

,7296 UAI INV





Coursebook

Second Edition

Table of Contents

INTRODUCTION

	International Food Safety Council v Acknowledgements vi A Message from the National Restaurant Association Educational Foundation vii Features of the ServSafe® Coursebook viii
UNITI	THE SANITATION CHALLENGE
Chapter 1	Providing Safe Food. 1-1 The Dangers of Foodborne Illness1-2 Preventing Foodborne Illness1-4 How Food Becomes Unsafe1-8 Key Practices for Ensuring Food Safety1-9 The Food Safety Responsibilities of a Manager1-10 Responding to a Foodborne-Illness Outbreak1-12 Summary1-13
Chapter 2	The Microworld
Chapter 3	Contamination, Food Allergies, and Foodborne Illness . 3-1 Types of Foodborne Contamination
Chapter 4	The Safe Foodhandler



O.W	THE OPERATION
Chapter 5	Purchasing and Receiving Safe Food. 5-1 Choosing a Supplier 5-2 Inspection Procedures 5-3 Monitoring Time and Temperature 5-5 Receiving and Inspecting Food 5-10 Summary 5-23
Chapter 6	Keeping Food Safe in Storage 6-1 General Storage Guidelines 6-2 Types of Storage 6-3 Storage Techniques 6-4 Storing Specific Food 6-4 Summary 6-12
Chapter 7	Protecting Food During Preparation. 7-1 Safe Foodhandling
Chapter 8	Protecting Food During Service
Chapter 9	Principles of a HACCP System. 9- What is HACCP? 9- Developing a HACCP Plan 9- Summary 9-1

UNIT III	CLEAN AND SANITARY FACILITIES AND EQUIPMENT
Chapter 10	Sanitary Facilities and Equipment.10-1Designing a Sanitary Establishment.10-2Considerations for Other Areas of the Facility.10-6Sanitation Standards for Equipment.10-9Choosing and Installing Kitchen Equipment.10-14Utilities.10-16Summary.10-23
Chapter 11	Cleaning and Sanitizing11-1Cleaning and Sanitizing.11-2Machine Warewashing.11-8Manual Warewashing.11-10Cleaning and Sanitizing Equipment.11-11Cleaning the Kitchen.11-12Cleaning the Premises.11-13Tools for Cleaning.11-15Storing Utensils, Tableware, and Equipment.11-16Using Hazardous Materials.11-17Implementing a Cleaning Program.11-20Summary.11-23
Chapter 12	Integrated Pest Management.12-1The Integrated Pest Management (IPM) Program.12-2Identifying Pests.12-5Working with a Pest Control Operator (PCO).12-11Treatment.12-12Control Measures.12-13Using and Storing Pesticides.12-15Summary.12-16
UNITIV	SANITATION MANAGEMENT
Chapter 13	Food Safety Regulation and Standards
	Federal Regulatory Agencies

Table of Contents

Chapter 14	Employee Food Safety Training
	Purpose of Food Safety Training
	Key Elements of Effective Training
	Developing the Training Program
	Conducting the Training Session
	Food Safety Certification
	Summary
APPEND	
Appendix A	Answer Key
Appendix B	Storage Temperatures for Fresh Fruit
Appendix C	Storage Temperatures for Fresh Vegetables A-11
Appendix D	Refrigerated Food Storage
Appendix E	Frozen Food Storage
Appendix F	Shelf Life of Dried Goods
Appendix G	Responding to a Foodborne-Illness Outbreak A-23
GLOSSA	R Y
INDEX	



abrasive cleaner, 11-4 acid cleaner, 11-4 acidity, 2-3, 2-5 aerobic microorganism, 2-6 Agriculture, U.S. Department of: see U.S. Department of Agriculture air curtain, 12-3 air gap, 10-19, 10-20 air probe, 5-6 alkalinity, 11-4, 11-7 allergies: see food allergy American Academy of Sanitarians (AAS), 13-15 Americans with Disabilities Act (ADA), 4-3, 10-2 anaerobic microorganism, 2-6, 5-20 anisakiasis, 2-17 ants, 12-8, 12-13 aseptically packaged food, 5-22, 6-11 audiovisual equipment, 14-12



butter, 5-18

backflow, 3-8, 10-19

Bacillus cereus gastroenteritis, 2-11

bacteria

characteristics of, 2-2

growth and reproduction, 2-3 illnesses caused by, 2-10, 2-11; 2-12, 2-13 spore formation, 2-4 vegetative stages, 2-4 bandages, 4-11 bats, 12-10 batters, 7-9, 7-10 beef: see meat bees, 12-8 beetles, 12-8 behavioral objectives, 14-5, 14-6, 14-14, 14-15 bimetallic stemmed thermometer, 5-5, 5-6 biological contaminants, 1-8, 3-2, 3-3, 3-4, 3-6 biological toxins, 3-2, 3-3, 3-4, 3-6 birds, 12-10, 12-15 blast chiller, 10-13 boiling-point method, 5-9 booster heater, 10-18 botulism, 2-12, 5-22 breading, 7-9, 7-10 brooms, 11-15 brushes, 11-15 buffets, 8-7, 10-21



- calibration, 5-5, 5-6, 5-8, 5-9 campylobacteriosis, 2-12 canned products, 5-21, 5-22, 6-11 cantilever-mounted equipment, 10-16 carbonated-beverage dispensers, 3-5 carousel machine, 10-10 carpenter ants, 12-8 carpeting, 10-4, 10-5 carrier, 4-2 casseroles, 7-13 catering, 8-10 CCP: see critical control point CDC: see Centers for Disease Control and Prevention ceilings, 10-6, 11-13 Centers for Disease Control and Prevention (CDC), 13-13 ceramic tile, 10-4, 10-6 certification, food safety, 14-15 cheese, 2-19, 5-18 chemical bait, 12-13, 12-14 chemical contaminant, 1-8 chemicals, 3-7, 3-8 pesticides, 3-7, 3-8, 12-13 toxic metals, 3-5, 3-8 chemical sanitizing, 11-4, 11-8, 11-9, 11-10, 11-18 chemical storage, 6-4, 6-12 chemical toxins, 3-5, 3-7, 3-8 chicken: see poultry

children as a high-risk population, 1-6 chlorine, 11-5 ciguatera poisoning, 3-2, 3-3, 3-6 circular conveyor machine, 10-10 clean, definition of, 1-10 clean-in-place equipment, 10-11, 11-11 cleaning cleaning agents, 11-2, 11-3, 11-4, 11-22 cleaning needs, identification of, 11-20 equipment, 11-11, 11-12 exterior premises, 11-15 factors affecting process of. 11-13 hazardous chemicals, use of, 11-17, 11-18, 11-19 kitchen, 11-12, 11-13 master cleaning schedule, 11-20, .11-21, 11-22 materials, choice of, 11-22 monitoring, 11-22 public restrooms, 11-14 serving stations, 11-14 tables, 11-13 three-compartment sink, 11-10 tools for, 11-15, 11-16, 11-21, 11-22 training employees, 11-22 walls and ceilings, 10-6 water emergencies, 10-17 cleaning agents, 11-2, 11-3, 11-4 Clostridium perfringens gastroenteritis, 2-11 clothing: see work attire cockroaches, 12-4, 12-5, 12-6, 12-13 cold-holding equipment, 8-3 cold paddle, 7-18

cold pasteurization: see food irradiation concentration, chemical, 11-6, 11-7 contact spray, 12-13 contact time, 11-6 containers chemicals, 11-18 cross-contamination, prevention of, 7-4 pesticides, 12-15, 12-16 contamination biological, 3-2, 3-3, 3-4, 3-5, 3-6 chemical, 3-5, 3-7, 3-8 foodhandling, 4-2 kitchen layout, 10-15 physical, 3-7 potential hazards, 1-8 continuous-cloth towel systems, 10-8 control point (CP), 9-8 conveyor machine, 10-10 cook-chill equipment, 10-13 cooking, 7-11, 7-12, 7-13 casseroles, 7-13 egg and egg mixtures, 7-16 fish, 7-15 meat, 7-13, 7-14, 7-15 microwave ovens, 7-17 poultry, 7-13 stuffing, 7-13 tea, 7-16 vegetables, 7-16 cooling food methods for, 7-18, 7-19 two-stage cooling, 7-17 corrective action, 7-3, 9-5, 9-11, 9-12 corrosiveness, 11-7 coving, 10-5, 10-9 CP: see control point

crab: see crustaceans

cream, 8-5
critical control point (CCP), 7-11, 9-5, 9-8, 9-9, 9-10, 9-11
critical limit, 9-5, 9-9, 9-10, 9-12
cross-connection, 10-19
cross-contamination
cutting boards, 10-14
foodborne-illness causes, 1-8
job assignments, 4-12
kitchen layout, 10-15
prevention of, 1-10, 7-4, 8-7
crustaceans, 5-11, 5-13, 5-14
cryptosporidiosis, 2-18
cutting boards, 10-14
cyclosporiasis, 2-18



dairy products, 5-17, 5-18, 6-4, 6-10 death phase, 2-4 deep frying, 7-10 deliveries: see receiving delivery methods, training: see training program demonstration, 14-6 detergent, 11-10 dishes, 8-4, 8-5, 8-8 display cases, 10-11 doors, 12-2, 12-3 drains, 10-11, 10-20, 12-3 dressing rooms, 10-8 drinking during food preparation, 4-10 dry food, 5-21, 6-4, 6-7, 6-12 dry storage, 6-4, 6-7, 10-6, 10-7, 10-21



eating during food preparation, 4-10 eggs

cooking requirements, 7-12, 7-13 food preparation, 7-8, 7-9 purchasing, 5-16, 5-17 receiving criteria, 5-10, 5-11 Salmonella, 2-21 storage techniques, 6-9 USDA stamps, 5-16

Eight Rules of Safe Foodhandling, 8-13

elderly people, 1-6

electronic insect eliminator, 12-5, 12-14

Environmental Protection Agency (EPA), 10-22, 11-5, 13-13

equipment, kitchen: see kitchen equipment

equipment standards NSF International standards,

10-9, 10-10 Underwriters Laboratories (UL),

10-9

Escherichia coli, 2-12

exhaust air, 10-22

exponential growth (of bacteria), 2-3



· facultative microorganism, 2-8 FAT TOM, 2-5, 2-6, 2-8 faucets, 10-19, 10-20

FDA: see Food and Drug Administration federal regulatory agencies: see regulatory agencies FIFO: see First in, first out finger cot, 4-6. fingernails, 4-6 First in, first out (FIFO), 6-2 fish: see seafood flatware, 8-5, 11-16 flies, 12-7, 12-14 flight-type machine, 10-10 fly fan: see air curtain flood rim, 10-19, 10-20

flooring, 10-3, 10-4, 10-5, 11-12, 12-3

flow of food, 1-5, 9-2, 9-6, 9-7, 13-10

food allergies, 3-9

Food and Drug Administration (FDA), 1-11, 13-2, 13-3

Food and Drug Officials, Association of (AFDO), 13-15

food bar, 8-7, 8-8

Food Code, the, 1-5, 13-3, 13-4

food-contact surface, 1-10, 10-9.

11-1, 12-13

food-grade sealant, 10-15

food irradiation, 2-22

food preparation

batters, 7-9, 7-10

breading, 7-9, 7-10 eggs and egg mixtures, 7-8, 7-9

fish, 7-7

ice, 7-10

meat, 7-7

poultry, 7-7

produce, 7-10

salads, 7-7, 7-8

thawing, 7-5, 7-6, 7-7

food quality, 3-6, 5-2, 5-3

Food Safety and Inspection Service

(FSIS), 13-2

food safety system

benefits of, 1-4

government regulations, 1-11,

13-2, 13-3, 13-4

managerial responsibilities, 1-10

marketing, 1-12

safety programs, 1-5

technological advancements, 2-22

training: see training program

food servers, 8-4

food storage

aseptically packaged food, 6-11

canned goods, 6-11

dairy products, 6-10

dry food, 6-7, 6-12

egas, 6-9, 6-10

fish, 6-8, 6-9

freezing, 6-6, 6-7 quidelines for, 6-2, 6-3

MAP food, 6-11

meat, 6-8

poultry, 6-8

produce, 6-10

refrigeration, 6-4, 6-5

shelf life, 6-12

shellfish, 6-9

sous vide food, 6-11

types of, 6-3, 6-4

UHT food, 6-11

vacuum-packed food, 6-11

Food Technologists, Institute of (IFT),

13-15

toodborne illness

causes of, 1-2, 1-8

costs of, 1-3

dangers of, 1-2

prevention of, 1-4

responding to, 1-12

foodborne-illness outbreak, 1-12 definition of, 1-2 emerging pathogens, 2-21 responding to, 1-12 foodborne infection, 2-20 foodborne intoxication, 2-20 foodborne toxin-mediated infection. 2-20 foodhandling contamination, 4-2 cross-contamination prevention. 7-4, 7-5 eating and drinking, 4-10 gloves, 4-7, 7-5 hand maintenance, 4-6 handwashing, 4-4 illness and injury, 4-11 management's role, 4-12 time and temperature control, 7-2.7-3 work attire, 4-8 foot-candle, 10-21 four-hour rule, 7-2, 7-6 freezers, 10-11, 10-12, 10-13, 11-12 frozen food, 5-19, 6-4, 6-8 frozen storage, 6-4, 6-6, 6-7 fruit: see produce, fresh fruit flies, 12-7 frvers, 7-13 FSIS: see Food Safety and Inspection Service fungi, 2-16, 2-19, 2-20, 3-6



game meats, 7-15 garbage, 10-22, 10-23, 12-4 garnishes, 8-7 gastrointestinal illness, 2-11, 2-13, 2-15, 4-2 giardiasis, 2-17 glassware, 8-4, 8-5 gloves, use of, 4-7, 7-5 glue board, 12-6, 12-14 gnats, 12-8 government regulatory system: see regulatory agencies Grade A, 5-17 grading stamps (USDA), 5-15, 5-17 grain products, 6-12 grease condensation, 10-20, 10-21 ground meats: see meat gum chewing, 4-10



HACCP: see Hazard Analysis Critical Control Point HACCP plan, 9-2 hair restraint, 4-8 hand maintenance, 4-6 hand sanitizer, 4-6 handwashing cross-contamination, 1-10 personal hygiene programs, 4-4, 4-7 standard operating procedures, 1-9 steps for proper, 4-4 water emergencies, 10-18 when to, 4-6 handwashing station, 10-7, 10-8,

harborage, 12-4, 12-5

hard-surface flooring, 10-4, 10-5 hard water, 11-3, 11-7 hazard analysis, 9-5 Hazard Analysis Critical Control Point (HACCP) definition of, 9-2 food safety programs, 1-5 inspection systems, 13-5, 13-7, 13 - 10prerequisite programs, 9-3 principles of, 9-4, 9-5 corrective actions, 9-5, 9-11, 9-12 critical control points, 9-5, 9-8, 9-9 critical limits, 9-5, 9-9, 9-10 hazard analysis, 9-5, 9-6, 9-7, 9-8 monitoring procedures, 9-5, 9-10, 9-11, 9-12 record keeping and documentation, 9-5, 9-13 verification, 9-12, 9-13 training, 9-13 Hazard Communication Standard (HCS), 11-17, 11-19 hazards biological, 1-8, 9-6, 9-9 chemical, 1-8, 3-5, 3-7, 3-8. 11-17, 11-18, 11-19 physical, 1-8, 3-7 HAZCOM: see Hazard Communication Standard HCS: see Hazard Communication Standard health inspectors, 13-3, 14-10 heat sanitizing, 11-4 hepatitis A, 2-15, 4-11 hepatitis B, 4-3 hepatitis C. 4-3

ServSafe Coursebook

high-risk population, 1-5, 7-9, 7-12. high-temperature warewashing machines, 11-6 histamine, 3-3, 3-6 HIV, 4-3 hornets, 12-8, 12-14 host, 2-16 hot-holding equipment, 8-2, 9-8, 9-9 hot water, 10-18 Hotel and Restaurant Trainers. Council of (CHART), 13-15 houseflies, 12-7 humidity, 6-7, 12-4 hygiene, personal: see personal hygiene hygrometer, 6-7



ice

cooling food, 7-18 food preparation, 7-11 food service, 8-5 water emergencies, 10-17

ice cream

grading, 5-17 receiving, 5-19 storage, 6-6

ice-point method, 5-9

ice-water bath, 7-18

illness and injury, reporting of, 4-11

immediate supervisors, 14-9

immersion, cleaning and sanitizing

by, 11-10

immersion probe, 5-6

immune system, 1-5, 1-6 infected lesion, 4-2 infestation, 12-2 infrared thermometer, 5-6, 5-7 injected meats, 7-15

insects: *see* integrated pest management

inspection program

Food Code, 13-3, 13-4 government agencies, 13-2, 13-13

HACCP-based inspections, 13-10 objectives of an, 13-2

traditional system, 13-5, 13-6, 13-7, 13-8, 13-10

inspection stamps (USDA), 5-14, 5-16

instructors, selection of, 14-9 integrated pest management (IPM)

access, denial of, 12-2, 12-3 assorted animals, 12-10

assorted insects, 12-8 birds, 12-10

cockroaches, 12-5, 12-6

control measures, 12-13, 12-14,

12-15

flies, 12-7

food and shelter, denial of, 12-4 pest control operators, 12-2,

12-11, 12-12

pesticides, 12-15, 12-16

rodents, 12-9, 12-10

service contract, 12-12

treatment, 12-12, 12-13

interior construction, materials for, 10-3

interior finishes, 10-6

International Association for Food Protection (IAFP), 13-15

International Food Safety Council (IFSC), 13-14

interstate establishments, 13-3 iodine sanitizer, 11-5

IPM: *see* integrated pest management

irradiation, food: see food irradiation



jaundice, 4-11 jewelry, 4-8 job aids, 14-7, 14-8 job assignments, 4-12, 11-20 juice, 7-11



kitchen, cleaning of the, 11-12, 11-13, 11-21 kitchen, staffing of the, 8-4 kitchen equipment, 10-14, 10-15, 10-16



labeling
chemicals, 11-18
cooked food, 7-19
food storage, 6-2, 6-7
self-service areas, 8-8
lag phase, 2-3, 2-6
lamb: see meat

laser thermometer: see infrared thermometer

laundry, 10-18
layout, kitchen, 10-14
learning objectives: see behavioral objectives
lecture, 14-7
leftovers, 6-7, 8-11
lettuce, 7-11
light fixtures, 11-13
lighting, 10-21
listeriosis, 2-10
lobster: see crustacens
lockers, 10-8, 12-4
log phase, 2-3, 2-6



make-up air, 10-22 manager food safety responsibilities, 1-10 illness and injury, reporting of, 4-11 inspection systems, 13-6 marketing, 1-12 training programs, 14-3 manual warewashing, 11-10, 11-11 MAP: see modified atmosphere packaging food master cleaning schedule, 11-20, 11-21, 11-22 master training schedule, 14-11 material safety data sheets (MSDS), 11-18 meat cooking requirements, 7-12, 7-13, 7-14, 7-15, 7-17 preparation, 7-7, 7-8

receiving criteria, 5-11, 5-14, 5-15 storage techniques, 6-4, 6-8 metals, toxic, 3-5, 3-8 mice: see rodents microorganisms, 2-2 bacteria, 2-2, 2-3, 2-4 FAT TOM, 2-5, 2-6, 2-8 growth conditions, 2-5, 2-6, 2-8 molds, 2-16, 2-19, 2-20 multiple control barriers, 2-8 parasites, 2-16, 2-17, 2-18 viruses, 2-14, 2-15 yeasts, 2-20 microwave cooking cooking requirements, 7-12, 7-17 reheating, 7-19 thawing, 7-6 milk, 5-17, 8-5 minimum internal cooking temperature, 7-2, 7-11, 7-12 mobile units, 8-11 modified atmosphere packaging food (MAP), 5-10, 5-20, 5-21, 6-11 moisture, and microbial growth, 2-8 mold, 2-2, 2-6, 2-16, 2-19, 2-20 mollusks, 5-11, 5-13, 6-9 monitoring cleaning program, 11-22 HACCP plan, 9-5, 9-10, 9-11. 9-12 storage techniques, 6-5 temperature, 5-5, 5-6, 5-7, 5-8. 5-9, 5-10 mops, 11-12, 11-15, 12-4 mosquitoes, 12-8 moths, 12-8 MSDS: see material safety data sheets mushroom toxins, 3-4, 3-6



nail polish, 4-6 National Environmental Health Association (NEHA), 13-15 National Marine Fisheries Service (NMFS), 13-13 National Pest Management Association (NPMA), 13-15 National Restaurant Association, 13-14, 13-15 National Restaurant Association Educational Foundation (NRAEF), 13-14, 13-15, 14-15 National Society of Professional Sanitarians (NSPS), 13-15 natural food: see organic food nonporous, resilient flooring, 10-3, 10-4 nonpotable water, 10-16 nonslip surfaces, 10-5 Norwalk virus, 2-14, 2-15 NSF International, 10-9, 13-16



objectives: *see* behavioral objectives
Occupational Safety and Health
Administration (OSHA), 11-17,
11-18, 11-19
off-site service, 8-9, 8-10, 8-11
one-on-one training, 14-8
organic food, 2-21, 2-22
OSHA: *see* Occupational Safety and
Health Administration

outbreak: *see* foodborne-illness outbreak oxygen, and microbial growth, 2-6



paper towels, 10-8 paralytic shellfish poisoning (PSP). parasites, 2-16, 2-17, 2-18 parking lots, 10-8 pathogens, 1-2, 2-2, 2-6, 7-17 PCO: see pest control operator penetration probe, 5-6 personal hygiene program eating and drinking, 4-10 foodborne-illness causes, 1-8 gloves, 4-7 illness and injury, 4-11 hand maintenance, 4-6 handwashing, 4-4 management's role, 4-12 work attire, 4-8 pest control: see integrated pest management pest control operator (PCO), 12-2, 12-11, 12-12, 12-13 pesticides, 3-7, 3-8, 12-13, 12-15, 12-16 pH, 2-4, 2-5, 11-7 physical contaminant, 1-8, 3-7 pinned meats, 7-15 pipes, 10-20, 12-3 plant toxins, 3-4, 3-6 plates: see dishes plumbing, 10-18

pooled eggs, 7-9

pork: see meat porosity, 10-3, 10-6 potable water alternate sources, 10-17 cross-connections, 10-19 handwashing, 10-18 restrooms, showers, and laundry, 10 - 18water supply, 10-16 potentially hazardous food, 1-6 poultry cooking requirements, 7-12, 7-13, 7-17 preparation, 7-7, 7-8 receiving criteria, 5-11, 5-14, 5-16 storage techniques, 6-4, 6-8 USDA stamps, 5-14, 5-15 prerequisite programs, 9-3 produce, fresh cooking requirements, 7-13 preparation, 7-10 purchasing and receiving, 5-18, 5-19 storage techniques, 6-10 PSP: see paralytic shellfish poisoning Public Health Service: see U.S. Public Health Service pufferfish, 3-3 pulper, 10-23



quarry tile, 10-4, 10-5 quaternary ammonium compounds (quats), 11-5



rabies, 12-10 raccoons, 12-10 ratites, 7-15 rats: see rodents raw food cross-contamination, 1-10 cutting boards, 10-14 eggs, 7-9 food bars, 8-8 storage techniques, 6-5 re-serving food, 8-7 ready-to-eat food cross-contamination, 1-10 cutting boards, 10-14 potentially hazardous food, 1-8 storage techniques, 6-5 reasonable care defense, 1-4 receiving, 5-10 aseptically packaged food, 5-22 canned products, 5-21, 5-22 dairy products, 5-17, 5-18 dry products, 5-21, 5-22 eggs, 5-10, 5-11, 5-16, 5-17 fresh produce, 5-18 frozen food, 5-19 inspection procedures, 5-3, 5-4 MAP food, 5-20, 5-21 meat, 5-11, 5-14, 5-15 potentially hazardous hot food, poultry, 5-11, 5-14, 5-15, 5-16 quality standards, 5-2 refrigerated food, 5-19 rejecting shipments, 5-3 seafood, 5-10, 5-11, 5-12, 5-13, 5-14

sous vide food, 5-20, 5-21 temperature guidelines, 5-10 ultra-high temperature food, 5-22 vacuum-packed food, 5-20, 5-21 record keeping, 9-5, 9-13, 13-7 recyclables, 12-4 refrigerated food food storage, 6-4, 6-5, 6-6 purchasing and receiving, 5-19 refrigerated storage, 6-4, 6-5, 6-6 refrigerators, 10-11, 10-12, 10-13, 11-12 Registered Sanitarian (RS) program, 13-15 regulatory agencies Food and Drug Administration, 13-2, 13-3 Food Code, 3-3 inspection process, 13-5 state and local, 13-3 U.S. Department of Agriculture, 13-2, 13-3 reheating food, 7-19, 8-2, 9-8 repellents, 12-13, 12-15 residual spray, 12-13 resiliency, 10-3 restrooms, 10-7, 10-18, 11-14 Right-to-Know: see Hazard Communication Standard roaches: see cockroaches roasts, 7-14 rodents, 12-9, 12-10 role-play, 14-7 rotavirus, 2-14, 2-15 rubber mats, 10-5 rubber tile, 10-4



salad bars, 8-7, 10-21 salads, preparation of, 7-7, 7-8 sale, warranty of: see warranty of sale saliva, 4-10 Salmonella, 2-4, 2-21, 4-2, 7-8 salmonellosis, 2-10, 4-2; sanitarian: see health inspectors sanitary, definition of, 1-10 sanitary establishment design-plan review, 10-2 dressing rooms, 10-8 dry storage, 10-6, 10-7 flooring, 10-3, 10-4, 10-5 handwashing stations, 10-7, 10-8 interior-construction materials, 10-3 lockers, 10-8 premises, 10-8 restrooms, 10-7 sinks, 10-8 wall and ceiling finishes, 10-6 sanitizer, 7-4, 11-4, 11-5, 11-6, 11-7 sanitizing chemical sanitizing, 11-4, 11-5, 11-7, 11-10 clean-in-place equipment, 10-11, 11-11 effectiveness of, 11-6 heat sanitizing, 11-4 hot water, 10-18 refrigerated units, 11-12 stationary equipment, 11-11

three-compartment sink, 11-10

warewashing machines, 10-10, 10-11 scombroid poisoning, 3-3, 3-6 scoring scale for inspection systems, 13-8, 13-10 seafood cooking requirements, 7-12; 7-13, 7-17 preparation, 7-7 receiving criteria, 5-11, 5-12, 5-13, 5-14 storage techniques, 6-4, 6-8, 6-11 seafood toxins, 3-2, 3-3, 3-4, 3-6 self-service areas, 8-7 servers: see food servers service sink, 10-8 serving stations, cleaning of, 11-14 sewage, 10-20 shelf life, 6-4, 6-12 shellfish receiving criteria, 5-10, 5-11, 5-13 seafood toxins, 3-3, 3-6 storage techniques, 6-9 shellstock identification tags, 5-13 shelving, 7=19, 11-13 shigellosis, 2-10 shoes, 4-8 showers, 10-18 single-use gloves, 7-5 single-use items, 8-11, 10-17 single-use paper towel, 10-8 sinks, 10-8, 10-19, 10-20, 11-16 slacking, 7-7 smoking, 4-10 sneeze guard, 8-8 soap, 10-8

solvents, 11-4

SOPs: see prerequisite programs thermocouples, 5-6 tableware, 11-16 time and temperature control, 7-3 sous vide food, 5-10, 5-20, 5-21. tea, 7-16, 7-17 6-11 three-compartment sink, 11-10 technology-based training, 14-8 spiders, 12-8 time-temperature abuse, 7-2, 7-3, temperature 7-4 spinach, 7-11 chemical sanitizers, effectiveness foodborne-illness causes, 1-8 spoilage microorganism, 2-2, 2-16. of, 11-6, 11-7 . time-temperature indicators, 5-7 2-20 chemical-sanitizing machines, time-temperature indicator (TTI), 5-7 11-8 spore, 2-2, 2-4 cleaning, 11-3 toxic metal poisoning, 3-5 squirrels, 12-10 dry storage, 6-7 toxin-mediated infection: see staff trainer, 14-9 FAT TOM, 2-6 foodborne toxin-mediated standard operating procedures food storage, 6-2 infection (SOPs): see prerequisite programs frozen storage, 6-6, 6-7 toxins, 2-2 Staphylococcal gastroenteritis, 2-11 inspecting deliveries, 5-4, 5-10 biological, 3-2 state regulations: see regulatory refrigerated storage, 6-5 chemicals, 3-7, 3-8 agencies Salmonella growth, 2-4 metals, 3-5, 3-8 sanitizers, 11-6 stationary equipment, 10-15, 11-11, mold, 2-19 12 - 3seafood toxins, 3-4 mushrooms, 3-4, 3-5 tea preparation, 7-16, 7-17 stationary phase, 2-4 pesticides, 3-7, 3-8 thermometers, 5-5, 5-6, 5-7, steaks, 7-14 seafood, 3-2, 3-3, 3-4, 3-6 5-8, 5-9, 5-10 storage toxoplasmosis, 2-18 time and temperature control, 7-3 cleaning tools and supplies, training need, 14-4, 14-5 temperature danger zone 11-16 training program FAT TOM, 2-6 food: see food storage certification, 14-15 four-hour rule, 7-2, 7-6 pesticides, 12-16 demonstration, 14-6 monitoring, 5-5 tableware, utensils, and effectiveness of, 14-3 pathogen prevention, 2-8 equipment, 11-16 evaluation, 14-14, 14-15 time and temperature control, 7-2 stuffed meats, 7-13 feedback, 14-3, 14-7, 14-8, temporary unit, 8-11, 8-12 14-12, 14-14 stuffing, 7-13 termites, 12-8 suppliers: see receiving group training, 14-8, 14-9 terrazzo, 10-4, 10-5 instructors, selection of, 14-9, surface probe, 5-6 thawing food 14-10 surfactants, 11-3 methods of, 7-5, 7-6, 7-7 job aids, 14-7, 14-8 systemic fish toxins, 3-6 refreezing, 6-7 learning objectives, 14-5 shelf life, 6-12 lecture, 14-7 thermometers one-on-one training, 14-8 bimetallic stemmed, 5-5 purpose of, 14-2, 14-3 calibration, 5-8, 5-9 role-play, 14-7 guidelines, 5-8 technology-based training, 14-8 tables, cleaning of, 11-13 infrared (laser), 5-6, 5-7 trainers, preparation of, 14-12. thermistors, 5-6 tabletop equipment, 10-15 14-13

training area, selection of, 14-11, 14-12 training materials, 14-10, 14-11 training needs, assessment of, 14-4, 14-5 training sessions conducting of, 14-13, 14-14, 14-15 scheduling of, 14-11 traps, pest, 12-14 treatment (pest control): see integrated pest management trichinosis, 2-17 TTI: see time-temperature indicator tuberculosis, 4-3 tumble chiller, 10-13 two-stage cooling, 7-17 typhoid fever, 2-21



UL: see Underwriters Laboratories ultra-high temperature (UHT) food, 5-22, 6-11 Underwriters Laboratories (UL), 10-9, 13-16 U.S. Department of Agriculture (USDA), 5-14, 13-2, 13-3 U.S. Public Health Service (USPHS), 13-2, 13-3, 13-13 utensils cross-contamination, 7-4 food service, 8-4, 8-5 storage, 11-16 toxic metals, 3-8 utilities lighting, 10-21 hot water, 10-18

plumbing, 10-18, 10-19, 10-20

sewage, 10-20, 10-21 ventilation, 10-21, 10-22 water emergencies, 10-17, 10-18 water supply, 10-16



vacuum breaker, 10-19
vacuum-packed food, 5-10, 5-20, 5-21, 6-11
veal: see meat
vegetables: see produce, fresh
vegetative microorganisms, 2-3, 2-4
vending machine, 8-12
ventilation, 10-21, 12-2, 12-3
verification, 9-12, 9-13
vibrio spp. gastroenteritis, 2-13
vinyl flooring, 10-4
vinyl wall coverings, 10-6
viruses, 2-14, 2-15
voluntary closure, 13-8
voluntary controls, 13-13



walls, 10-6, 11-13, 12-3
warm-air hand dryer, 4-4
warewashing
machines, 10-10, 10-11, 11-8,
11-9
manual, 11-10, 11-11
warranty of sale, 1-4
wasps, 12-8, 12-14
waste management: see solid waste

wastewater, 10-20 water: *see* potable water water activity, 2-8 water emergencies, 10-17, 10-18 water hardness: *see* hard water water supply, 10-16 windows, 12-2, 12-3 work attire, 4-8 work flow, 10-14



yeast, 2-6, 2-20 yellow jackets, 12-8 yersiniosis, 2-13 yogurt, frozen, 6-6



zapper: *see* electronic insect eliminator