrate pathogens that may be present in surrounding waters; and, 3) molluscan shellfish are often consumed whole, either raw or partially cooked.

To minimize the risk of molluscan shellfish containing pathogens of sewage origin, State and foreign government agencies, called Shellfish Control Authorities, classify waters, in which molluscan shellfish are found, based, in part, on an assessment of water quality. As a result of these classifications, molluscan shellfish harvesting is allowed from some waters, not from others, and only at certain times or under certain restrictions from others. Shellfish Control Authorities then exercise control over the molluscan shellfish harvesters to ensure that harvesting takes place only when and where it has been allowed.

Significant elements of Shellfish Control Authorities' efforts to control the harvesting of molluscan shellfish include: 1) a requirement that containers of in-shell molluscan shellfish (shellstock) bear a tag that identifies the type and quantity of shellfish, harvester, harvest location, and date of harvest; and, 2) a requirement that molluscan shellfish harvesters be licensed; 3) a requirement that processors that shuck molluscan shellfish or ship, reship, or repack the shucked product be certified; and, 4) a requirement that containers of shucked molluscan shellfish bear a label with the name, address, and certification number of the shucker-packer or repacker.

Pathogens, such as *Vibrio vulnificus*, *Vibrio parahaemolyticus*, *Vibrio cholerae*, and *Listeria monocytogenes* that may be present in low numbers at the time that molluscan shellfish are harvested, may increase to more hazardous levels if they are exposed to time/temperature abuse. To minimize the risk of pathogen growth, Shellfish Control Authorities place limits on the time between harvest and refrigeration. The length of time is dependant upon either the month of the year or the average monthly maximum air temperature (AMMAT) at the time of harvest, which is determined by the Shellfish Control Authority.

Paralytic shellfish poisoning (PSP) results from shellfish feeding upon toxic microorganisms such as dinoflagellates. In the U.S., PSP is generally associated with the consumption of molluscan shellfish from the northeast and northwest coastal regions of the U.S. PSP in other parts of the world has been associated with molluscan shellfish from environments ranging from tropical to temperate waters. In addition, in the U.S., PSP toxin has recently been reported from the viscera of mackerel, lobster, dungeness crabs, tanner crabs, and red rock crabs.

Neurotoxic shellfish poisoning (NSP) in the U.S. is generally associated with the consumption of molluscan shellfish harvested along the coast of the Gulf of Mexico, and, sporadically, along the southern Atlantic coast. There has been a significant occurrence of toxins similar to NSP in New Zealand, and some suggestions of occurrence elsewhere.

For diarrhetic shellfish poisoning there has been no documented occurrence to date in the U.S. However, instances have been documented in Japan, Southeast Asia, Scandinavia, Western Europe, Chile, New Zealand, and Eastern Canada.

Amnesic shellfish poisoning (ASP) is generally associated with the consumption of molluscan shellfish from the northeast and northwest coasts of North America. It has not yet been a problem in the Gulf of Mexico, although the algae that produce the toxin have been found there. ASP toxin has recently been identified as a problem in the viscera of Dungeness crab, tanner crab, red rock crab, and anchovies along the west coast of the United States.

Marine toxins are not ordinarily a problem in scallops if only the adductor muscle is consumed. However, products such as roe-on scallops and whole scallops do present a potential hazard for natural toxins.

To reduce the risk of illness associated with raw shellfish consumption, the Food and Drug Administration (FDA) administers the National Shellfish Sanitation Program (NSSP). The NSSP is a tripartite, cooperative action plan involving federal and state public health officials and the shellfish industry. Those groups work together to improve shellfish safety. States regularly monitor waters to ensure that they are safe before harvesting is permitted. FDA routinely audits the states' classification of shellfish harvesting areas to verify that none pose a threat to public health. Patrolling of closed shellfishing waters minimizes the threat of illegal harvesting or "bootlegging" from closed waters. Bootlegging is a criminal activity and a major factor in shellfish-borne illnesses. Purchases from certified dealers that adhere to NSSP controls are essential to keep risks to a minimum.

114031 Game animals

The primary concern regarding game animals relates to animals obtained in the wild. Wild game animals may be available as a source of food only if a regulatory inspection program is in place to ensure that wild animal products are safe. This is important because wild animals may be carriers of viruses, rickettsiae, bacteria, or parasites that cause illness (zoonoses) in humans. Some of these diseases can be severe in the human host. In addition to the risk posed to consumers of game that is not subject to an inspection program, there is risk to those who harvest and prepare wild game because they may contract infectious diseases such as rabies or tularemia.

Special Note: Wild Mushrooms

At the request of the Food and Drug Administration (FDA), the following section on wild mushrooms is included for guidance only. The FDA is currently conducting studies regarding wild mushrooms and the requirement to receive food from approved sources. This section is included in its entirety from the FDA's 2005 Model Food Code and any references to sections are references to the 2005 Model Food Code Public Health Reasons Annex:

“3-201.16 Wild Mushrooms.*

Over 5000 species of fleshy mushrooms grow naturally in North America. The vast majority has never been tested for toxicity. It is known that about 15 species are deadly and another 60 are toxic to humans whether they are consumed raw or cooked. An additional 36 species are suspected of being poisonous, whether raw or cooked. At least 40 other species are poisonous if eaten raw, but are safe after proper cooking.

Some wild mushrooms that are extremely poisonous may be difficult to distinguish from edible species. In most parts of the country there is at least one organization that include individuals who can provide assistance with both identification and program design. Governmental agencies, universities, and mycological societies are examples of such groups. If a food establishment chooses to sell wild mushrooms, management must recognize and address the need for a sound identification program for providing safe wild mushrooms. Regulatory authorities have expressed their difficulty in determining what constitutes a “wild mushroom identification expert” and enforcing the Food Code provisions associated with it. In 1998, the Conference for Food Protection (CFP) attempted to alleviate this problem through the formation of a committee that was charged with determining what constitutes a wild mushroom expert. However, the committee was unable to provide this information in a practical, useful manner for State and local regulators within the constraints of the Food Code.

The 2000 CFP recommended and FDA accepted the committee’s alternative solution that a brochure be developed that will provide information on what constitutes a wild mushroom expert, and to replace “identification by a wild mushroom expert” with “written buyer specifications.”

The CFP’s recommendation attempts to provide the necessary information in a practical, useful manner for all stakeholders, and yet still convey the highest level of public health protection. The CFP committee suggested that written buyer specifications place more responsibility on the food establishment to ensure that wild mushrooms are obtained from a safe source, and also provides State and local regulators a template to use in ensuring wild mushrooms sold at retail are obtained from a safe source. However, the recommendation for written buyer specifications will not replace Food Code paragraph 3-201.16(A) until the brochure is developed and accepted by the CFP and FDA. In the interim, the following guidance is provided regarding the identification of wild mushrooms:

A food establishment that sells or serves mushroom species picked in the wild shall have a written buyer specification that requires identification of:

- (1) The Latin binomial name, the author of the name, and the common name of the mushroom species,

- (2) That the mushroom was identified while in the fresh state,
- (3) The name of the person, who identified the mushroom,
- (4) A statement as to the qualifications and training of the identifier, specifically related to mushroom identification.

Additional information can be found on the California Poison Control web site:
<http://www.calpoison.org/public/mushrooms.html>.

Chapter 4 Article 4 RECEIPT OF FOOD

114035 Inspection upon receipt

Damaged or incorrectly applied packaging may allow the entry of bacteria or other contaminants into the contained food. If the integrity of the packaging has been compromised, contaminants such as *Clostridium botulinum* may find their way into the food. In anaerobic conditions (lack of oxygen), botulism toxin may be formed. Packaging defects may not be readily apparent. This is particularly the case with low acid canned foods. Close inspection of cans for imperfections or damage may reveal punctures or seam defects. In many cases, suspect packaging may have to be inspected by trained persons using magnifying equipment. Irreversible and even reversible swelling of cans (hard swells and flippers) may indicate can damage or imperfections (lack of an airtight, i.e., hermetic seal). Swollen cans may also indicate that not enough heat was applied during processing (underprocessing). Suspect cans must be returned and not offered for sale.

114037 Receiving temperatures

Temperature is one of the prime factors that control the growth of bacteria in food. Many, though not all, types of pathogens and spoilage bacteria are prevented from multiplying to microbiologically significant levels in properly refrigerated foods that are not out of date. Therefore, it is imperative that refrigerated potentially hazardous foods be received at the temperature specified in Code.

High temperatures for a long enough time, such as those associated with thorough cooking kill or inactivate many types of microorganisms. However, cooking does not always destroy the toxins produced in foods by certain bacteria (such as the heat stable enterotoxins of *Staphylococcus aureus*). Cooking or hot holding that follows temperature abuse may not make the food safe. Keeping cooked foods hot as required in the Code prevents significant regrowth of heat-injured microorganisms and prevents recontamination with bacteria that are newly introduced.

Potentially hazardous foods that have visible signs of thawing, refreezing, or temperature abuse may contain pathogens in significant amounts. Improper thawing provides an opportunity for surviving bacteria to grow to harmful numbers and/or produce toxins. If the food is refrozen, many bacteria and/or the performed toxins are preserved.

114039 Shucked shellfish, packaging and identification

Plastic containers commonly used throughout the shellfish industry for shucked product bear specific information regarding the source of the shellfish as required by the NSSP Guide for

the Control of Molluscan Shellfish. These containers must be nonreturnable so that there is not a potential for their subsequent reuse by shellfish packers. Such reuse could result in shucked product being inaccurately identified by the label. The reuse of these containers within the food facility must be assessed on the basis of the CRFC's criteria for multi-use containers and the likelihood that they will be properly relabeled to reflect their new contents.

114039.1 Shellstock identification

Accurate source identification of the harvesting area, harvester, and dealers must be contained on molluscan shellstock identification tags so that if a shellfish-borne disease outbreak occurs, the information is available to expedite the epidemiological investigation and regulatory action.

114039.2 Shellstock, condition

Dirty, damaged, or dead shellstock can contaminate and degrade live and healthy shellstock and lead to foodborne illness. Harvesters have the primary responsibility for culling shellstock, but this responsibility continues throughout the distribution chain.

114039.3 Molluscan shellfish, original container

Lot separation is critical to isolating shellfish implicated in illness outbreaks and tracking them to their source. Proper identification is needed for tracing the origin and determining conditions of shellfish processing and shipment. If the lots are commingled at retail, traceability is undermined and the root of the problem may remain undetected. If no causative factors are identified in the food facility, tracing the incriminated lot helps in identifying products that need to be recalled or growing waters that may need to be closed to harvesting.

114039.4 Shellstock, maintaining identification

Accurate records that are maintained in a manner that allows them to be readily matched to each lot of shellstock provide the principal mechanism for tracing shellstock to its original source. If an outbreak occurs, regulatory authorities must move quickly to close affected growing areas or take other appropriate actions to prevent further illnesses. Records must be kept for 90 days to allow time for hepatitis A virus infections, which have an incubation period that is significantly longer than other shellfish-borne diseases, to come to light. The 90-day requirement is based on the following considerations:

Shelf-life of the product.....	14 days
Incubation period ...	56 days
Medical diagnosis and confirmation .	5 days
Reporting ..	5 days
<u>Epidemiological investigation ..</u>	<u>10 days</u>
Total	90 days

114041 Shell eggs

Damaged shells permit the entry of surface bacteria to the inside of eggs. Eggs are an especially good growth medium for many types of bacteria. Damaged eggs must not be used as food.

114043 Eggs and milk products, pasteurized

Milk, which is a staple for infants and very young children with incomplete immunity to infectious diseases, is susceptible to contamination with a variety of microbial pathogens such as *Escherichia coli* O157:H7, *Salmonella* spp., and *Listeria monocytogenes*, and provides a rich medium for their growth. This is also true of milk products. Pasteurization is required to eliminate pathogen contamination in milk and products derived from milk. Dairy products are normally perishable and must be received under proper refrigeration conditions. Liquid egg, fluid milk, and milk products are especially good growth media for many types of bacteria and must be pasteurized. Pasteurization is a heat process that will kill or inactivate bacteria and other harmful microorganisms likely to be in these potentially hazardous foods. Freezing and drying of unpasteurized products will stop microbial growth and may reduce their bacterial populations; however, some organisms will survive because neither process kills all bacteria. Under certain conditions, freezing and drying may preserve microbes. An alternative to pasteurization may be applicable to certain cheese varieties cured or aged for a specified amount of time prior to marketing for consumption.

Chapter 4 Article 5 FOOD STORAGE

114047 Food storage, adequate space

When adequate shelving is not provided, food products are found stored on the floor or other inappropriate areas. This practice can lead to adulteration or contamination of the food product. The storage areas should be segregated from food preparation areas to avoid unintentional adulteration of one food product with another.

114049 Food storage, prohibited areas

Pathogens can contaminate and/or grow in food that is not stored properly. Drips of condensate and drafts of unfiltered air can be sources of microbial contamination for stored food. Shoes carry contamination onto the floors of food preparation and storage areas. Even trace amounts of refuse or wastes in rooms used as toilets or for dressing, storing garbage or implements, or housing machinery can become sources of food contamination. Moist conditions in storage areas promote microbial growth.

114051 Food storage containers, identified with common name of food

Certain foods may be difficult to identify after they are removed from their original packaging. Consumers may be allergic to certain foods or ingredients. The mistaken use of an ingredient, when the consumer has specifically requested that it not be used, may result in severe medical consequences.

The mistaken use of food from unlabeled containers could result in chemical poisoning. For example, foodborne illness and death have resulted from the use of unlabeled salt, instead of sugar, in infant formula and special dietary foods. Liquid foods, such as oils, and granular foods that may resemble cleaning compounds are also of particular concern.

114053 Storage or display of food in contact with water or ice

Packages that are not watertight may allow entry of water that has been exposed to unsanitary exterior surfaces of packaging, causing the food to be contaminated. This may also result in the addition of water to the food that is unclaimed in the food's formulation and label. Unpackaged foods such as fresh fish are often stored and/or displayed on ice. A potential for increasing the microbial load of a food exists because, as the ice melts, pathogens from one food may be carried by water to other foods. Continuous draining of melting ice reduces the potential for contamination.

Chapter 4 Article 6 SPECIALIZED PROCESSING METHODS

114057 Reduced oxygen packaging, criteria

A Hazard Analysis Critical Control Point (HACCP) plan is necessary when using reduced oxygen packaging (ROP) processing procedures. A reduced oxygen packaged food that has at least two barriers to the growth and toxin production of *C. botulinum* may be packaged in accordance with the provisions of a HACCP plan. The FDA recommends two barriers be used to ensure the safety of foods when *C. botulinum* is a known hazard in the final packaged form.

An ROP food that has only one barrier to the growth and toxin production of *C. botulinum* may be produced only if the food facility obtains a variance and produces the food in accordance with the provisions of a HACCP plan. An example of a single barrier would be a food with a natural pH of 4.6 or less. Regardless of whether a variance is required, the primary safety barrier that must be monitored for control is adequate refrigeration. Variance requests related to packaging food using reduced levels of oxygen and having only one barrier to control the growth of *C. botulinum* must be considered with particular caution and scrutiny.

This section does not apply to low acid canned foods produced under 21 CFR Part 108 (Emergency Permit Control) and 21 CFR Part 113 (Thermally Processed Low-Acid Foods) or 21 CFR Part 114 (Acidified Foods) because *C. botulinum* is not a hazard in the final packaged form.

FDA strongly recommends that garlic-in-oil mixtures that are produced in a food facility have two barriers in place. It is not possible to acidify the oil although the crushed cloves can be acidified. An example of two effective barriers is acidification of crushed garlic cloves and refrigeration of the garlic-in-oil mixture. Acidification means a finished equilibrium pH of 4.6 or less. Garlic-in-water mixtures can be acidified and refrigerated, using a HACCP plan without the necessity of a variance.

Unfrozen raw fish is specifically excluded from ROP because of this product's natural association with *Clostridium botulinum*, Type E, which grows at or above 3°C (38°F). To be adequate, a HACCP plan must identify critical control points that are to be monitored to minimize microbial growth during product packaging and storage.

Earlier FDA guidance regarding the reduced oxygen packaging of cured meat products specified a combination of nitrites, nitrates, and salt that at the time of processing consisted of a concentration of at least 120 mg/L of sodium nitrite and a minimum brine concentration of 3.5%. The Code reflects the fact that various substances, combinations of substances, and resultant concentrations are allowed in CFR administered by USDA. The Code provision also includes the requirement for cured poultry products to meet the CFR.

Shelf-life must be determined considering holding temperatures as some pathogens, including *Listeria monocytogenes*, may be a hazard at refrigeration temperatures. Safe food that remains frozen from the time it is packaged until prepared for service is considered adequately protected.

Chapter 4 Article 7 FOOD DISPLAY AND SERVICE

114060 Food display

During display, food can be contaminated even when there is no direct hand contact. Many microbes can be conveyed considerable distances on air currents through fine sprays or aerosols. These may originate from people breathing or sneezing, water sprays directed at drains, or condensate from air conditioners. Even wind gusts across sewage deposits and fertilized fields have been known to contaminate food in adjacent food facilities where food was unprotected.

114063 Consumer self-service operations

Raw foods of animal origin usually contain pathogens. In addition, these foods, if offered for consumer self-service, could cross contaminate other foods stored in the same display. Because raw foods of animal origin are assumed to be contaminated and do provide an ideal medium for the growth of pathogenic organisms, they should not be available for consumer self-service. Self-service operations of ready-to-eat foods also provide an opportunity for contamination by consumers. The risk of contamination can be reduced by supplying clean utensils and dispensers and by employee monitoring of these operations to ensure that the utensils and dispensers are properly used.

Bean sprouts that are displayed in produce areas for consumer self-service are potentially hazardous foods and appropriate refrigeration must be maintained. However, they are not considered ready-to-eat since the consumers are expected to wash these food items prior to consumption.

Appropriate serving utensils provided at each container will, among other things, reduce the likelihood of food tasting, use of fingers to serve food, use of fingers to remove the remains of one food on the utensil so that it may be used for another, use of soiled tableware to transfer food, and cross contamination between foods, including a raw food to a cooked potentially hazardous food.

114065 Customer self-service bulk beverage dispensing

This requirement is intended to protect the machine-dispensed, unpackaged, liquid foods and the machine components from contamination. Barriers need to be provided so that the only liquid entering the food container is the liquid intended to be dispensed when the machine's mechanism is activated. Recessing of the machine's components and self-closing doors prevent contamination of machine ports by people, dust, insects, or rodents. If the equipment components become contaminated, the product itself will be exposed to possible contamination.

A direct opening into the food being dispensed allows dust, vermin, and other contaminants access to the food.

114067 Satellite food service

See PHRA 113818 for limited food preparation definition.
Also see PHRA 113980, 113982, 113952, 113953, 114099, 114099.2

114069 Outdoor displays and sales

The potential for contamination from airborne dust and particulates or inclement weather is present in outside areas. Overhead protection minimizes the potential for contamination of food under such conditions.

114073 Bulk milk containers

Bulk milk dispensing tubes can become contaminated if they are long enough to go below the lip of a glass or cup that has been used by a customer and is being refilled. Cutting the tube to less than one inch prevents the tube from entering the glass and prevents transferring any contamination.

114074 Tableware

Food-and-lip contact surfaces of tableware can become contaminated by unnecessary handling and/or airborne contaminants if left exposed for significant periods of time, especially if left exposed on surfaces which have not been properly cleaned and sanitized.

114075 Using clean tableware for second portions and refills

See PHRA 114113

114077 Condiments, protection

Unpackaged condiments are exposed to contamination by consumers who could be suffering from a disease transmissible through food. Once the condiments are contaminated, subsequent consumers using the condiments may be exposed to pathogens. Condiments in individual packages are protected from consumer contamination.

On- or off-site facilities for refilling condiment dispensers must be adequately equipped to ensure that the filling operation does not introduce contaminants.

114079 Returned food and reserving of food

Food can serve as a means of person-to-person transmission of disease agents such as hepatitis A virus. Any unpackaged foods, even bakery goods in a bread basket that are not potentially hazardous and that have been served to a consumer, but not eaten, can become vehicles for transmitting pathogenic microorganisms from the initial consumer to the next if the food is served again.

114081 Handling of single use articles and multi-service utensils

See PHRA 114074

114083 Soiled tableware

The removal of soiled tableware prevents transmission of contaminants to freshly cleaned and reset eating and drinking areas.

Chapter 4 Article 8 CONSUMER INFORMATION

114089 Labeling

Sources of packaged food must be labeled in accordance with law. Proper labeling of foods allows consumers to make informed decisions about what they eat. Many consumers, as a result of an existing medical condition, may be sensitive to specific foods or food ingredients. This sensitivity may result in dangerous medical consequences should certain foods or ingredients be unknowingly consumed. In addition, consumers have a basic right to be protected from misbranding and fraud.

**114091 Highly susceptible population – pasteurized foods
 prohibited re-service and prohibited foods**

The California Retail Food Code provisions that relate to highly susceptible populations are combined in this section for ease of reference and to add emphasis to special food safety precautions that are necessary to protect those who are particularly vulnerable to foodborne illness and for whom the implications of such illness can be dire.

As a safeguard for highly susceptible populations from the risk of contracting foodborne illness from juice, prepackaged juice is required to be obtained pasteurized or in a commercially sterile, shelf-stable form in a hermetically sealed container. It is important to note that the definition of juice includes puréed fruits and vegetables, which is commonly prepared for service to highly susceptible populations. There are documented cases of foodborne illness throughout the United States that were associated with the consumption of various juice products contaminated with microorganisms such as *Cryptosporidium*, *E. coli* O157:H7, *Salmonella* spp., and *Vibrio cholera*. As new information becomes available, the Food Code will be modified or interim interpretive guidance will be issued regarding foodborne illness interventions for on-site juicing and puréeing.

Salmonella often survives traditional preparation techniques. It survives in a lightly cooked omelet, French toast, stuffed pasta, and meringue pies. In 1986 there was a large multistate outbreak of *Salmonella enteritidis* traced to stuffed pasta made with raw eggs and labeled fully cooked. Eggs remain a major source of these infections, causing large outbreaks when they are combined and undercooked, as was the case in the 1986 outbreak linked to stuffed pasta. Therefore, special added precautions need to be in place with those most susceptible to foodborne illness.

Operators of food facilities serving highly susceptible populations may wish to discuss buyer specifications with their suppliers. Such specifications could stipulate eggs that are produced only by flocks managed under a *Salmonella enteritidis* control program that is recognized by a regulatory agency that has animal health jurisdiction. Such programs are designed to reduce the presence of *Salmonella enteritidis* in raw shell eggs. In any case, the food facility operator must use adequate time and temperature controls within the food facility to minimize the risk of a foodborne illness outbreak relating to *Salmonella enteritidis*.

Since 1995, raw seed sprouts have emerged as a recognized source of foodborne illness in the United States. The FDA and CDC have issued health advisories to remind those persons who are at a greater risk for foodborne disease to avoid eating raw alfalfa sprouts until such time as intervention methods are in place to improve the safety of these products. For further information, see the FDA Talk Paper entitled, [Interim Advisory on Alfalfa Sprouts](#) issued on August 31, 1998 and available on the FDA web site (www.fda.gov). Since this issue continues to be under investigation, FDA recommends that interested persons check the FDA web site periodically for more recent, updated information.

Although the California Food Code's allowance for the Regulatory Authority to grant a variance (refer to 8-103.10 - .12, 8-201.14, and 8-304.11) is applicable to all Code provisions, variance requests related to the preparation of food for highly susceptible populations must be considered with particular caution and scrutiny. With all variances, the hazard(s) must be clearly identified and controlled by a HACCP plan that is instituted in conjunction with a standard operational plan that implements good retail practices. Variances that will impact a highly susceptible population must be considered in light of the fact that such a population is at a significantly higher risk of contracting foodborne illnesses and suffering serious consequences including death from those illnesses, than is the general population.

Subparagraph 3-801.11(E)(3) requires a HACCP plan for the use of raw shell eggs when eggs are combined in food facilities serving highly susceptible populations. A variance is not required since the HACCP plan criteria are specific, prescriptive, and conservative and require a cooking temperature and time to ensure destruction of ***Salmonella enteriditis***.

CHAPTER 5 CLEANING AND SANITIZING OF EQUIPMENT AND UTENSILS

114099 Manual warewashing, sink compartment requirements

The 3-compartment requirement allows for proper execution of the 3-step manual warewashing procedure. If properly used, the 3 compartments reduce the chance of contaminating the sanitizing water and therefore diluting the strength and efficacy of the chemical sanitizer that may be used.

Refer also to the public health reason for ' 114099.2.

114099.1 Precleaning

Precleaning of utensils, dishes, and food equipment allows for the removal of grease and food debris to facilitate the cleaning action of the detergent. Depending upon the condition of the surface to be cleaned, detergent alone may not be sufficient to loosen soil for cleaning. Heavily soiled surfaces may need to be presoaked or scrubbed with an abrasive.

114099.2 Manual warewashing procedure

Efficacious sanitization is dependent upon warewashing being conducted within certain parameters. Time is a parameter applicable to both chemical and hot water sanitization. The time that hot water or chemicals contact utensils or food-contact surfaces must be sufficient to destroy pathogens that may remain on surfaces after cleaning. Other parameters, such as temperature or chemical concentration, are used in combination with time to deliver effective sanitization.

It is important to rinse off detergents, abrasive, and food debris after the wash step to avoid diluting or inactivating the sanitizer. Sanitization is accomplished after the warewashing steps of cleaning and rinsing so that utensils and food-contact surfaces are sanitized before coming in contact with food and before use.

Failure to maintain clean wash, rinse, and sanitizing solutions adversely affects the warewashing operation. Equipment and utensils may not be sanitized, resulting in subsequent contamination of food.

114099.3 Washing, procedures for alternative manual warewashing equipment

Some pieces of equipment are too large (or fixed) to be cleaned in a sink. Nonetheless, cleaning of such equipment requires the application of cleaners for the removal of soil and rinsing for the removal of abrasive and cleaning chemicals, followed by sanitization.

Some chemical sanitizers are not compatible with detergents when a 2-compartment operation is used. When using a sanitizer that is different from the detergent-sanitizer of the wash compartment, the sanitizer may be inhibited by carry-over, resulting in inadequate sanitization.

114099.4 Manual warewashing heat sanitization

If the temperature during the hot water sanitizing step is less than 171°F, sanitization will not be achieved. As a result, pathogenic organisms may survive and be subsequently transferred from utensils to food.

Hot water sanitization is accomplished in water of not less than (170°F) and an integral heating device is necessary to ensure that the minimum temperature is reached.

The rack or basket is required in order to safely handle the equipment and utensils being washed and to ensure immersion. Water at this temperature could result in severe burns to employees operating the equipment.

114099.5 Temperature-measuring devices, manual warewashing

Water temperature is critical to sanitization in warewashing operations. This is particularly true if the sanitizer being used is hot water. The effectiveness of cleaners and chemical sanitizers is also determined by the temperature of the water used. A temperature-measuring device is essential to monitor manual warewashing and ensure sanitization.

114101 Mechanical machine warewashing procedures

Items to be washed in a warewashing machine must receive unobstructed exposure to the spray to ensure adequate cleaning. Items that are stacked, or trays which are heavily loaded with silverware, cannot receive complete distribution of detergent, water, or sanitizer and cannot be considered to be clean.

114101.1 Warewashing machine, data plate operating specifications

The data plate provides the operator with the fundamental information needed to ensure that the machine is effectively washing, rinsing, and sanitizing equipment and utensils. The warewashing machine has been tested, and the information on the data plate represents the parameters that ensure effective operation and sanitization and that need to be monitored.

To ensure properly cleaned and sanitized equipment and utensils, warewashing machines must be operated properly. The manufacturer affixes a data plate to the machine providing vital, detailed instructions about the proper operation of the machine including wash, rinse, and sanitizing cycle times and temperatures which must be achieved.

114101.2 Warewashing machines, temperature-measuring devices

The requirement for the presence of a temperature-measuring device in the warewashing machine as the water enters the hot water sanitization final rinse manifold or in the chemical sanitizing tank is based on the importance of temperature in the sanitization step. In hot water machines, it is critical that minimum temperatures be met at the various cycles so that the cumulative effect of successively rising temperatures causes the surface of the item being washed to reach the required temperature for sanitization. When chemical sanitizers are used, specific minimum temperatures must be met. The temperature of the solution directly affects the effectiveness of chemical sanitizers.

114103 Drainboards

Drainboards or equivalent equipment are necessary to separate soiled and cleaned items from each other and from the food preparation area in order to preclude contamination of cleaned items and of food.

Drainboards allow for the control of water running off equipment and utensils that have been washed and also allow the operator to properly store washed equipment and utensils while they air-dry.

The draining requirement in equipment components is needed to prevent the pooling of water. Pooled water could contain or provide a favorable environment for pathogens and other contaminants.

114105 Equipment and utensils, air-drying required

Items must be allowed to drain and to air-dry before being stacked or stored. Stacking wet items such as pans prevents them from drying and may allow an environment where microorganisms can begin to grow. Cloth drying of equipment and utensils is prohibited to prevent the possible transfer of microorganisms to equipment or utensils.

114107 Sanitizing solutions, testing devices

The effectiveness of chemical sanitizers is determined primarily by the concentration and pH of the sanitizer solution.

Testing devices to measure the concentration of sanitizing solutions are required for two reasons:

1. The use of chemical sanitizers requires minimum concentrations of the sanitizer during the final rinse step to ensure sanitization; and
2. Too much sanitizer in the final rinse water could be toxic.

114111 Dry cleaning methods

Dry cleaning methods are indicated in only a few operations, which are limited to dry foods that are not potentially hazardous. Under some circumstances, attempts at wet cleaning may create microbiological concerns.

114113 Food contact with equipment and utensils

Pathogens can be transferred to food from utensils that have been stored on surfaces that have not been cleaned and sanitized. They may also be passed on by consumers or employees, directly or indirectly, from used tableware or food containers.

Some pathogenic microorganisms survive outside the body for considerable periods of time. Food that comes into contact directly or indirectly with surfaces that are not clean and sanitized is liable to such contamination. The handles of utensils, even if manipulated with gloved hands, are particularly susceptible to contamination.

Probe-type price or identification tags are defined as a utensil. Probe-type price or product identification tags can cause microbial, chemical, or physical contamination if not properly designed, constructed, and maintained.

114115 Equipment, food-contact surfaces, nonfood-contact surfaces, and utensils

The objective of cleaning focuses on the need to remove organic matter from food-contact surfaces so that sanitization can occur and to remove soil from nonfood contact surfaces so that pathogenic microorganisms will not be allowed to accumulate and insects and rodents will not be attracted.

114117 Cleaning frequency of equipment food-contact surfaces and utensils

Microorganisms may be transmitted from a food to other foods by utensils, cutting boards, thermometers, or other food-contact surfaces. Food-contact surfaces and equipment used for potentially hazardous foods should be cleaned as needed throughout the day but must be cleaned no less than every 4 hours to prevent the growth of microorganisms on those surfaces.

Effective sanitization procedures destroy organisms of public health importance that may be present on wiping cloths, food equipment, or utensils after cleaning, or which has been introduced into the rinse solution. It is important that surfaces be clean before being sanitized to allow the sanitizer to achieve its maximum benefit.

Refrigeration temperatures slow down the generation time of bacterial pathogens, making it unnecessary to clean every four hours. However, the time period between cleaning equipment and utensils may not exceed 24 hours.

Surfaces of utensils and equipment contacting food that is not potentially hazardous such as iced tea dispensers, carbonated beverage dispenser nozzles, beverage dispensing circuits or lines, water vending equipment, coffee bean grinders, ice makers, and ice bins must be cleaned on a routine basis to prevent the development of slime, mold, or soil residues that may contribute to an accumulation of microorganisms. Some equipment manufacturers and industry associations, e.g., within the tea industry, develop guidelines for regular cleaning and sanitizing of equipment. If the manufacturer does not provide cleaning specifications for food-contact surfaces of equipment that are not readily visible, the person in charge should develop a cleaning regimen that is based on the soil that may accumulate in those particular items of equipment.

114119 In-use utensils, between-use storage

Refer to the public health reason for ' 114113.

Once a food employee begins to use a utensil such as a ladle, spatula, or knife, that has been previously cleaned and sanitized, it is then considered an in-use utensil. In-use utensils, used on a continuous or intermittent basis during preparation or dispensing, must be cleaned and sanitized on a schedule that precludes the growth of pathogens that may have been introduced onto utensil surfaces. In-use utensils may be safely stored in hot water maintained at 135°F or above during intermittent use because microbial growth is controlled at such temperatures.

114121 Returnables, cleaning for refilling

The refilling of consumer-owned beverage containers introduces the possibility of contamination of the filling equipment or product by improperly cleaned containers or the improper operation of the equipment. To prevent this contamination and possible health hazards to the consumer, the refilling of consumer-owned containers is limited to beverages that are not potentially hazardous. Equipment must be designed to prevent the contamination of the equipment and means must be provided to clean the containers at the facility.

Refer to the public health reason for ' 114113.

114125 Warewashing sinks, use limitation

If the wash sink is used for functions other than warewashing, such as washing wiping cloths or washing and thawing foods, contamination of equipment and utensils could occur.

CHAPTER 6 EQUIPMENT, UTENSILS, AND LINENS

Chapter 6 Article 1 DESIGN AND CONSTRUCTION

114130 Equipment and utensils

Under ANSI document CA-1 ANSI Policy and Criteria for Accreditation of Certification Programs, it has been stipulated that:

"For food equipment programs, standards that establish sanitation requirements shall be specified government standards or standards that have been ratified by a public health approval step. ANSI shall verify that this requirement has been met by communicating with appropriate standards developing organizations and governmental public health bodies."

The term certified is used when an item of food equipment has been evaluated against an organization's own standard. The term classified is used when one organization evaluates an item of food equipment against a standard developed by another organization.

Equipment and utensils must be designed and constructed to be durable and capable of retaining their original characteristics so that such items can continue to fulfill their intended purpose for the duration of their life expectancy and to maintain their easy cleanability. If they cannot maintain their original characteristics, they may become difficult to clean, allowing for the harborage of pathogenic microorganisms, insects, and rodents. Equipment and utensils must be designed and constructed so that parts do not break and end up in food as foreign objects or present injury hazards to consumers. A common example of presenting an injury hazard is the tendency for tines of poorly designed single service forks to break during use.

114130.1 Characteristics

Multiuse equipment is subject to deterioration because of its nature, i.e., intended use over an extended period of time. Certain materials allow harmful chemicals to be transferred to the food being prepared which could lead to foodborne illness. In addition, some materials can affect the taste of the food being prepared. Surfaces that are unable to be routinely cleaned and sanitized because of the materials used could harbor foodborne pathogens. Deterioration of the surfaces of equipment such as pitting may inhibit adequate cleaning of the surfaces of equipment, so that food prepared on or in the equipment becomes contaminated.

Inability to effectively wash, rinse and sanitize the surfaces of food equipment may lead to the buildup of pathogenic organisms transmissible through food. Studies regarding the rigor required to remove biofilms from smooth surfaces highlight the need for materials of optimal quality in multiuse equipment.

114130.2 Single-use characteristics

The safety and quality of food can be adversely affected through single service and single use articles that are not constructed of acceptable materials. The migration of components of those materials to food they contact could result in chemical contamination and illness to the consumer. In addition, the use of unacceptable materials could adversely affect the quality of the food because of odors, tastes, and colors transferred to the food.

In situations in which the reuse of multiuse items could result in foodborne illness to consumers, single-service and single-use articles must be used to ensure safety.

Articles that are not constructed of multiuse materials may not be reused, as they are unable to withstand the rigors of multiple uses, including the ability to be subjected to repeated washing, rinsing, and sanitizing.

114130.3 Food-contact surfaces

The purpose of the requirements for multiuse food-contact surfaces is to ensure that such surfaces are capable of being easily cleaned and accessible for cleaning. Food-contact surfaces that do not meet these requirements provide a potential harbor for foodborne pathogenic organisms. Surfaces that have imperfections such as cracks, chips, or pits allow microorganisms to attach and form biofilms. Once established, these biofilms can release pathogens to food. Biofilms are highly resistant to cleaning and sanitizing efforts. The requirement for easy disassembly recognizes the reluctance of food employees to disassemble and clean equipment if the task is difficult or requires the use of special, complicated tools.

114130.4 Nonfood-contact surfaces

Nonfood-contact surfaces of equipment routinely exposed to splash or food debris are required to be constructed of nonabsorbent materials to facilitate cleaning. Equipment that is easily cleaned minimizes the presence of pathogenic organisms, moisture, and debris and deters the attraction of rodents and insects.

The presence of food debris or dirt on nonfood contact surfaces may provide a suitable environment for the growth of microorganisms, which employees may inadvertently transfer to food. If these areas are not kept clean, they may also provide harborage for insects, rodents, and other pests

Hard-to-clean areas could result in the attraction and harborage of insects and rodents and allow the growth of foodborne pathogenic microorganisms. Well-designed equipment enhances the ability to keep nonfood-contact surfaces clean.

114130.5 CIP equipment

Certain types of equipment are designed to be cleaned in place (CIP) when it is difficult or impractical to disassemble the equipment for cleaning. Because of the closed nature of the system, CIP cleaning must be monitored via access points to ensure that cleaning has been effective throughout the system.

The CIP design must ensure that all food-contact surfaces of the equipment are contacted by the circulating cleaning and sanitizing solutions. Dead spots in the system, i.e., areas that are not contacted by the cleaning and sanitizing solutions, could result in the buildup of food debris and growth of pathogenic microorganisms. There is equal concern that cleaning and sanitizing solutions might be retained in the system, which may result in the inadvertent adulteration of food. Therefore, the CIP system must be self-draining.

114132 Wood, use limitation

The limited acceptance of the use 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 result in illness due to the migration of the preservative chemicals to the food; therefore, only specific preservatives are allowed.

114133 Copper and copper alloys, use limitation

Copper can be leached into a food product if the pH of the food product is acidic enough (below 6.0). Backflow fittings for carbonators are subject to corrosive action from the substance passing through them. Corrosion of the backflow fittings would compromise the integrity of the fitting and prevent the backflow device from protecting the potable water supply.

114135 Sponges, use limitation

Sponges are difficult, if not impossible, to clean once they have been in contact with food particles and contaminants that are found in the use environment. Because of their construction, sponges provide harborage for any number and variety of microbiological organisms, many of which may be pathogenic. Therefore, sponges are to be used only where they will not contaminate cleaned and sanitized or in-use, food-contact surfaces such as for cleaning equipment and utensils before rinsing and sanitizing.

114137 "V" threads, use limitation

V-type threads present a surface that is difficult to clean routinely; therefore, they are not allowed on food-contact surfaces. The exception provided for hot oil cooking fryers and filtering systems is based on the high temperatures that are used in this equipment. The high temperature in effect sterilizes the equipment, including debris in the "V" threads.

114139 Can openers

Once can openers become pitted or the surface in any way becomes uncleanable, they must be replaced because they can no longer be adequately cleaned and sanitized. Can openers must be designed to facilitate replacement.

Refer to the public health reason for ' 114175

114141 Lubrication of food-contact surfaces

Food-contact surfaces must be lubricated in a manner that does not introduce contaminants to those surfaces.

114145 Vending machines

Failure to store potentially hazardous food at safe temperatures in a vending machine could result in the growth of pathogenic microorganisms that may result in foodborne illness. The presence of an automatic control that prevents the vending of food if the temperature of the unit exceeds Code requirements precludes the vending of foods that may not be safe.

It is possible and indeed very likely that the temperature of the storage area of a vending machine may exceed Code requirements during the stocking and servicing of the machine. The automatic shut off, commonly referred to as the "public health control", provides a limited amount of time that the ambient temperature of a machine may exceed Code requirements. Strict adherence to the time requirements can limit the growth of pathogenic microorganisms.

Since packaged foods dispensed from vending machines could attract insects and rodents, a self-closing door is required as a barrier to their entrance.

The potential for contamination from airborne dust and particulates or inclement weather is present in outside areas. Overhead protection minimizes the potential for contamination of food under such conditions.

The possibility of product contamination increases whenever food is exposed. Changing the container(s) for machine vended potentially hazardous food allows microbes that may be present an opportunity to contaminate the food. Pathogens could be present on the hands of the individual packaging the food, the equipment used, or the exterior of the original packaging. In addition, many potentially hazardous foods are vended in a hermetically sealed state to ensure product safety. Once the original seal is broken, the food is vulnerable to contamination.

Chapter 6 Article 2 VENTILATION

114149 Sufficient ventilation

Having sufficient ventilation to prevent excess heat reduces the workload of refrigeration equipment, which could cause failure of the equipment and subsequent loss of food product stored therein. Employee comfort prevents excess sweating which could possible contaminate food products during preparation.

114149.1 Mechanical exhaust ventilation, ventilation exemption

Removing the air-borne by-products of the cooking process increases the comfort level of the employees and customers, as well as protect against accidental fires.

Some equipment that is designed for cooking produces negligible amounts of heat, steam, vapors, smoke, or grease. When equipment is submitted for review by the local enforcement agency, a determination may be made that the equipment is capable of operating safely without mechanical exhaust ventilation and an exemption may be granted for that particular piece of equipment in that specific location.

114149.2 Ventilation hood systems, adequacy

If a ventilation system is inadequate, grease and condensate may build up on the floors, walls and ceilings of the food facility, causing an insanitary condition and possible deterioration of the surfaces of walls and ceilings. The accumulation of grease and condensate may contaminate food and food-contact surfaces as well as present a possible fire hazard.

Chapter 6 Article 3 LOCATION AND INSTALLATION

114153 Cooling, heating, and holding capacities

The ability of equipment to cool, heat, and maintain potentially hazardous foods at Code-required temperatures is critical to food safety. Improper holding and cooking temperatures continue to be major contributing factors to foodborne illness. Therefore, it is very important to have adequate hot or cold holding equipment with enough capacity to meet the heating and cooling demands of the operation.

114155 Molluscan shellfish tanks

Shellfish are filter feeders allowing concentration of pathogenic microorganisms that may be present in the water. Due to the number of shellfish and the limited volume of water used, display tanks may allow concentration of pathogenic viruses and bacteria.

Since many people eat shellfish either raw or lightly cooked, the potential for increased levels of pathogenic microorganisms in shellfish held in display tanks is of concern. If shellfish stored in molluscan shellfish tanks are offered for consumption, certain safeguards must be in place. Opportunities for contamination must be controlled or eliminated. Procedures must emphasize strict monitoring of the water quality of the tank including the filtering and disinfection system.

114157 Temperature-measuring devices

The placement of the temperature-measuring device is important. If the device is placed in the coldest location in the storage unit, it may not be representative of the temperature of the unit. Food could be stored in areas of the unit that exceed Code requirements. Therefore, the temperature-measuring device must be placed in a location that is representative of the actual storage temperature of the unit to ensure that all potentially hazardous foods are stored at least at the minimum temperature required in Chapter 3.

A permanent temperature-measuring device is required in any unit storing potentially hazardous food because of the potential growth of pathogenic microorganisms should the temperature of the unit exceed Code requirements. In order to facilitate routine monitoring of the unit, the device must be clearly visible.

The exception to requiring a temperature-measuring device for the types of equipment listed is primarily due to equipment design and function. It would be difficult and impractical to permanently mount a temperature-measuring device on the equipment listed. The futility of attempting to measure the temperature of unconfined air such as with heat lamps and, in some cases, the brief period of time the equipment is used for a given food negate the usefulness of ambient temperature monitoring at that point. In such cases, it would be more practical and accurate to measure the internal temperature of the food.

The importance of maintaining potentially hazardous foods at the specified temperatures requires that temperature-measuring devices be easily readable. The inability to accurately read a thermometer could result in food being held at unsafe temperatures.

Temperature-measuring devices must be appropriately scaled per Code requirements to ensure accurate readings.

- The required incremental gradations are more precise for food measuring devices than for those used to measure ambient temperature because of the significance at a given point in time, i.e., the potential for pathogenic growth, versus the unit's temperature. The food temperature will not necessarily match the ambient temperature of the storage unit; it will depend on many variables including the temperature of the food when it is placed in the unit, the temperature at which the unit is maintained, and the length of time the food is stored in the unit.

- A temperature-measuring device used to measure the air temperature in a refrigeration unit is not required to be as accurate as a food thermometer because the unit's temperature fluctuates with repeated opening and closing of the door and because accuracy in measuring internal food temperatures is of more significance.
- The accuracy specified for a particular air or water temperature-measuring device is applicable to its intended range of use. For example, a cold holding unit may have a temperature-measuring device that measures from a specified frozen temperature to (68°F). The device must be accurate to specifications within that use range.

114159 Food temperature-measuring devices

The presence and accessibility of accurate food temperature-measuring devices is critical to the effective monitoring of food temperatures. Proper use of such devices provides the operator or person in charge with important information with which to determine if temperatures should be adjusted or if foods should be discarded.

A small margin of error (+ or -2°F) is necessary for thermometer accuracy because there is not a large safety margin in the Code's food temperature requirements. The accuracy specified for a particular food temperature-measuring device is applicable to its entire range of use, that is, from refrigeration through cooking temperatures if the device is intended for such use.

Food temperature-measuring devices that have glass sensors or stems present a likelihood that glass will end up in food as a foreign object and create an injury hazard to the consumer. In addition, the contents of the temperature-measuring device, e.g., mercury, may contaminate food or utensils.

114161 Equipment, clothes washers and dryers, and storage cabinets, contamination prevention

Food equipment and the food that contacts the equipment must be protected from sources of overhead contamination such as leaking or ruptured water or sewer pipes, dripping condensate, and falling objects. When equipment is installed, it must be situated with consideration of the potential for contamination from such overhead sources.

If a clothes washer and dryer are installed adjacent to exposed food, clean equipment, utensils, linens, and unwrapped single-service and single-use articles, it could result in those items becoming contaminated from soiled laundry. The reverse is also true, i.e., items being laundered could become contaminated from the surrounding area if the washer and dryer are not properly located.

114163 Food preparation sinks

Food preparation activities may expose food to an environment that may lead to contamination of the food. Care is needed to prevent food from becoming contaminated by pathogens or debris remaining in the sink from warewashing activities, handwashing, and/or janitorial activities. Using a separate sink for preparation minimizes opportunities for contamination from these sources.

114165 Case lot handling equipment, moveability

Proper design of case lot handling equipment facilitates moving case lots for cleaning and for surveillance for insect or rodent activity.

114167 Beverage tubing, separation

Beverage tubing and coldplate cooling devices may result in contamination if they are installed in direct contact with stored ice. Beverage tubing installed in contact with ice may result in condensate and dripage contaminating the ice as the condensate moves down the beverage tubing and ends up in the ice.

The presence of beverage tubing and/or coldplate cooling devices also presents cleaning problems. It may be difficult to adequately clean the ice bin if they are present. Because of the high moisture environment, mold and algae may form on the surface of the ice bins and any tubing or equipment stored in the bins.

114169 Fixed equipment, spacing or sealing

This section is designed to ensure that fixed equipment is installed in a way that:

1. Allows accessibility for cleaning on all sides, above, and underneath the units or minimizes the need for cleaning due to closely abutted surfaces;
2. Ensures that equipment that is subject to moisture is sealed;
3. Prevents the harborage of insects and rodents; and
4. Provides accessibility for the monitoring of pests.

The inability to adequately or effectively clean areas under equipment could create a situation that may attract insects and rodents and accumulate pathogenic microorganisms that are transmissible through food.

The effectiveness of cleaning is directly affected by the ability to access all areas to clean fixed equipment. It may be necessary to elevate the equipment. When elevating equipment is not feasible or prohibitively expensive, sealing to prevent contamination is required.

The economic impact of the requirement to elevate display units in retail food stores, coupled with the fact that the design, weight, and size of such units are not conducive to casters or legs, led to the exception for certain units located in consumer shopping areas, provided the floor under the units is kept clean. This exception for retail food store display equipment including shelving, refrigeration, and freezer units in the consumer shopping areas requires a rigorous cleaning schedule.

114171 Ice units, separation of drains

Liquid waste drain lines passing through ice machines and storage bins present a risk of contamination due to potential leakage of the waste lines and the possibility that contaminants will gain access to the ice through condensate migrating along the exterior of the lines.

Liquid drain lines passing through the ice bin are, themselves, difficult to clean and create other areas that are difficult to clean where they enter the unit as well as where they abut other surfaces. The potential for mold and algal growth in this area is very likely due to the high moisture environment. Molds and algae that form on the drain lines are difficult to remove and present a risk of contamination to the ice stored in the bin.

114172 Pressurized cylinders

All compressed gases are hazardous because of the high pressures inside the cylinders. Even at a relatively low pressure, gas can flow rapidly from an open or leaking cylinder. Damaged cylinders can become rockets or pinwheels that can cause severe injury and damage. An unsecured, uncapped cylinder is a major accident waiting to happen. If such a cylinder is knocked over causing the cylinder valve to break, the compressed gas will escape at rocket velocity. A poorly controlled release of a compressed gas in chemical reaction systems can also cause vessels to burst, create leaks in equipment or hoses, or produce run-away reactions.

Mishandled cylinders may rupture violently, release their hazardous contents or become dangerous projectiles. If a neck of a pressurized cylinder should be accidentally broken off, the energy released would be sufficient to propel the cylinder to over three-quarters of a mile in height. A standard 250 cubic foot cylinder pressurized to 2,500 PSIG can become a rocket attaining a speed of over 30 miles per hour in a fraction of a second after venting from the broken cylinder connection.

Chapter 6 Article 4 MAINTENANCE AND OPERATION

114175 Good repair and proper adjustment

Proper maintenance of equipment to manufacturer specifications helps ensure that it will continue to operate as designed. Failure to properly maintain equipment could lead to

violations of the associated requirements of the Code that place the health of the consumer at risk. For example, refrigeration units in disrepair may no longer be capable of properly cooling or holding potentially hazardous foods at safe temperatures.

The cutting or piercing parts of can openers may accumulate metal fragments that could lead to food containing foreign objects and, possibly, result in consumer injury.

Adequate cleaning and sanitization of dishes and utensils using a warewashing machine is directly dependent on the exposure time during the wash, rinse, and sanitizing cycles. Failure to meet manufacturer and Code requirements for cycle times could result in failure to clean and sanitize. For example, high temperature machines depend on the buildup of heat on the surface of dishes to accomplish sanitization. If the exposure time during any of the cycles is not met, the surface of the items may not reach the time-temperature parameter required for sanitization. Exposure time is also important in warewashing machines that use a chemical sanitizer since the sanitizer must contact the items long enough for sanitization to occur. In addition, a chemical sanitizer will not sanitize a dirty dish; therefore, the cycle times during the wash and rinse phases are critical to sanitization.

114177 Cutting surfaces

Cutting surfaces such as cutting boards and blocks that become scratched and scored may be difficult to clean and sanitize. As a result, pathogenic microorganisms transmissible through food may build up or accumulate. These microorganisms may be transferred to foods that are prepared on such surfaces.

114178 Storing equipment, utensils, linens, and single use articles

Clean equipment and multiuse utensils which have been cleaned and sanitized, laundered linens, and single-service and single-use articles can become contaminated before their intended use in a variety of ways such as through water leakage, pest infestation, or other unsanitary conditions.

114179 Storage prohibitions

The improper storage of clean and sanitized equipment, utensils, laundered linens, and single-service and single-use articles may allow contamination before their intended use. Contamination can be caused by moisture from absorption, flooding, drippage, or splash. Food debris, toxic materials, litter, dust, and other materials can also cause it. The contamination is often related to unhygienic employee practices, unacceptable high-risk storage locations, or improper construction of storage facilities.

114182 Electrical power requirements

Failure to have adequate electrical power could result in a fire hazard if exhaust hoods are not operational and greasy smoke vapors are allowed to enter the exhaust ducts. Without proper lighting, effective cleaning cannot be assured and employees are at risk of injury. Hot water is necessary for effective cleaning and sanitizing, and must be available at any time the facility is operating. Food that is refrigerated can begin microbial growth and be subject to spoilage if electrical power is disrupted for a sufficient amount of time. In the event of electrical power outages, food facilities should not be open unless there is an alternate source of electricity available to provide power to operate the exhaust hoods, lights, refrigerators, water heaters, and other equipment.

Chapter 6 Article 5 LINENS

114185 Cloth napkins, use limitation

Refer to the public health reason for section 114113.

Because of their absorbency, linens and napkins used as liners that contact food must be replaced whenever the container is refilled. Failure to replace such liners could cause the linens or napkins to become fomites.

114185.1 Wiping cloths, use limitation

Refer to the public health reason for section 114113.

Soiled wiping cloths, especially when moist, can become breeding grounds for pathogens that could be transferred to food. Any wiping cloths that are not dry (except those used once and then laundered) must be stored in a sanitizer solution at all times, with the proper sanitizer concentration in the solution to prevent cross-contamination of food and food contact surfaces. Wiping cloths soiled with organic material can overcome the effectiveness of, and neutralize, the sanitizer. The sanitizing solution must be changed as needed to minimize the accumulation of organic material and sustain proper concentration. Checking the solution periodically with an appropriate chemical test kit should ensure proper sanitizer concentration.

Proper laundering of wiping cloths will significantly reduce the possibility that pathogenic microorganisms will be transferred to food, equipment, or utensils.

114185.2 Clean linens

Linens that are not free from food residues and other soiling matter may carry pathogenic microorganisms that may cause illness.

114185.3 Laundering specifications

Linens, cloth gloves, and cloth napkins are to be laundered between uses to prevent the transfer of pathogenic microorganisms between foods or to food-contact surfaces. The laundering of wet wiping cloths before being used with a fresh solution of cleanser or sanitizer is designed to reduce the microbiological load in the cleanser and sanitizer and thereby reduce the possible transfer of microorganisms to food and nonfood-contact surfaces.

114185.4 Storage of linens

Soiled linens may directly or indirectly contaminate food. Proper storage will reduce the possibility of contamination of food, equipment, utensils, and single-service and single-use articles.

CHAPTER 7 WATER, PLUMBING, AND WASTE

Chapter 7 Article 1 WATER

- 114190** **Approved plumbing system**
114192 **Approved water supply system**

Water, unless it comes from a safe supply, may serve as a source of contamination for food, equipment, utensils, and hands. The major concern is that water may become a vehicle for transmission of disease organisms. Water can also become contaminated with natural or man-made chemicals. Therefore, for the protection of consumers and employees, water must be obtained from a source regulated by law and must be used, transported, and dispensed in a sanitary manner.

Plumbing systems and hoses conveying water must be made of approved materials and be smooth, durable, nonabsorbent, and corrosion-resistant. If not, the system may constitute a health hazard because unsuitable surfaces may harbor disease organisms or it may be constructed of materials that may, themselves, contaminate the water supply.

Improper repair or maintenance of any portion of the plumbing system may result in potential health hazards such as cross connections, backflow, or leakage. These conditions may result in the contamination of food, equipment, utensils, linens, or single-service or single-use articles. Improper repair or maintenance may result in the creation of obnoxious odors or nuisances, and could adversely affect the operation of warewashing equipment or other equipment, which depends on sufficient volume, and pressure to perform its intended functions.

Backflow prevention devices are meant to protect the drinking water system from contamination caused by backflow. If improperly placed, backflow prevention devices will not work. If inconveniently located, these devices may not be accessed when systems are extended, altered, serviced, or replaced. Over a period of time, unserviced devices may fail and system contamination may occur.

Refer also to the public health reason for 114195.

114192.1 Pressure

Inadequate water pressure could lead to situations that place the public health at risk. For example, inadequate pressure could result in improper handwashing or equipment operation. Sufficient water pressure ensures that equipment such as mechanical warewashers operate according to manufacturer's specifications.

114193 Backsiphonage prevention

Improper plumbing installation or maintenance may result in potential health hazards such as cross connections, back siphonage or backflow. These conditions may result in the contamination of food, utensils, equipment, or other food-contact surfaces. It may also adversely affect the operation of equipment such as warewashing machines.

114193.1 Backflow prevention methods

During periods of extraordinary demand, drinking water systems may develop negative pressure in portions of the system. If a connection exists between the system and a source of contaminated water during times of negative pressure, contaminated water may be drawn into and foul the entire system. Standing water in sinks, dipper wells, steam kettles, and other equipment may become contaminated with cleaning chemicals or food residue. To prevent the introduction of this liquid into the water supply through back siphonage, various means may be used.

The water outlet of a drinking water system must not be installed so that it contacts water in sinks, equipment, or other fixtures that use water. Providing an air gap between the water supply outlet and the flood level rim of a plumbing fixture or equipment prevents contamination that may be caused by backflow.

When carbon dioxide is mixed with water, carbonic acid, a weak acid, is formed. Carbonators on soft drink dispensers form such acids as they carbonate the water to be mixed with the syrups to produce the soft drinks. If, for some reason, a negative pressure develops in the water line to the carbonator, some acidic water will be drawn into the water line. If this line is made of copper, carbonic acid will dissolve some of the copper. When pressure is restored, the trapped water containing dissolved copper will return to the carbonator and be mixed into the first few drinks. This may result in copper poisoning.

114195 Capacity

Availability of sufficient water is a basic requirement for proper sanitation within a food facility. An insufficient supply of safe water will prevent the proper cleaning of items such as equipment and utensils and of food employees' hands.

Hot water required for washing items such as equipment and utensils and employees' hands, must be available in sufficient quantities to meet demand during peak water usage periods. Booster heaters for warewashers that use hot water for sanitizing are designed to raise the temperature of hot water to a level that ensures sanitization. If the volume of water reaching the booster heater is not sufficient or hot enough, the required temperature for sanitization cannot be reached. Manual washing of food equipment and utensils is most effective when hot water is used. Unless utensils are clean to sight and touch, they cannot be effectively sanitized.

Chapter 7 Article 2 LIQUID WASTE

114197 Approved liquid waste disposal system

Many diseases can be transmitted from one person to another through fecal contamination of food and water. This transmission can be indirect. Proper disposal of human wastes greatly reduces the risk of fecal contamination. This Code provision is intended to ensure that wastes will not contaminate ground surfaces or water supplies; pollute surface waters; be accessible to children or pets; or allow rodents or insects to serve as vectors of disease from this source. Liquid waste from utensil washing and food preparation activities also carries a risk of contaminating food products and creating reservoirs for insect vectors and must be disposed of in an approved sanitary sewer system or individual septic disposal system.

114199 Equipment compartments, drainage

The draining requirement in equipment components is needed to prevent the pooling of water. Pooled water whether from drainage, condensate, drippage, or melting ice could contain or provide a favorable environment for pathogens and other contaminants.

114201 Grease trap/interceptor

Failure to locate a grease trap so that it can be properly maintained and cleaned could result in the harborage of vermin and/or the failure of the sewage system. There is also a potential to contaminate food preparation areas when servicing the grease trap.

Chapter 7 Article 3 LIQUID WASTE

114205 Potable water and wastewater tanks

Refer to the public health reason for 114190 and 114192.

114207 Potable water tanks; approved

Materials used in the construction of a mobile water tank are affected by the properties of water they contact. Tank liners may deteriorate and flake. Metals or platings can be toxic. To prevent the degradation of the quality of the water, it is important that the materials used in the construction of the tank are suitable for such use.

114209 Potable water tanks and waste water tanks, drainage

Refer to the public health reason for 114199.

114211 Potable water and wastewater tanks, protection from contamination needed

Failure to protect water from contamination by improper design, construction, or use of improper materials can result in waterborne contamination of the facility, equipment, and food. Waste lines must be watertight to prevent waste from entering the facility by leakage and contaminating food and equipment. Backflow prevention devices, such as vacuum breakers and airgaps, ensure there is no possibility of backflow contamination of food and equipment with wastewater.

114213 Potable water tanks and waste water tanks, tank vent, protected

Water tanks are equipped with a vent to preclude distortion during filling or draining. The vent should be equipped with a suitable screen or filter to protect the tank against the entry of insects or other vermin that may contaminate the water supply.

114215 Nonpermanent food facilities, hose, construction and identification

Hoses used to fill potable water tanks should be dedicated for that one task and should be identified for that use only to prevent contaminating the water. Hoses must be made of a material that will not leach detrimental substances into the water.

Refer also to the public health reason for 114207.

114217 Potable water tanks, capacity

Refer to the public health reason for 114195.

114219 Potable water tanks, enclosed system

114221 Potable water tanks, inspection and cleaning port

The tank must be a closed system from the filling inlet to the outlet to prevent contamination of water. It is important that the bottom of the tank be sloped to the outlet to allow the tank to drain completely, to facilitate the proper cleaning and disinfection of the tank, and to prevent the retention of water or solutions after cleaning.

Some tanks are designed with an access opening to facilitate the cleaning and servicing of the water tank. The access must be constructed to prevent the opening from becoming a source of contamination of the water.

114223 Potable water tanks, "V" type threads, use limitation

V-type threads are difficult to clean if contaminated with food or waste. To prevent the contamination of the drinking water, this type of thread should only be used on water tank

inlets and outlets if the connection is permanent which eliminates exposed, difficult-to-clean threads.

114225 Potable water tanks, inlet and outlet

Both the inlet and outlet must be sloped to drain to prevent the pooling of possibly contaminated water or sanitizing solution.

114227 Potable water tanks, filter

Compressor pistons are lubricated with oil to minimize wear. Some of the oil is carried into the air lines and if not intercepted may contaminate the tank and water lines.

114229 Potable water tanks, protective cover or device

Protective equipment provided for openings of the water supply must be in use to prevent contamination which may be present where the supply is exposed to the environment, i.e., at water inlets or outlets or the ends of transfer hoses.

114231 Potable water tank inlet

Mobile units may be particularly vulnerable to environmental contamination if soiled hose connections are coupled to the tank inlet.

114233 Potable water tanks, system flushing and disinfection

Contaminants of various types may be introduced into a water system during construction or repair or other incidents. The system must be flushed and sanitized after maintenance and before it is placed into service to prevent contamination of the water introduced into the tank.

114235 Potable water tanks, using a pump and hoses, backflow prevention

When a water system includes a pump, or a pump is used in filling a water tank, care must be taken during hookup to prevent negative pressure on the supplying water system. Backflow prevention to protect the water supply is especially necessary during cleaning and sanitizing operations on a mobile system.

114238 Potable water tanks, tank, pump, and hoses dedication

Hoses, pumps, and tanks used for food or water may not be used for other liquids because this may contaminate the water supply. If a hose, tank, or pump has been used to transfer liquid food, the equipment must be cleaned and sanitized before using it for water delivery. Failure to properly clean and sanitize the equipment would introduce nutrients, and possibly bacteria, into the water as well as inactivate residual chlorine from public water supplies.

114239 Potable water tanks, refilling and storage of potable water tanks

Refer to public health reason 114211

114240 Wastewater tanks, capacity and drainage

Liquid waste from a mobile or temporary food facility must be stored in a properly constructed waste tank to discourage the attraction of flies and other vermin. The waste tank must be 50% larger than the water storage tank to allow for storage of wastes and used water from the drinking water supply tank. The drain from the waste tank must be larger than the filling hose to prevent the use of the drinking water filling hose to drain the waste tank.

114241 Wastewater tanks, removing wastes

Improper disposal of waste provides a potential for contamination of food, utensils, and equipment and, therefore, may cause serious illness or disease outbreaks. Proper removal is required to prevent contamination of ground surfaces and water supplies, or creation of other unsanitary conditions that may attract insects and other vermin.

114242 Wastewater tanks, flushing

Thoroughly flushing the liquid waste retention tank will prevent the buildup of deposits within the tank, which could affect the proper operation of the tank.

Chapter 7 Article 4 REFUSE

114245 Receptacles, capacity and availability

114245.1 Disposal of refuse

114245.2 Outside storage prohibitions

114245.3 Indoor storage area for refuse, recyclables, and returnables

114245.4 Outdoor refuse area

114245.5 Outside receptacle

Proper storage and disposal of garbage and refuse are necessary to minimize the development of odors, prevent such waste from becoming an attractant and harborage or breeding place for insects and rodents, and prevent the soiling of food preparation and food service areas. Improperly handled garbage creates nuisance conditions, makes housekeeping difficult, and may be a possible source of contamination of food, equipment, and utensils.

All containers must be maintained in good repair and cleaned as necessary in order to store garbage and refuse under sanitary conditions as well as to prevent the breeding of flies.

Garbage containers should be available wherever garbage is generated to aid in the proper

disposal of refuse.

Outside receptacles must be constructed with tight-fitting lids or covers to prevent the scattering of the garbage or refuse by birds, the breeding of flies, or the entry of rodents.

CHAPTER 8 PHYSICAL FACILITIES

Chapter 8 Article 1 TOILET FACILITIES

114250 Toilet facilities

114250.1 Toilet and handwashing facilities for individual facilities within larger premises

To minimize hand contact with fecal waste, toilet tissue is necessary for hygienic cleaning following use of toilet facilities. Toilet tissue must be supplied to meet the demand.

Toilet rooms must be conveniently accessible to food employees at all times to encourage employee use of appropriate facilities for the disposing of human wastes as needed followed by the washing of hands.

Because handwashing is such an important factor in the prevention of foodborne illness, sufficient facilities must be available to make handwashing not only possible, but also likely.

Chapter 8 Article 2 LIGHTING

114252 Lighting

Lighting levels are specified so that sufficient light is available to enable employees to perform certain functions such as reading labels; discerning the color of substances; identifying toxic materials; recognizing the condition of food, utensils, and supplies; and safely conducting general food facility operations and clean-up. Properly distributed light makes the need for cleaning apparent by making accumulations of soil conspicuous.

114252.1 Light bulbs, protective shielding

Shielding of light bulbs helps prevent breakage. Light bulbs that are shielded, coated, or otherwise shatter-resistant are necessary to protect exposed food, clean equipment, utensils and linens, and unwrapped single-service and single-use articles from glass fragments should the bulb break.

114254 Poisonous or injurious materials; use, storage, and labeling

Failure to properly use poisonous or toxic materials can be dangerous. Many poisonous or toxic materials have general use directions on their label. Failure to follow the stated instructions could result in injury to employees and consumers through direct contact or the contamination of food.

Particular precautions must be taken during the application of poisonous or toxic materials to prevent the contamination of food and other food-contact surfaces. Residues of certain materials are not discernible to the naked eye and present an additional risk to the employee

and consumer.

Because of the toxicity of restricted-use pesticides, certified operators can only apply them. A certified operator would be aware of the dangers involved in the contamination of food and food-contact surfaces during the application of these materials. Improperly applied pesticides present health risks to employees as well as consumers and special precautions must be taken when restricted-use pesticides are applied.

114254.1 Original container identifying information, prominence

The accidental contamination of food or food-contact surfaces can cause serious illness. Prominent and distinct labeling helps ensure that poisonous and toxic materials including personal care items are properly used.

It is common practice in food facilities to purchase many poisonous or toxic materials including cleaners and sanitizers in bulk containers. Working containers are frequently used to convey these materials to areas where they will be used, resulting in working containers being stored in different locations in the food facility. Identification of these containers helps prevent the dangerous misuse of the contents.

114254.2 Separation

Separation of poisonous and toxic materials in accordance with the requirements of this section ensures that food; equipment, utensils, linens, and single-service and single-use articles are properly protected from contamination. For example, the storage of these types of materials directly above or adjacent to food could result in contamination of the food from spillage.

Chapter 8 Article 3 POISONOUS AND TOXIC MATERIALS

114254.3 Poisonous or toxic material containers

Use of poisonous or toxic material containers to store, transport, or dispense food is prohibited because of the potential for contamination of the food. The risk of serious medical consequences to anyone consuming food stored in these containers, coupled with the lack of confidence that all of the material could or would be removed in the wash and sanitizing procedures are reasons for prohibiting this practice.

Chapter 8 Article 4 EMPLOYEE STORAGE AREAS

114256 Designated employee areas

Because employees could introduce pathogens to food by hand-to-mouth-to-food contact and because street clothing and personal belongings carry contaminants, areas designated

to accommodate employees' personal needs must be carefully located. Food, food equipment and utensils, clean linens, and single-service and single-use articles must not be in jeopardy of contamination from these areas.

114256.1 Dressing rooms and lockers

Street clothing and personal belongings can contaminate food, food equipment, and food preparation surfaces and consequently must be stored in properly designated areas or rooms.

114256.2 Medicines, restriction and storage

Medicines that are not necessary for the health of employees present an unjustified risk to the health of other employees and consumers due to misuse and/or improper storage. There are circumstances that require having personal medications on hand in the food facility. Proper labeling and storage of medicines helps to prevent accidental misuse, contamination of food, and contamination of food-contact surfaces.

114256.3 Refrigerated medicines, storage

Some employee medications may require refrigerated storage. If employee medications are stored in a food refrigerator, precautions must be taken to prevent the contamination of other items stored in the same refrigerator.

114256.4 Storage of first aid supplies

First aid supplies for employee use must be identified and stored in accordance with the requirements of this Code in order to preclude the accidental contamination of food, food equipment, and other food-contact surfaces.

Chapter 8 Article 5 PREMISES AND FACILITIES

114257 Facilities, equipment, utensils

Keeping the facility, all equipment and utensils clean, fully operable, and in good repair ensures the facility can be operated safely, without contaminating the food product or posing hazards to employee and customer safety. Proper maintenance of equipment to manufacturer specifications helps ensure that it will continue to operate as designed. Failure to properly maintain equipment could lead to violations of the associated requirements of the Code that place the health of the consumer at risk. For example, refrigeration units in disrepair may no longer be capable of cooling or holding potentially hazardous foods at safe temperatures.

114257.1 Litter, nonfunctional equipment, or equipment that is no longer used

Litter and unused equipment allow for the harborage of pathogenic organisms, insects, and rodents. All of these items should be removed as soon as possible to prevent such harborages. In addition, clutter in a facility can result in contamination of stored food and

food undergoing preparation. Clutter and unused equipment can be trip hazards and impede free movement in a facility, resulting in an unsafe work environment.

Chapter 8 Article 6 VERMIN AND ANIMALS

- 114259 Exclusion of vermin**
- 114259.1 Clean premises free of vermin**
- 114259.2 Pass-thru window service openings**

Insects and rodents are vectors of disease-causing microorganisms that may be transmitted to humans by contamination of food and food-contact surfaces. Sealing outer openings to the food facility and cleaning the facility to prevent any possible vermin attractions minimize the presence of insects and rodents.

114259.3 Insect control devices, design and installation

Insect electrocution devices are considered supplemental to good sanitation practices in meeting the Code requirement for controlling the presence of flies and other insects in a food facility.

Improper design of the device and dead insect collection tray could allow dead insect parts and injured insects to escape, rendering the device itself a source of contamination.

Exposed food and food-contact surfaces must be protected from contamination by insects or insect parts. Installation of the device over food preparation areas or in close proximity to exposed food and/or food-contact surfaces could allow dead insects and/or insect parts to be impelled by the electric charge, fall, or be blown from the device onto food or food-contact surfaces.

114259.4 Animal handling prohibition

Dogs and other animals, like humans, may harbor pathogens that are transmissible through food. Food employees handling or caring for animals that may be legally present is prohibited because of the risk of contamination of food employee hands and clothing.

114259.5 Prohibiting animals

Animals carry disease-causing organisms and can transmit pathogens to humans through direct and/or indirect contamination of food and food-contact surfaces. The restrictions apply to live animals with limited access allowed only in specific situations and under controlled conditions and to the storage of live and dead fish bait. Employees with support animals are required to wash their hands after each contact with animals to remove bacteria and soil.

Animals shed hair continuously and may deposit liquid or fecal waste, creating the need for vigilance and more frequent and rigorous cleaning efforts.

CHAPTER 9 PERMANENT FOOD FACILITY

Chapter 8 Article 1 FLOORS, WALLS, CEILINGS

114266 Food facilities, enclosed

See PHRA 114259, 114259.1, and 114259.2

114268 Floors

114269 Floor drains

114271 Walls, and ceilings

114272 Floors, covering, mats and duckboards

Floors that are of smooth, durable construction and that are nonabsorbent are more easily cleaned. Requirements and restrictions regarding floor coverings, utility lines, and floor/wall junctures are intended to ensure that regular and effective cleaning is possible and that insect and rodent harborage is minimized.

When cleaning is accomplished by spraying or flushing, grading of the floor to drain allows liquid wastes to be quickly carried away, thereby preventing pooling which could attract pests such as insects and rodents or contribute to problems with certain pathogens such as *Listeria monocytogenes*.

Cleanliness of the food facility is important to minimize attractants for insects and rodents, aid in preventing the contamination of food and equipment, and prevent nuisance conditions. A clean and orderly food facility is also conducive to positive employee attitudes, which can lead to increased attention to personal hygiene and improved food preparation practices. Use of specified cleaning procedures is important in precluding avoidable contamination of food and equipment and nuisance conditions.

Temporary floor coverings such as sawdust can contaminate food, attract insects and rodents, and become a nuisance to the food operation.

Refer also to the public health reasons for 114193 and 114193.1.

Chapter 9 Article 2 TOILET FACILITIES

114276 Toilet facilities

114276.1 Toilet and handwashing facilities in food facilities of over 20,000 square feet

A self-closing device allows a door to return to its closed position after use. Insects and rodents are vectors of disease-causing microorganisms that may be transmitted to humans

by contamination of food and food-contact surfaces. The passage of insects and rodents from the restrooms to the other parts of the food facility is minimized by the use of self-closing doors. Refer also to the public health reasons for 114250, 114250.1, and 114276.1.

Chapter 9 Article 3 JANITORIAL FACILITIES

114279 Curbed cleaning facility

A service sink or curbed facility is required so that the cleanliness of the food facility can be maintained, attractants for insects and rodents minimized, and contamination of food and equipment by accumulated soil prevented. Liquid wastes generated during cleaning must be disposed of in a sanitary manner to preclude contamination of food and food equipment. A service sink is provided to prevent the improper disposal of wastes into other sinks such as food preparation and handwashing sinks.

Mop water and similar liquid wastes are contaminated with microorganisms and other filth. Wastewater must be disposed of in a sanitary manner that will not contaminate food or food equipment. A service sink or curbed cleaning facility with a drain allows for such disposal.

114281 Storage area for cleaning equipment and supplies

Brooms, mops, vacuum cleaners, and other maintenance equipment can contribute contamination to food and food-contact surfaces. These items must be stored in a manner that precludes such contamination.

114282 Drying mops

Mops can contaminate food and food preparation areas if not properly cleaned and stored after use. Mops should be cleaned and dried in a sanitary manner away from food flow areas.

Chapter 9 Article 4 PREMISES

114285 Private homes and living or sleeping quarters, use prohibition

114286 Living or sleeping quarters, separation

Areas or facilities that are not compatible with sanitary food facility operations must be located and/or separated from other areas of the food facility to preclude potential contamination of food and food-contact surfaces from poisonous or toxic materials, dust or debris, the presence of improperly designed facilities and equipment, and the traffic of unauthorized and/or unnecessary persons or pets.

Further, Article IV of the Amendments to the U.S. Constitution ensures the right of persons to be secure in their homes against unreasonable search and seizure. This provision could hinder the regulatory authority's access to conduct routine inspections of a food facility operated in the living area of a private home. A search warrant may be the only mechanism

by which to gain entry; yet, it may be difficult to obtain and might not authorize the necessary inspectional activities.

CHAPTER 10 MOBILE FOOD FACILITIES

114295 Commissary, mobile support unit, or other approved facility **114297 Cleaned and serviced daily**

Operating in conjunction with a commissary, mobile support unit, or other approved facility ensures that the mobile food facility has access to provide proper food storage, utensil washing, water supply, garbage disposal, wastewater disposal, and access to facilities for daily cleaning. Failure to use an approved facility could result in unprotected, unsanitary conditions.

114299 Identification of mobile food facilities

The identification required to be on a mobile food facility allows both the patrons and the local enforcement agencies (LEA) to identify the business.

114301 Construction standards

Non-mechanical refrigeration has proven to be inadequate to maintain required temperatures for potentially hazardous foods.

114303 Entrances and openings

Construction standards ensure that the mobile food facilities are in compliance with applicable Department of Housing and Community Development requirements for Special Purpose Commercial Coaches as well as this chapter's requirements. These standards ensure that the mobile food facility can be operated safely, is easily cleanable, is protected against vermin entry, and allows for food preparation in a safe and sanitary manner.

114305 Conveying, holding, storing, displaying, and serving of food

All of these processes must be conducted inside of the mobile food facility to ensure that food is protected from contamination from outside sources, such as vermin, dust, rain, etc. Counter space must be available for food preparation inside the mobile food facility to discourage the use of outdoor tables or counters for food preparation. See PHRA 113984 for more information.

At the end of the day remaining nonpotentially hazardous food products are required to be stored in a commissary to provide adequate protection from contamination or spoilage.

See PHRA 114002, 114002.1 114016.

114309(a) Exemption from toilet facilities, employee lockers, janitorial facilities

Mobile food facilities and mobile support units typically do not have space for the exempted amenities. Other requirements, such as commissaries and being within 200 feet of approved toilets, ensure these amenities are available.

114311 Handwash sink, splashguards

See PHRA 113953

114313 Warewashing sinks

See PHRA 114099

114314 Sinks on unenclosed Mobile Food Facilities

Hands are probably the most common vehicle for the transmission of pathogens to food. Hands can become soiled with a variety of contaminants during routine operations. Some employees are unlikely to wash their hands unless properly equipped handwashing facilities are accessible in the immediate work area. Nothing must block the approach to a handwashing facility thereby discouraging its use, and the facility must be kept clean and well stocked with soap and sanitary towels to encourage frequent use.

114315 Availability of approved toilet and handwashing facilities

Having approved toilet facilities with fully stocked hand washing facilities available within 200 feet of mobile food facilities ensures that food handlers have adequate toilet facilities during all hours of operation. See PHRA 113953-113955.

114317 Exterior and surrounding area

The exterior of the unit and the surrounding area must be kept free of garbage and trash that could attract vermin.

114319 Non-food item, toxic substance storage

Automotive tools and parts may carry contaminants or lead to adulteration of food products. Insecticides and other poisonous products may contaminate food products if stored in the same area as the food products. See PHRA 114254.

114321 Occupied mobile food facilities

Workers must have the ability to move within the confines of the mobile food facility. Floor-to-ceiling space and aisles must be free of obstructions to promote worker safety.

114322 External auxiliary equipment

The use of compressors, auxiliary engines, generators and similar equipment poses a health hazard due to buildup of carbon monoxide in an enclosed space.

114323(a) First aid kit

A first aid kit must be readily available to treat minor injuries while working on a mobile food facility. See PHRA 113973.

114323(b) Equipment storage for mobile operations

Unsecured utensils and equipment can become a safety hazard in the event of a collision or sudden stop and must be securely stored.

114325 Water heater

See PHRA Chapter 7 114190 through 114195.

114326 Commissaries and approved facilities requirements

Improper disposal of waste provides a potential for contamination of food, utensils, and equipment and, therefore, may cause serious illness or disease outbreaks. Proper removal is required to prevent contamination of ground surfaces and water supplies, or creation of other unsanitary conditions that may attract insects and other vermin.

Commissaries and other approved facilities must be capable of providing potable water from an approved source to ensure the water supply is safe. The commissary must have hot and cold water under pressure in order to clean the mobile food facilities. See PHRA Chapter 7 114190 through 114195.

Commissaries must have adequate space for storage of the food left on the mobile food facility at the end of the day. Refrigerated space is needed to store potentially hazardous foods that require temperature control. All food preparation must be conducted in a fully enclosed facility to prevent contamination of food. See PHRA 113984.

Overhead protection is required to prevent droplet contamination and exposure to rain, and bird droppings, etc.

Electrical service must be available at the commissary for mobile food facilities having electrical refrigeration in order for the refrigerated food to remain on the unit throughout periods of non-operation.

114327 Mobile support units

Mobile support units must be capable of being easily cleaned and free of cracks and seams that can harbor insects. Support units must be capable of providing a sanitary means of conveying food to the mobile food facilities. Hot and/or cold holding equipment may be required if transporting potentially hazardous food to prevent pathogenic bacteria growth during transport. Toxic substances must be kept separate to prevent food contamination. Liquid waste draining onto the ground, sidewalk, etc. is a public health nuisance. See PHRA 114326.

CHAPTER 11 TEMPORARY FOOD FACILITIES

114335(a) Temporary food facilities at swap meets

Swap meets typically do not have the proper infrastructure to protect food preparation areas from dust, wind, and precipitation. Furthermore, many swap meet grounds lack an approved restroom. A careful review of any proposed temporary food facility at a swap meet is required in order to protect the food and equipment and ensure that all food preparation will be prepared in a safe and wholesome manner.

114337 Temporary food facility identification

See PHRA 114299

114339 Home canned or processed foods

Food purchased from approved commercial sources under regulatory control poses less of a public health risk than unregulated, private, home-owned sources. Commercial items are manufactured or prepared under controlled processes required for the safe preparation of food products entering public commerce.

114341 Food preparation at a community event

With the exception of barbecues and grills, all food preparation is required to be conducted within a fully enclosed temporary food facility to protect the food from contamination and adulteration from elements outside of the temporary food facility.

114343 Hot and cold holding temperatures

There are some pathogens, such as *Listeria monocytogenes*, that will continue to grow in cold temperatures, although slowly. However, there is enough growth at that temperature that the food would be considered unsafe if kept at that temperature for longer than 12 hours.

Potentially hazardous foods stored at or above 135° (F) during the day may not be refrigerated, reheated, and re-served another day because of the potential for pathogenic (harmful) bacteria or organisms that may survive that temperature. Some bacteria, such as some spore-forming bacteria, require much higher temperatures to kill or inhibit the bacteria's growth and/or toxin formation.

114347 Floors in temporary food facilities

Dust or other material that may be on the ground in an outdoor temporary food facility setting can contaminate open food products. The floors must be capable of being cleaned of any

dust, dirt, or other debris by sweeping or mopping to prevent the dust or debris from become airborne and potentially contaminating the food product.

114349 Protection from contamination

Rain, dust, bird droppings, and insect droppings may carry pathogens that could affect food safety and could cause foodborne illnesses

Bacteria, such as *Clostridium perfringens*, are ubiquitous and are present in dirt/soil. Having a fully enclosed structure, protected with at least 16-mesh per square inch, will prevent most of these contaminants from entering the nonprepackaged food areas and contaminating the food products. Open displays of food should be kept to a minimum because food that is left open for display is more susceptible to contamination by external factors. Using see-through lids on food compartments is one way to limit displays and ensure protection from contamination.

114353 Single-use articles

Single-use articles will prevent cross-contamination that could be possible if multi-use utensils, bulk condiment containers, or other food related items are present. Examples of single-use articles include condiment packages, disposable plates or other food containers, and plastic tableware (knives, forks, spoons). Use of tongs, or other dispensing equipment for condiments for use by the customer could cause cross-contamination of the utensils and the condiments.

114354 Food related and utensil-related equipment

Approved equipment will be constructed of materials that will not contaminate the food products. Examples of materials that should not be allowed are blue enamel cookware (the enamel may contain lead or other hazardous material that should not be ingested), galvanized metal containers (may leach zinc into the food product), or copper equipment that could leach copper into the food product.

Approved cold-holding equipment keeps the cold food product below the danger zone (between 41° and 135° (F)). Thermometers should be available inside the equipment to ensure the food is stored at the proper temperature. Steam tables, bain maries, approved crock pots, and hot-holding equipment ensures the food is kept above the danger zone, preventing rapid pathogenic microbial proliferation, particularly *Clostridium botulinum*, the bacteria responsible for botulism, a serious and sometimes fatal foodborne illness.

The location of installed equipment should be planned to prevent cross-contamination risks and other contaminating risk factors.

114355 Ice used for refrigeration purposes

Ice that is used for refrigeration purposes can become contaminated by the outer surface of packaged items stored in the ice, and possible blood or other liquid drippings.

114356 Auxiliary storage

Temporary food facilities may be of a size that prevents storage of all the equipment and supplies inside the structure while employees are working. Storage of supplies and food outside the enclosed structure frees up valuable space for workers to move around and prepare food products safely.

114358 Handwashing facilities

See public health reasons for section 114197

A container, such as a 5-gallon insulated water container typically used for work crews and campers, filled with warm water (100° F), that has a hands free dispensing spout to allow both hands to be free for washing by vigorously rubbing the hands together with soap and water, has proven to be sufficient for temporary food facilities to conduct proper handwashing.

Whether cold water or hot water is used, proper handwashing should always include the use of soap and water to ensure removal or destruction of pathogens that may be on the hands. Hands should be dried with a disposable single-use towel to prevent cross-contamination of other workers hands.

A separate receptacle for the disposal of towels is necessary to prevent the towels from becoming ground litter.

114359 Toilet facilities

A toilet facility that is equipped with approved handwashing facilities can prevent the transmission of numerous pathogens present in fecal matter that could contaminate food being prepared by someone who was unable to wash their hands after using the toilet.

114361 Cleaning and servicing of temporary food facilities

Equipment that was used the previous day must not be used until it is properly cleaned and sanitized to prevent cross-contamination of food prepared or contacted on subsequent days. The structure must be cleaned at least daily to prevent accumulation of debris and other possible contaminants. Approval of the cleaning method by the enforcement agency ensures that contamination of food and food-related equipment will be prevented.

114363 Additional structural or operational requirements

Local environmental conditions may include, but are not limited to, rain, high dust areas, or the possibility of droplet contamination from overhead trees or other factors. Risk factors, including large community events that are attended by several thousand people, where temporary food facilities are preparing large amounts of potentially hazardous foods, should be carefully considered when evaluating a community event and establishing stricter standards than is normally required by this chapter. The stricter standards should be established if, in the professional opinion of the enforcement agent, the additional structural or operational requirements are necessary to ensure that a safe and wholesome food supply is provided by the temporary food facilities.

CHAPTER 12 CERTIFIED FARMERS' MARKET

114370 General sanitation requirements

Section 113980 requires all food to be handled, from the farm to the market, in a manner that will keep the food products pure and free from adulteration and spoilage. This requirement ensures that the food is fully fit for human consumption.

Non-certified agricultural products, including but not limited to, jams and jellies, are required to conform to specific labeling requirements by the Sherman Food, Drug, and Cosmetic Law. This information is important to let customers know exactly what they are purchasing, what the ingredients are, what is the average weight of the non-certified agricultural product, and where the product was prepared or manufactured.

114371 Certified Farmers' Market requirements

Storing the food at least six inches off the ground prevents contamination from ground sources.

Sampling under the conditions imposed by this chapter allows the product to be marketed in a safe and sanitary condition. Once the produce is cut or sliced, it becomes a potentially hazardous food that requires temperature control at or below 45° (F) to prevent growth of pathogenic organisms that may be present in the raw food product. Disposal of the cut or sliced product after two hours ensures that the log phase of microbial growth is not reached.

Any wastewater used in the slicing and cutting process shall be disposed of in a manner that will prevent pooling of wastewater on the ground. All wastewater is required to be disposed of in a sanitary sewer or approved septic system to prevent insect vectors and groundwater pollution.

Multi-use utensils and cutting surfaces used in sample preparation become contaminated with use and require regular cleaning and sanitizing to prevent cross-contamination of other food products. Single-use articles, such as toothpicks for samples, sample-dispensing containers allow for disposal of the article once it has been used without requiring washing, rinsing, and sanitizing of the article.

A toilet facility that is equipped with approved handwashing facilities can prevent the transmission of numerous pathogens present in fecal matter.

Animals naturally harbor many pathogenic organisms, which can be transmitted to the food product.

Approved garbage and refuse storage and disposal is required to prevent vermin and insect attractions. Putrefaction of garbage also produces objectionable odors and may constitute a nuisance.

To allow temporary food facilities to set up adjacent to the certified farmers' market, which increases the ability of the market to attract customers, the organization responsible for the certified farmers' market must be permitted as a community or temporary event organizer if there are two or more temporary food facilities setting up adjacent to the certified farmers' market. The organizer is responsible for ensuring compliance with all temporary food facilities' requirements, providing a site plan to the enforcement agency, and ensuring that all of the temporary food facilities have the appropriate public health permits required. If there is only one temporary food facility adjacent to the certified farmers' market, an organizer permit is not required, but all temporary food facilities must comply with all of the requirements of Chapter 11 to ensure all food sold or given to the public is safe and wholesome.

114373 Raw shell eggs

Raw shell eggs are recognized as a source for *Salmonella enteritidis* bacteria, both internally and externally on the eggshells. Holding eggs at or below 45° F assists in limiting the growth of the bacteria. In order to allow the egg producers (farmers) to sell their product at approved Certified Farmer's Markets without the requirement for refrigeration, the criteria listed in this section were developed to allow this practice and still provide optimum protection for the consumers.

CHAPTER 13 COMPLIANCE AND ENFORCEMENT

Chapter 13 Article 1. PLAN REVIEW AND PERMITS

114380 Plan Review

Plan review by the local enforcement agency ensures a facility meets construction requirements covered in CRFC, as well as applicable plumbing, mechanical, and electrical code requirements. A plan review that includes a review of all aspects of the facility's construction for a complete picture of the facility and its method of operation lays a foundation that enables the proposed operation to proactively sustain compliance with CRFC over time.

114381 Permits, fees, posting

Requiring a food facility to obtain a valid permit affords the enforcement agency an opportunity to conduct an investigation to ensure that the facility and its methods of operation can prepare and dispense food that is safe and unadulterated.

Having a non-transferable permit allows the enforcement agency to review the facility's proposed operation by a new owner, at the same location, possibly involving a different type of food operation than the previous permit holder, to ensure that the facility and its methods of operation are in compliance with current CRFC requirements.

Fees may be necessary to cover the cost of enforcing CRFC. Many environmental health programs are fee-based funded programs, meaning that no taxes are used for enforcement of environmental health programs. Without charging fees, some jurisdictions would be unable to operate food facility inspection services.

The permit is required to be posted where it is easily visible and obvious to patrons and regulators alike. This ensures that the public and regulators can determine if a facility has been approved and issued a permit by the local enforcement agency.

114381.1 Permit requirements for an organizer

When a community event or swap meet has two or more vendors, the organizer is required to submit applications at least two weeks before the event to allow time for the enforcement agency to conduct pre-event research concerning the event or swap meet. The location of restrooms with handwashing facilities, refuse and wastewater disposal facilities, potable water, and any shared warewashing and handwashing facilities should be included in the application for the event so the enforcement agency can determine if the proposed facilities are adequate for the type of event being planned. It is during the pre-event research phase that the overall risk of the event is determined and appropriate staffing is scheduled for inspection of the food operations at the event or swap meet.

114381.2 Permit requirements for temporary food facilities

The requirements of this section ensure that the enforcement agency has enough information to determine if the event or swap meet food vendors are capable of preparing and distributing food products from their booth in a safe and unadulterated manner. This information also allows the enforcement agency to ascertain the risk associated with any food dispensing operation and to determine allocation of resources to ensure the event or swap meet is operated in compliance with CRFC.

Chapter 13 Article 2 ENFORCEMENT

114390 Enforcement responsibility; evidence; inspection report

Enforcement officers, as defined by CRFC, must be able to enter and inspect any food facility to ensure compliance with all applicable requirements of CRFC. Any evidence collected may be used to determine the source of contamination and show proof of unsanitary conditions that may have contributed to a food-borne illness.

For safety and security reasons, employees may refuse entry to an enforcement officer who is unable to show proof that he/she is an authorized enforcement officer as specified in this section.

A written report of an inspection is provided to the facility as a record of the inspection that must be presented for review upon request by interested parties (customers, enforcement officers, reporters, etc.). In addition, it provides a record for the facility to use in improving the food facility, as the inspection report will list required corrective action.

114393 Impoundment

Impound authority is necessary to prevent unsanitary and/or damaged equipment from contaminating or adulterating a food product. Adulterated and/or contaminated food products must be impounded to prevent them from being served to the public if they will increase the risk of disease or injury as determined by the enforcement officer.

114395 Violation; misdemeanor; punishment

Violations of the CRFC are classified as misdemeanor criminal offenses that can be prosecuted in a court of law if necessary. Punishment is necessary to act as a deterrent for persons that may commit acts that could contaminate or adulterate a food product; render the food unwholesome, or toxic; or otherwise endanger the health and safety of the public.

114397 Owner, manager, or operator responsibility

For accountability purposes, the owner, manager, or operator of a food facility is held liable for any acts committed by their employees that are in violation of CRFC. Since they are held responsible, it is in their best interest to ensure that adequate and proper training is provided to their employees to ensure that violations do not occur.

114399 Facilities held in common

“Facilities held in common” refers to businesses that share the same structure and facilities in order to comply with certain CRFC requirements such as restrooms. Two examples are a shopping mall that has central dining areas and restrooms that are used by all of the facilities in the food court, and a combination of a convenience store, a restaurant and/or sandwich shop sharing a common building structure with shared restrooms, storage areas, and/or trash disposal areas. Rather than hold one particular facility responsible, all of the facilities that share the structure and its facilities are held responsible, as those structures and facilities are required for each of the businesses as part of compliance with CRFC, regardless of any agreement between the separate retail food facility operators.

114405 Permit suspension or revocation

Authority to suspend or revoke a public health permit to operate a food facility is given to local enforcement officers in order to allow them to curtail violations of CRFC in order to protect the public. Administrative due process is required by CRFC to ensure owners/operators are treated fairly and are provided an opportunity to present evidence as to why their permit should not be suspended or revoked.

114407 Notice of decision

A written notice of the hearing decision becomes a legal document that relieves the owner/operator of charges of failing to comply with CRFC, or delivers specific requirements that must be met in order to lift the permit suspension or revocation.

114409 Immediate closure

Any imminent health hazard, as defined by CRFC, is a threat to the health and safety of the public. Local enforcement officers have the authority to suspend a permit and order immediate closure of a facility in order to protect that public from certain health hazards.

114411 Serious or repeated violations, interference

After allowing for administrative due process, local enforcement officers are allowed to suspend or revoke a permit if serious violations exist, or if violations are repeated and there

appears to be a pattern of noncompliance with CRFC in order to ensure that the public is protected against poor retail food business practices. Sometimes it is necessary to suspend or revoke a permit in order for the food facility to achieve compliance with CRFC through remodeling, needed cleaning, or food safety training.

114413 Permit reinstatement or reissuance

If the conditions that required the suspension or revocation of a permit no longer exist, the danger to the health and safety of the public has been negated.

Chapter 13 Article 4 VARIANCE

- 114417 Issuance of variances**
- 114417.1 Application for variances**
- 114417.2 Issuance or denial of variances by the department**
- 114417.3 Contents of variance letter**
- 114417.4 Effect of variance letter**
- 114417.5 Maintenance of variance letter**
- 114417.6 Compliance with terms and conditions of variance letter**
- 114417.7 Suspension or revocation of variance**

The provisions listed in §113936 can often be conducted in other ways than the ones specifically required by CRFC. The California Department of Health Services (DHS) recognizes that there are other good manufacturing practices, or good business practices, based upon science-based rationale, that will protect the public from health hazards associated with food products.

The information required in the application provides enough information for DHS to make a variance decision based upon sound science-based rationale. Once the decision has been reached to allow a variance, it is necessary to let the local enforcement agencies know of the variance in order for the local agencies to provide fair treatment of any business that is affected by the variance. In addition, requiring the variance letter to be on hand at the facilities will help prevent any conflicts between the local enforcement agencies and the facility's operators should the enforcement officer be unaware of a variance being issued.

Should an actual hazard arise from the variance as practiced or instituted or new scientific knowledge is forthcoming about a particular variance posing a threat, or if DHS finds that the facility is not operating in accordance with the terms of the variance, then DHS has a responsibility to withdraw the variance by suspension or revocation of the variance in order to protect the public.

Chapter 13 Article 5 HACCP EXEMPTIONS

- 114419** **When a HACCP plan is required**
- 114419.1** **Contents of a HACCP plan**
- 114419.2** **HACCP plan training, verification, and equipment**
- 114419.3** **HACCP plan approval**

The activities listed in this section of CRFC have been shown to require specific critical controls to ensure there is no hazard to the public from these activities. A HACCP plan ensures the critical control points are addressed, monitored, and documented to be in compliance with the HACCP plan.

114421 Trade secrets

Many food products are manufactured from “secret recipes” that are closely guarded. In order for the enforcement agency to accomplish its mission it needs to be aware of any “secret recipe” ingredients or practices that affect the food product. In turn, it is only fair to ensure that the “secret recipe” or practice be protected as proprietary knowledge and not disclosed to competitors of the business.

114423 Microbial challenge studies

Should a food product fall under the definition of potentially hazardous food, as defined in §113871, certain practices or methods are required, such as refrigeration of some food products or hot holding of others that may affect the taste or quality of a food product. Microbial challenge studies provide proof that the food will not grow dangerous pathogens, such as *C. botulinum*. Using the science-based microbial challenge study may demonstrate that the particular food product is not capable of supporting microbial growth and would therefore allow a different strategy for protecting the food product from hazards associated with potentially hazardous foods.

Chapter 13 Article 6 EXEMPTIONS

- 114425** **Exemptions for Chinese-style roast duck**
- 114427** **Exemption from full enclosure, Mercado La Paloma**
- 114429** **Exemption from holding temperatures, Korean rice cakes**

The exemptions listed in this article were approved by previous California legislative decisions. Those decisions remain in force with the adoption of CRFC.

Chapter 13 Article 7 FOOD FACILITY DONATIONS

- 114432 Food facility donations**
- 114433 Criminal liability**
- 114434 Immunity**

In an effort to reduce hunger and supply nutritional needs, food facilities may donate cooked or non-packaged food to a food bank for distribution to needy persons without fear of civil or criminal liability or penalty for violations in food handling practices that may occur after the food has been donated.

Chapter 13 Article 8 CHILD DAY CARE FACILITIES, COMMUNITY CARE FACILITIES AND RESIDENTIAL CARE FACILITIES FOR THE ELDERLY

- 114435 Definitions**
- 114436 Exemptions from California Retail Food Code**
- 114437 Delegation to State Department of Social Services**

The State Department of Social Services (DSS) is responsible for regulating the facilities listed in §114435. The California legislature has found that these facilities would be adversely affected due to the strict requirements of CRFC and has exempted them from CRFC. DSS is tasked with developing their own regulations for regulating these facilities that would carry out the intent of CRFC to ensure the health and safety of individuals and not adversely affect the facilities.