

# Food Service Construction Manual



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## **I. Introduction**

This manual is implemented during the beginning phase of building a new food establishment along with the remodeling phase. The purpose of designing this manual is to help provide a foundation for architects, contractors, and equipment suppliers, in the first stages of designing a new or remodeled food facility. It is also essential to make sure that food establishments are up to code with commercial equipment as well as having designated rooms that help promote a safe and hazardous free environment when handling and preparing food. The following information provided in this manual will apply to any establishment that prepares food and or beverages.

Our primary objective of the plan review process under the Environmental Health Food Safety Program is to have food establishments comply with FDA and State regulations, to ensure the health and safety of the public when preparing and serving food.

## **II. The Plan Review Process**

A plan review is required for new and remodeled food establishments before constructing or altering any building intended for the use as a food service facility.

### **These plans must include:**

- A completed **Plan Review Application Form and Fee** (See current fee schedule).
- Plan drawn to scale of food establishment showing location of equipment, plumbing, electrical services and mechanical ventilation. Provide two copies, 11 x 17 and full-size architectural drawing.
- A copy of Illinois Food Service Sanitation Manager Certification or proof of enrollment in a Food Sanitation Course.
- A copy of complete menu or list of food products to be offered.
- A Balance Report for the exhaust hood.

A licensed plumbing inspector **MUST** ensure the requirements for plumbing in food establishments are met (Contact either city or state plumbing inspector to satisfy these requirements) please submit plumbing layout to the Health Department.

**\*Incomplete Applications will not be reviewed\***

### **III. Pre-Operational/Final Inspections**

DeKalb County Health Department conducts the following inspections for food establishments

- **Pre-Opening Inspection:** Occurs before the opening of the establishment. Inspector will verify that the equipment layout is operational and installed per plan.
- **Final Inspection:** A final inspection may be required if items and or equipment from the previous inspection were not available or completed prior to your opening date.

**\*Contact Environmental Health at (815)-758-6673 to schedule an appointment.**

### **IV. Equipment** (Example pictures provided in appendix)

Food service equipment used to store, cook, or prepare food **must** be commercial grade and meet the standards of the National Sanitation Foundation (NSF) <http://www.nsf.org/>. Equivalent standards such as UL, ANSI, and ETL etc. are accepted.

Installing equipment properly is essential when ensuring sanitation regulations are being satisfied. Employees should be able to clean around and under commercial equipment. Keeping equipment in designated locations is essential for preventing contamination.

#### **a) Three Compartment Sink**

- **Design:** Stainless steel sink with two integral drain boards, on each side, where pots, pans, and other utensils can be stored. Install this sink in an area that minimizes the risk of contamination.
- **Size:** Each compartment must be large enough to submerge the largest commercially used item for washing purposes. Each drain board must be equivalent to the largest sink compartment.

#### **b) Hand Washing Sink**

- A sufficient number of hand sinks need to be provided throughout all working zones where food preparation, cooking, dishwashing, and food assembly are in use. Providing several hand sinks throughout the facility encourages frequent handwashing and preventing any potential food contamination.
- Hot water must supply the minimum of at least 100° Fahrenheit.
- Soap and paper towel dispensers are required to be accessible at all handwashing locations. State Code does not allow the use of common cloth towels, rolled towels, and hot air hand dryers in food service areas.

- **Hand and Utility Sink Splash Guards**: A splash guard must be installed when a hand or utility sink is within eighteen inches horizontally of a food contact surface, vegetable prep sink or utensil washing sink. The distance does not apply when the utility sink is a floor-mounted basin not exceeding ten inches in height from the floor.

The splash guard must be at least eight inches high and constructed of a durable, easily cleanable material. It must be securely fastened to the wall countertop or sink with a 1/8-inch radius cove.

#### **c) Janitorial Mop Sink**

Janitorial mop sink must be separated from areas pertaining to food service, food preparation, and food storage. Janitorial mop sink serves the purpose of ensuring that food establishments are cleaned and maintained frequently as needed. Cleaning supplies should also be stored in this area. One compartment floor style is recommended, but a laundry sink is allowed. Hooks shall be provided over the janitorial sink so the wet mop may drip dry.

Janitorial station room finishes shall meet the same requirements as stated for food preparation area. In addition, splash areas shall be finished in a durable, water resistant finish.

#### **d) Food Preparation Sink**

Food establishments are required to have a separate sink for the purpose of washing, rinsing, soaking, and thawing food. One compartment along with an integral drain board is recommended. This sink shall be isolated from other work stations such as janitorial and utensil washing.

#### **e) Commercial Refrigeration**

Domestic-type refrigerators and freezers are prohibited for retail food service. NSF equipment is designed to hold cold temperatures during frequent periods of opening and closing throughout the day, and, also ensure that all food items meet the required temperature within the entire unit. Refrigerators are to be maintained at 41°F or below and freezers must be maintained to keep food frozen to touch.

Shelving installed in refrigerators or walk-in units shall be rated for use in high moisture environments. **Wood, zinc, galvanized, chrome, or solid shelving are prohibited.**

- **Walk-in Coolers and Freezers**

Walk-in coolers and freezers shall be located within the nearest delivery/receiving area in the kitchen. These units shall be installed for long-term storage of perishable and potentially hazardous food. Remote outdoor walk in cooler and/or freezers are prohibited.

- **Reach-in Refrigerators**

These units are for short-term storage of perishable and potentially hazardous foods.

- **Refrigerated Work Tables**

When potentially hazardous foods are in use on a continuous basis, a refrigerated table with storage compartments on top shall be installed.

**f) Special Equipment**

- **Cold Plates**: Cold plates, when installed in ice bins, shall be constructed integrally with the bin.
- **Dipper Wells**: Dipper wells, with running water, are required when bulk ice cream is dispensed and may also be needed for storage of other bulk food dispensing utensils. Indirect plumbing is required.
- **Display Equipment (Sneeze Guards)**: Food on display for self-service or otherwise shall be protected from consumer contamination by the use of easily cleanable counter protector devices, display cases, or similar equipment. These devices shall be designed and installed so as to intercept the direct line between the mouth of the customer and the foods on display. Designs for this equipment must be scale drawings submitted to this department for approval
- Foods displayed for self-service shall be arranged in a single row or in such a manner that customers may obtain food without reaching across other foods.
- In addition, the following factors must be incorporated into the design of the self-service food operation:
  - i. **Serving utensils and containers**: Serving utensils (spoons, tongs, etc.) and food containers shall be of such size and configuration and matched so as to prevent the handle of the serving utensils from falling into the food. The utensils and containers shall be of such sanitary design and material as to be easily cleaned and sanitized.

**g) Adequate Work Surfaces/Storage Shelving**

Food establishments shall provide a suitable space dedicated to dry storage that takes up 15 to 25 percent of kitchen area. Dry storage areas shall have enough commercial grade shelving to keep food items organized and off the floor. The storage area should also be located next to the nearest receiving/delivery door area to prevent traffic through areas of food preparation.

Separate rooms dedicated to dry storage are allowed; these rooms must be accessible by means of interior hallways, stairways, or elevators. Storage is not permitted on top of the walk-in units, restrooms, space between the ceiling, roof deck, or hallways.

Utensils shall be properly stored in a location where it can be protected from contamination.

Soiled Linens shall be located in designated storage areas away from food preparation and food assembly. When not in use, soiled linens shall be placed in non-absorbent containers or washable laundry bags specifying that it is soiled.

Chemicals shall be designated in storage areas where other toxic materials are stored. It is important to keep chemicals away from the kitchen to avoid contamination.

## **h) Mechanical Utensil Washing (Dish machine)**

### **General Standards**

It is important to note that dish machines do not eliminate the need for a three-compartment sink. If technical issues occur such as low temperature levels or inadequate levels of sanitation, the three-compartment sink will need to be used in order to continue serving the public.

**The following is requirements regarding mechanical utensil washing:**

- **Chemical Sanitation Dish Machines**

A sanitizer alert system must provide a visual and audible alarm, designed and approved for the specific machine is required to warn the user when the sanitizer is being applied.

- **Hot-Water Sanitizing Dish Machines**

A pressure gauge is required to monitor the water pressure. The flow pressure is to be 15 to 25 pounds per square inch (PSI) at the final rinse.

Provide a Type II (NSF) exhaust hood to effectively remove steam and vapors generated by hot water sanitizing dish machines.

## **i) Hot Water Heater**

A 40-gallon storage capacity commercial water heater is the minimum standard in food service operations. Per State mechanical code, if the hot water heater is suspended, the support shelf is to provide a minimum of 80-inches of clearance above the finished floor.

Heat-on-demand or “tank less” hot water systems shall be commercial grade, with design capacity calculations shown on the plan.

*We can evaluate the capacity according to the type of fixtures provided.*

## **j) Dump Sinks**

This sink is required for the disposal of liquid waste in addition to sinks necessary for washing, cleaning and sanitizing. This sink can also be used to rinse utensils and wares in between use (i.e. knives, blender pitchers, espresso milk steamer cups, etc.). A separate dump sink must be provided at bars, juice bars, drink and coffee stations, coffee bars and other areas where soiled glasses, pitchers and blenders are emptied and /or staged for washing.

- A dump sink cannot be used as a hand sink.
- This is a separate sink equipped with its own hot and cold-water faucets.
- Dump sinks should be fitted with a removable strainer.
- Location of dump sink to be shown on the plans.

## **V. Employee Areas**

- Provide a coat rack, coat hooks, or other suitable facilities for employees to store coats and other personal belongings separate from food service areas.
- Dressing Rooms are suggested for employees who change clothes on site. Dressing rooms shall also provide storage lockers for personal non-work garments as well.
- Break rooms shall be located away from any food preparation areas. If dining rooms are not available at the facility, a separate room is needed for employees to dine.

## **VI. Restrooms**

- Restrooms are required to be in compliance with state and local plumbing codes
- Public restrooms shall be located in a manner that does not allow access through food preparation or utensil washing areas.
- Mechanical ventilation is required for all restrooms.
- Each hand-washing sink must have a supply of dispensed hand soap and a dispenser for disposable paper towels. Dispensers must be conveniently located near each hand washing sink.
- Hand dryers may be utilized in restrooms; only if they are accompanied with paper towel.
- Hand dryers are allowed without paper towel if there is a method of exiting the restroom without individual's hands coming into contact with the door such as a foot hanger or an arm hanger.
- Hand sinks must provide hot and cold water by means of a mixing valve or combination faucet. Public restrooms must have a maximum temperature of 110°F hot water.
- It is recommended that diaper changing tables are provided in each restroom.
- A covered waste container with tight-fitting lids is required for all restrooms.
- A timed faucet is required to run for at least 15 seconds.



## **VII. Laundry**

A washing machine shall be provided if a laundry area is proposed. A separate area is required when fulfilling laundry duties to avoid contamination. Protects clean linens from contamination and store them away from soiled linens. If a dryer is utilized it shall be vented to the outside.

## **VIII. Lighting**

Protective lenses, light tubes with end caps, or safety-coated bulbs are required for light fixtures in food preparation, storage, utensil washing, bar areas, and walk-in units.

- The working services of any room or area in which food or beverages (other than alcoholic beverages) are prepared, or in which utensils are washed, shall be provided with at least thirty-foot candles of light. The foot candles shall be measured thirty inches above the floor.
- Food and utensil storage rooms, toilet rooms, and dressing rooms shall be provided with at least twenty-five foot candles of light, measured thirty inches above the floor. Lighting in walk-in coolers and freezers shall be placed so it is not obstructed by the normal storage of food on the shelves and provide at least twenty-five foot candles of light, measured thirty inches above the floor.
- All other rooms shall be well lit throughout, with a light intensity of not less than fifteen-foot candles. The foot candles shall be measured thirty inches above the floor.

## **IX. Room and Area Finishes**

Floor finishes in areas such as food preparation, storage areas, utensil washing, bars, buffets, beverage and wait stations, salad bars, and janitorial closets shall meet the following general standards:

- Floor finishes shall consist of a commercial grade, light colored, non-absorbent, grease resistant, and easily cleanable material.
- Mats or other supplemental flooring, if used, must be constructed for easy cleaning and designed to allow easy removal for cleaning purposes.
- A coved radius of 1/4 inches or greater and a tight seal are required at the floor/wall juncture. The floor finish determines the type of coving material. Tile installed on top of tile or wood does not meet minimum standards.
- Wall finishes shall consist of a smooth durable, light-colored, and easily cleanable material. Any painted wall sections will require a smooth, semi, or high-gloss finish.
- Ceiling finishes must consist of smooth durable, non-absorbent, and light-colored materials.

## **X. Building Openings**

### **Building openings must meet the following requirements:**

Openings to the exterior need to be properly protected to prevent the entry of insects, rodents, and pests. Thresholds, door sweeps, and weather stripping are required. The installation of an overhead mechanical air curtain is recommended.

- **Doors**

Exterior doors, including delivery and receiving doors shall be solid, self-closing, and tight fitting. Garage style doors must be protected against pests. They shall have an overhead air curtain with a minimum velocity of 750 feet of air per minute measured 3 feet above the floor if left open.

- **Windows**

Openable windows, except drive-thru or walk up windows, shall be screened with at least 16-mesh per inch wire screening. Provide fly protection by installing one or more of the following:

1. Equip windows with a self-closure device, such as a spring-loaded bump pad
2. Electronic opener
3. Air Curtain

## **XI. Garbage and Grease (Example pictures provided in appendix)**

- Each food service facility is responsible for contracting garbage and grease disposal service, securing the location and determining the frequency for pick-up.
- Waste compactors are to be located outside the building.
- Recycled materials are considered garbage and shall be stored and disposed in the same manner. If you plan to recycle, check with your local municipality or waste management company for additional rules, guidelines or details.
- Storage for garbage inside food establishments is not allowed. Garbage and refuse are to be stored outside of the facility.
- Outside garbage dumpsters, containers, compactors, and grease containers must be located on smooth surfaces such as concrete or machine-laid asphalt. Grass or gravel will not be approved.
- Enclosed areas, if provided, are to be large enough to provide space for dumpster(s), garbage container(s), grease container(s), and/or compactor(s). Check with local authorities for additional requirements.

## **XII. Exhaust Hood Ventilation** (Example pictures provided in appendix)

Install all ventilation systems as specified by all municipal, county, state, fire, and building department's requirements. DeKalb County Health Department does not review plans regarding ventilation for installation. In order to be in compliance with the food service construction requirements, ventilation installs must meet the requirements of the fire department, building inspector, and or state officials.

***\*A balance report shall be provided once ventilation is installed. \****

### **When Exhaust Hoods are required:**

- Commercial cooking, dish machine or display equipment, which when used produces smoke, steam, grease, mists, particulate matter, odors, or creates sanitation or indoor air quality problems, will require a hood.

Commercial exhaust hood is required for each cooking appliance **except**:

- Completely enclosed ovens
- Electric steam tables
- Auxiliary cooking equipment that does not create a sanitation or indoor air quality problem, for example: toasters, coffee makers, sandwich makers, electric rice cookers, salamander broiler and soup wells.

**XIII. Appendix – examples of equipment**



Three Compartment Sink



Hand Washing Sink



Janitorial Mop Sink



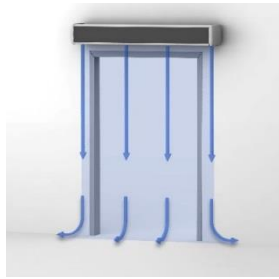
Food Preparations Sink



Walk-in Coolers and Freezers



Mechanical Utensil Washing



Air Curtain Diagram



Air Curtain Example



Alternative Restroom Exiting Device



Alternative Restroom Exiting Device



Light Blub Tube with End Caps



Garbage



Exhaust Hood Ventilation for Cook Line Equipment



Recommended Floor Mat