

CHAPTER 11 | STUDY GUIDE

Design the Building Around the Work

A facility plan is a food-safety decision before it is a construction drawing. The menu and busiest production period determine required space, equipment, water demand, and access. This guide uses the FDA Food Code 2026 as a model. Local adoption and amendments govern actual operations.

Recognize	Understand and apply
Plan review	Submit plans for review and approval before new construction or conversion. Remodeling and operation changes require plans when the regulatory authority determines they are needed. Show menu, volume, layout, finishes, equipment, and the required food safety management-system evidence.
Surface selection	Operational floors, walls, and ceilings generally need smooth, durable, easily cleanable surfaces. Moisture-exposed areas also need nonabsorbent materials. Finish and seal porous indoor block or brick walls except in areas used only for dry storage.
Coving	Coving is a cleanable transition at the floor-wall junction. Without water flushing, cove and close gaps to no more than 1/32 inch (1 mm). With water flushing, cove and seal the junction and provide drains and floors graded to drain.
Cleaning access	Exposed utility lines cannot obstruct cleaning, and exposed horizontal lines cannot run on the floor. Mats must be removable and easily cleanable. Safety-related anti-slip applications are recognized, but must not become neglected soil traps.
Carpet limits	Keep carpet out of preparation, walk-ins, warewashing, toilet-fixtured areas, refuse rooms, and other wet or spray-cleaned locations. An acceptable dining-area material is not automatically an acceptable dish-room material.

Worked Decision: Changing the Cleaning Method

A manager proposes hosing a flat floor that has been mop-cleaned. A nearby drain alone is insufficient. Check grading to the drain and coved, sealed junctions before using a water-flushing method. Do not confuse a new cleaning tool with a compliant floor redesign.

Remember: Start with the work and exposure. Then check materials, cleaning method, access, and plan-review obligations.

Memory cues and recall practice: pages 9-10.

Choose Equipment by Surface and Intended Use

Food-contact includes surfaces from which food drains, drips, or splashes into food or onto a normal food-contact surface. Match materials to food and cleaning demands.

Recognize	Understand and apply
Material performance	Multiuse food-contact materials must be safe, durable, corrosion-resistant, nonabsorbent, smooth, and resistant to damage. They must withstand repeated warewashing without transferring harmful substances or unwanted colors, odors, or tastes to food.
Nonfood-contact	Surfaces exposed to splash, spillage, food soiling, or frequent cleaning must be smooth, nonabsorbent, corrosion-resistant, and easily cleaned and maintained, without unnecessary crevices.
Specific allowances	Hard maple or equally hard, close-grained wood is permitted for listed uses such as cutting boards and certain utensils. Cast iron is allowed for cooking and for serving only as part of an uninterrupted cooking-through-service process. These are not blanket permissions for every wood or iron item.
Food chemistry	Copper and copper alloys generally cannot contact food below pH 6. The narrow exception concerns brewing ingredients in pre-fermentation and fermentation, not normal juice service. Galvanized metal cannot contact acidic food.
Certification scope	Qualifying sanitation certification to a recognized American National Standard by an ANSI-accredited certification program deems equipment compliant with materials and design provisions. Installation, capacity, cleaning, condition, operation, and local acceptance remain separate checks.
Buying check	Match the model number to the sanitation listing and verify its scope. A general electrical mark is not sanitation evidence. Inspect actual surfaces, seals, cleaning access, and workload suitability; a certified unit can still need repairs before use.

Worked Decision: Buying a Used Mixer

A sanitation-certified mixer still needs inspection for cracks, soil traps, installation, and workload suitability. Certification supports a defined design claim, not today's condition.

Remember: Match intended use, condition, and certification scope.

Install for Access and Maintain Performance

Fixed-equipment rules apply when equipment is not easily movable. Vertical clearance and horizontal cleaning reach are different measurements. Establish the mounting type, identify the deepest point from actual access, and then apply the appropriate rule. A reduced-clearance exception cannot be justified by the height alone.

Recognize	Understand and apply
Floor-mounted	Seal to the floor or provide at least 6 inches underneath. A 4-inch clearance is permitted only if every floor point beneath is within 6 inches of cleaning access. Specified retail display shelving, refrigerators, and freezers in consumer shopping areas are exempt from this section if the floor beneath stays clean.
Counter-mounted	Seal to the counter or provide at least 4 inches. Clearance may be 3 inches if the maximum horizontal reach beneath is 20 inches, or 2 inches if it is only 3 inches. Walls or adjacent appliances may remove an otherwise assumed access point.
Sides and overhead	Provide cleaning access around and above fixed equipment, specified close spacing no greater than 1/32 inch, or sealing where spillage/seepage applies. Do not install beneath unshielded sewer lines or leaks and condensation, including water-based fire-protection systems.
Capacity and instruments	Cooling, heating, and holding equipment must meet required food temperatures at operating volume. Measure the warmest refrigerator zone and coolest hot-storage zone. Holding-display exceptions exist where ambient measurement is impractical. Food readings remain separate. Warewashing data plates and required measuring devices must be usable.
Repair	Keep seals, doors, hinges, fasteners, and kick plates intact and adjusted. Resurface cutting boards that cannot be effectively cleaned and sanitized; discard if restoration is impossible. Keep can-opener cutting parts sharp. Maintain the building and plumbing, and prevent repair debris from contaminating food.

Worked Decision: Counter Clearance

A fixed appliance has a deepest horizontal cleaning reach of 18 inches. Three-inch clearance can qualify; two-inch clearance cannot. Confirm actual access, other installation requirements, and continuing cleanability before accepting the installation.

Remember: Certification, installation, capacity, and maintenance answer different questions. Check each one.

Protect Drinking Water from Source to Outlet

Potable means suitable for drinking. The supply must be safe at its source and protected against contamination inside the establishment. Source approval does not cancel the need for correctly installed hoses, fixtures, backflow protection, and dependable capacity.

Recognize	Understand and apply
Source and evidence	Use an approved public source or lawful approved nonpublic system. Nonpublic drinking water must meet state standards, be sampled/tested at least annually and as state rules require, and have its latest report retained on file or as state rules specify.
Supply and restoration	Meet peak water and hot-water demand. Required fixtures generally need pressure, subject to stated temporary-supply exceptions. Flush and disinfect after construction, repair, modification, or emergencies that may introduce contamination. Alternative supplies must still meet quality and capacity requirements.
Connection versus flow	A cross-connection is a path linking potable water with nonpotable water or another contamination source. Backflow is unwanted reverse movement. Reduced supply pressure can cause back-siphonage; backpressure can also reverse flow. The path is a problem before reverse movement is observed.
Air-gap calculation	Measure vertical open space from the supply outlet to the flood-level rim, not the current water surface. Use at least twice the supply inlet diameter, never less than 1 inch (25 mm). A hose must not bridge the gap into contamination.
Devices and service	An approved prevention device must suit the application and applicable standard. A filter alone is not proof of backflow protection. Devices must be accessible. Schedule inspection/service under manufacturer instructions and local water conditions and retain records. Hose bibbs with attached hoses require protection; unattached bibbs also do when law requires it.

Worked Decision: A Three-Quarter-Inch Inlet

Twice 3/4 inch is 1 1/2 inches. Because that exceeds the one-inch floor, a one-inch gap is insufficient. Raising the outlet without allowing a hose to bridge the gap addresses the supply separation; waste-drain details require their own assessment.

Remember: Verify the source, the capacity, and every potential return path. Do not use clear appearance as evidence of water quality.

CHAPTER 11 | STUDY GUIDE

Keep Handwashing Ready at the Point of Work

A handwashing station is a complete, dedicated facility, not merely a basin. Evaluate location, access, water, cleanser, drying, and signage together. A worker should not have to move deliveries, empty utensils, or walk away from a remote station to discover that washing is unavailable.

Recognize	Understand and apply
Placement and number	Provide at least one sink, enough for convenient use in food preparation, dispensing, and warewashing areas, and at least the number required by law. Provide a sink in or immediately adjacent to toilet rooms. Approved automatic facilities have limited substitution conditions; at least one hand sink remains required.
Dedicated access	Keep sinks always accessible and use them only for handwashing. Do not dump beverages, rinse produce, store tools, or wash utensils there. Soap and towels do not turn a service or food-preparation sink into a handwashing station.
Water and edition	The 2026 model requires capability to supply at least 85 F (29.4 C) through a mixing valve or combination faucet. This is not a germ-killing temperature. Check local adoption. A water-heater setting alone does not prove the temperature delivered at the sink.
Metered flow	A self-closing, slow-closing, or metering faucet must run for at least 15 seconds without reactivation. This fixture rule is separate from the complete handwashing procedure and does not shorten it.
Supplies	Provide liquid, powder, or bar soap at each sink or group of TWO adjacent sinks. Provide permitted drying: individual disposable towels, a continuous clean-towel system, heated air, or an air-knife dryer. Provide a visible employee handwashing sign and a waste receptacle where disposable towels are used. Drying and towel-waste allowances cover adjacent sink groups without the soap rule's two-sink limit.

Worked Decision: Two Independent Checks

A sink delivers 90 F water but its metered faucet shuts off after 10 seconds. The temperature meets this model baseline, yet the flow does not. Correct the faucet timing rather than incorrectly citing the former 100 F temperature threshold.

Remember: A complete station must remain usable through the busiest period, not just at opening.

CHAPTER 11 | STUDY GUIDE

Separate Sewage, Mop Waste, and Refuse

Waste systems must carry contamination away without creating a route back to food or potable water. The correct connection depends on what the fixture does. A water-supply air gap and protection from sewage backup are related safeguards, but they are not the same installation requirement.

Recognize	Understand and apply
Sewage connections	Direct sewage connections from drains of equipment holding food, portable equipment, or utensils are generally prohibited. An exception covers floor drains in refrigerated spaces constructed as integral parts of the building. When law allows, warewashing/culinary sinks may connect directly; qualifying machines must be within 5 feet of a trapped floor drain and connect to the inlet of its properly vented trap.
Disposal and access	Convey sewage through an approved system to approved public treatment or a lawful individual disposal system. Grease traps, if used, must be accessible for cleaning. Disposal of condensate, other nonsewage liquids, and rainwater follows law.
Service fixture	Provide at least one conveniently located service sink or curbed cleaning facility with a floor drain for mop cleaning and similar waste. Toilets and urinals cannot substitute for this function. Store mops to air-dry without soiling equipment or walls.
Toilet facilities	Provide at least one toilet and the number required by law. Maintain employee access throughout operation, tissue, and a covered receptacle in EVERY toilet room. On-premises rooms generally need full enclosure and tight-fitting self-closing doors; certain outside rooms not opening into the establishment are excepted.
Refuse controls	Use durable, cleanable, leakproof, nonabsorbent, pest-resistant food-residue receptacles. Indoors, cover them when not in continuous use and after filling. Outdoors, keep tight-fitting lids/doors closed. Keep drain plugs in place, storage separate, and outdoor surfaces smooth, durable, nonabsorbent, and sloped to drain. Clean safely and remove often enough to minimize odors and pest attraction.

Worked Decision: A Convenient Toilet

A service sink is blocked at closing. Pouring the mop bucket into a toilet is not an authorized workaround. Restore the proper disposal facility and keep the waste route separate from food and handwashing.

Remember: Do not generalize a lawful sink-drain exception to an ice machine. Detailed pest-control methods belong in Chapter 13.

2026: covered receptacles in ALL toilet rooms. **Scored 2022 + December 2024:** a covered sanitary-napkin receptacle in a toilet room used by females. Ordinary refuse-cover rules are separate.

CHAPTER 11 | STUDY GUIDE

Measure Light and Control the Air

Lighting requirements describe both the amount of light and where to measure it. Foot-candles and lux measure illumination, not bulb wattage. Use the work and location to select the rule. Ventilation similarly depends on controlling conditions, not simply having a fan that runs.

Recognize	Understand and apply
10 foot-candles / 108 lux	Measure 30 inches above the floor in walk-in refrigeration and dry food storage, and in other areas during cleaning. A higher requirement for a specific work area still applies. Do not apply this dry-food-storage minimum to clean utensil storage.
20 foot-candles / 215 lux	Apply at consumer self-service surfaces and surfaces displaying fresh produce or packaged food for sale/consumption, and inside reach-in or undercounter refrigerators. Measure 30 inches above the floor in handwashing, warewashing, equipment/utensil storage, and toilet rooms.
50 foot-candles / 540 lux	Apply at surfaces where employees work with food or with utensils/equipment such as knives, slicers, grinders, or saws where employee safety is a factor. Measure the work surface rather than assuming the room's floor-level reading proves compliance.
Breakage protection	Shield, coat, or use shatter-resistant bulbs around exposed food and the specified clean or unwrapped items. The unopened-food-only exception needs packages that falling glass cannot compromise and that can be cleaned before opening. Heat lamps need a shield surrounding and extending beyond the bulb, leaving only its face exposed.
Ventilation	Provide adequate mechanical ventilation when necessary to control excessive heat, steam, condensation, vapors, odors, smoke, and fumes. Prevent hood drips and contamination from intake/exhaust. Clean ducts and maintain filters; exhaust cannot create a hazard, nuisance, or unlawful discharge.

Worked Decision: Bright but Unprotected

A knife-preparation surface measures 50 foot-candles, but its bulb is unprotected over exposed food. The measured lighting meets the task minimum; the breakage-protection requirement remains unresolved. Fixing one condition does not establish the other.

Remember: Check the light level, measurement location, protection from breakage, air movement, and condensation separately.

CHAPTER 11 | STUDY GUIDE

Move from Routine Repair to Emergency Control

An imminent health hazard may seriously endanger public health. Sewage backup, fire, flood, extended utility loss, toxic-material misuse, apparent outbreaks, and gross insanitary conditions can trigger emergency duties.

Recognize	Understand and apply
Discontinue and notify	When an imminent health hazard may exist, immediately discontinue operations and notify the regulatory authority, subject to the stated exceptions. Do not wait for a confirmed illness. Protect food and clean items and stop affected work while the hazard is evaluated and corrected.
Unaffected area	The model allows operations in an unaffected area to continue. Check shared utilities, drainage, employee travel, and sanitation before describing an area as unaffected. A separate service counter may still depend on the failed kitchen handwashing system.
Utility-plan exception	For an extended electrical or water interruption, the authority may agree to continuing operations if a written emergency plan is approved, immediate corrective actions control the risk, and the authority is notified upon implementation. A manager's improvised plan or supplies alone do not satisfy this route.
Recovery and disinfection	Restore safe systems and assess affected food and equipment. The Code requires disinfection for specified contamination and emergency circumstances when available sanitizers do not control the pathogens of concern. Follow EPA-registered label directions. Rinse disinfected food-contact surfaces with potable water unless the label specifies otherwise.
Approval before resuming	After discontinuation under the hazard rule or law, obtain regulatory approval before resuming. Repairs alone are not approval. Keep correction and verification evidence as management practice.

Worked Decision: Water Returns After Shutdown

Water service returns after shutdown. Check system safety, handwashing, cleaning capacity, and affected food. Complete necessary corrections and obtain regulatory approval before resuming. Restored flow is not automatic clearance to reopen.

Remember: Recognize the trigger, stop affected work, notify, correct and verify, then obtain approval before required reopening. No fixed number of outage minutes replaces that judgment here.

CHAPTER 11 | REMEMBER THE DIFFERENCE

Water Protection: Path vs. Movement

Cross-connection is the path. Backflow is reverse movement.

Potable means safe for drinking. An approved source still needs protection at the faucet, hose and drain. Clear water is not proof that the supply stayed protected.

Cross-connection	A connection can link safe water with contamination. A hose end submerged in dirty mop water can create a return path before anyone actually sees reverse flow.
Backflow	Unwanted reverse flow can occur from back-siphonage when supply pressure drops or from backpressure. A filter is not automatically a backflow-prevention device.
Air gap: TWO, minimum ONE	Vertical gap from the supply outlet to the flood-level rim: at least twice the supply inlet diameter, never less than 1 inch. Measure to the rim, not today's water surface. Do not bridge the gap with a hose.
Dedicated fixtures	Hand sink: handwashing only. Service sink/curbed cleaning facility: mop and similar waste. A convenient prep sink or toilet is not a substitute for the required purpose.

Use it on shift: A 3/4-inch supply inlet needs at least a 1 1/2-inch air gap: twice 3/4 exceeds the 1-inch minimum. A 1/4-inch inlet still needs at least 1 inch, not just 1/2 inch.

Cover the answers. Explain the reason.

Is the gap measured to the current water level? No. Use the flood-level rim.

Does an air gap on a supply settle every sewage connection? No. Drain and sewage-connection requirements are separate checks.

Review: earlier guide pp. 4-6. **Sources:** 5-202.13-.15; 5-203.13-.14; 5-205.11-.13; 5-402.11. Detailed plumbing must meet adopted requirements.
FDA Food Code 2026

CHAPTER 11 | REMEMBER THE DIFFERENCE

Facility Numbers Need a Location

Remember the number AND what it measures.

A temperature, clearance or light level without a location is incomplete. The figures below are model-Code defaults with the noted boundaries, not every installation exception.

6 inches floor / 4 inches counter	Fixed equipment not easily movable: seal it to the supporting surface or use the ordinary clearance. Reduced-clearance exceptions depend on horizontal cleaning reach; they are not choices based on convenience.
85 F / 15 seconds / 20 seconds	Hand sink supply capability: at least 85 F in the 2026 model. Metered faucet: at least 15 seconds without reactivation. Complete handwashing procedure: at least 20 seconds. These measure three different requirements.
10 / 20 / 50 foot-candles	10: walk-in/dry-food storage, measured 30 inches above floor. 20: listed areas such as handwashing/warewashing at that height, or specified display/refrigerator locations. 50: employee food-work or hazardous-tool work surfaces. Apply the task and measurement location.
Coving	The floor-wall transition supports cleaning. Water-flushed floors need coved, sealed junctions and drainage with grading. A drain in an otherwise flat room does not prove a water-flushing design is suitable.

Use it on shift: A faucet delivers 90 F water but stops after 10 seconds. Temperature meets this baseline; the metered-flow requirement does not. A sink can pass one check and fail another.

Cover the answers. Explain the reason.

Can an 85 F water reading prove a complete handwash? No. Supply capability and employee procedure are different.

Does sanitation certification prove equipment is clean today? No. Design, installation, condition and operation require separate checks.

Review: earlier guide pp. 1-3, 5, 7. **Sources:** 2-301.12; 4-205.10; 4-402.12; 5-202.12; 6-201.13; 6-303.11. Verify local adoption, including hand-sink temperature.
FDA Food Code 2026