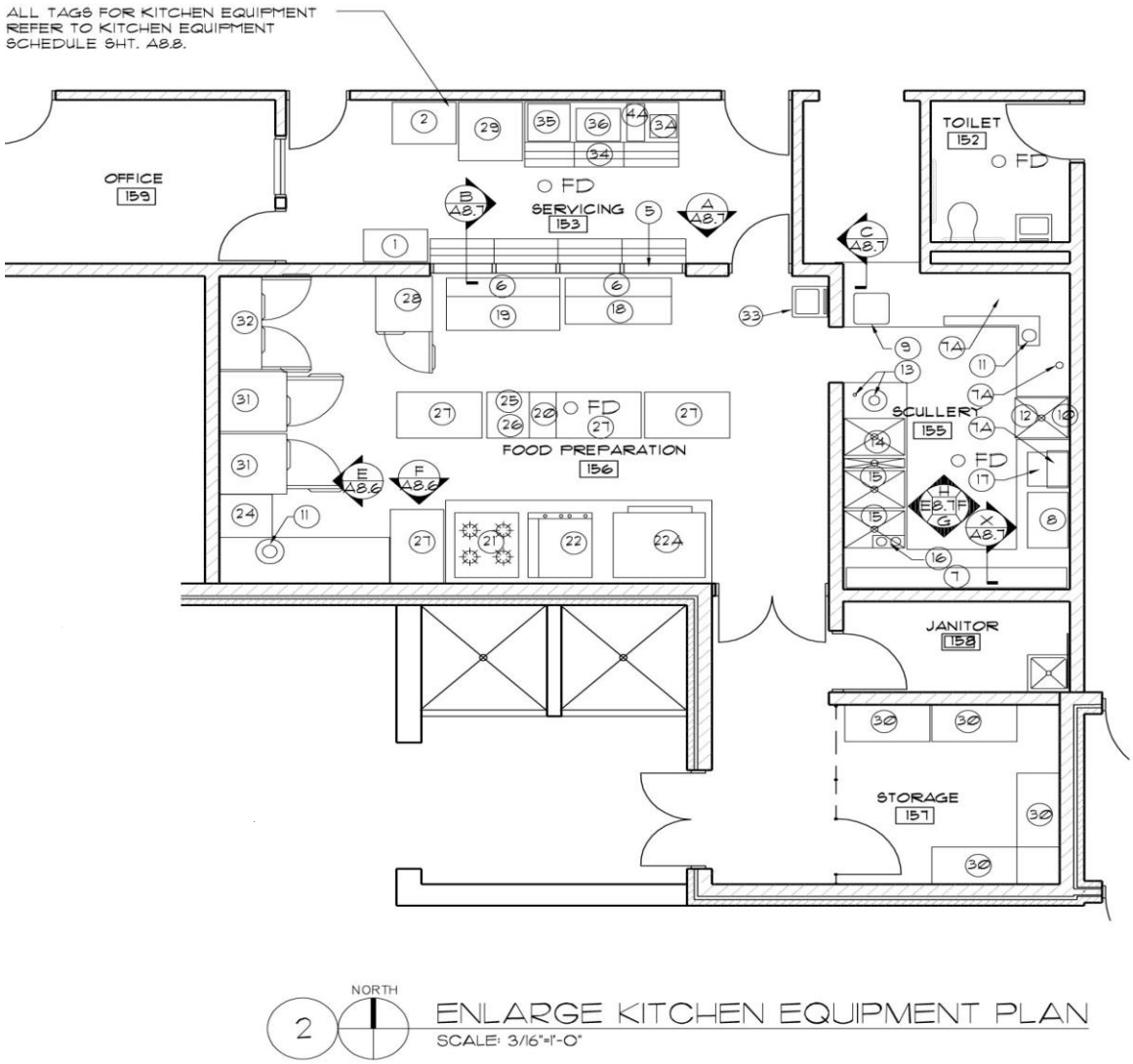
Kane County Health Environmental Department



Kane County Environmental Health Locations

AURORA

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Aurora, IL 60506
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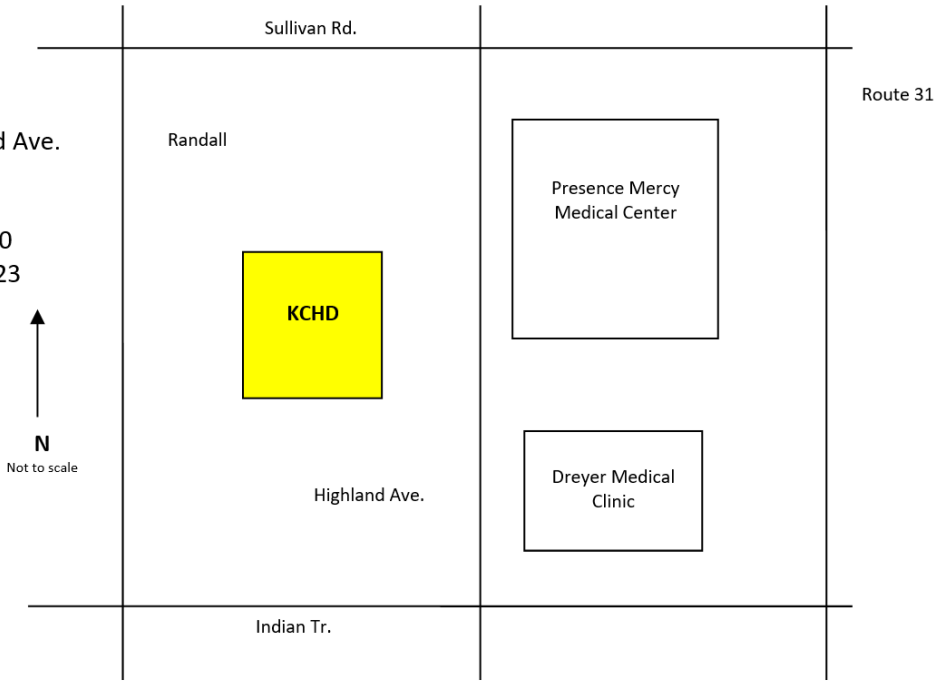

ELGIN

1750 Grandstand Pl.
Ste. 2
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Ph. 630-444-3040
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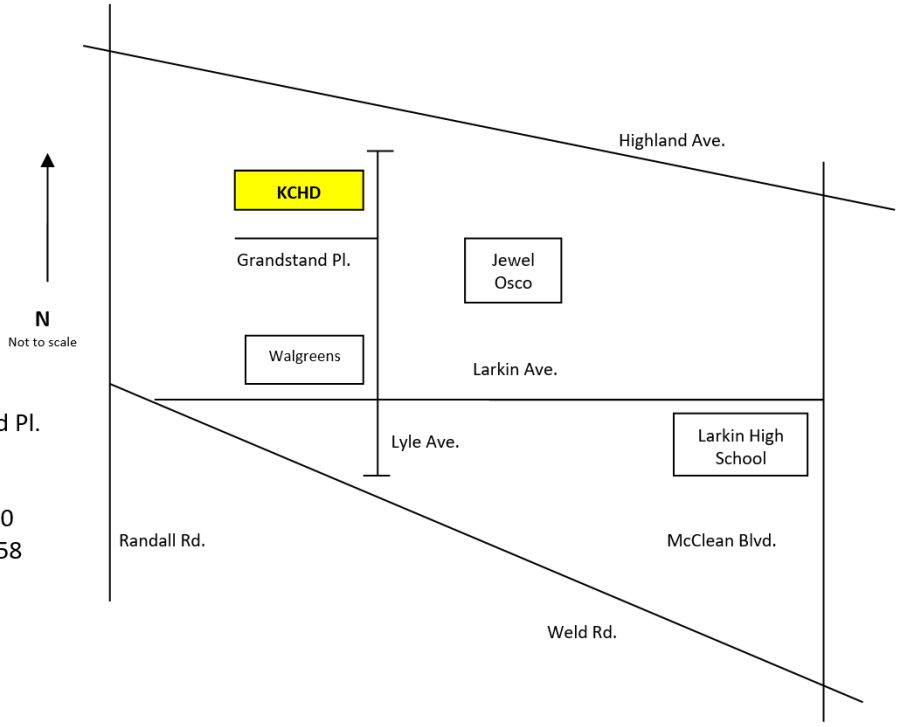
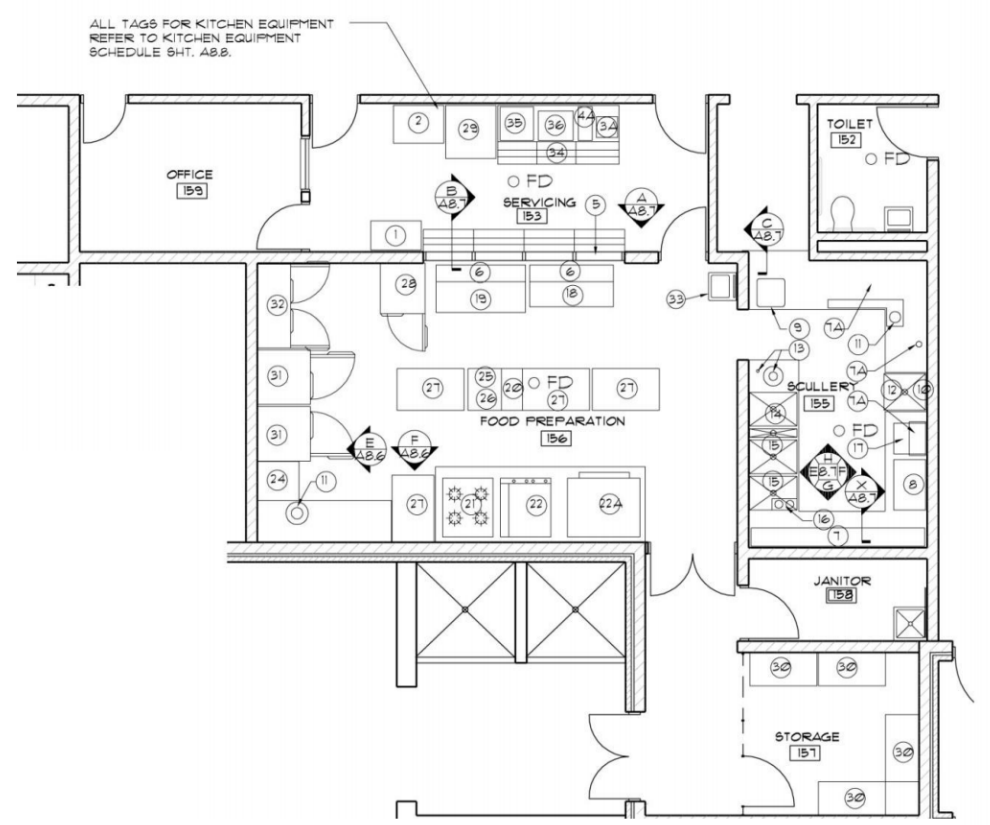
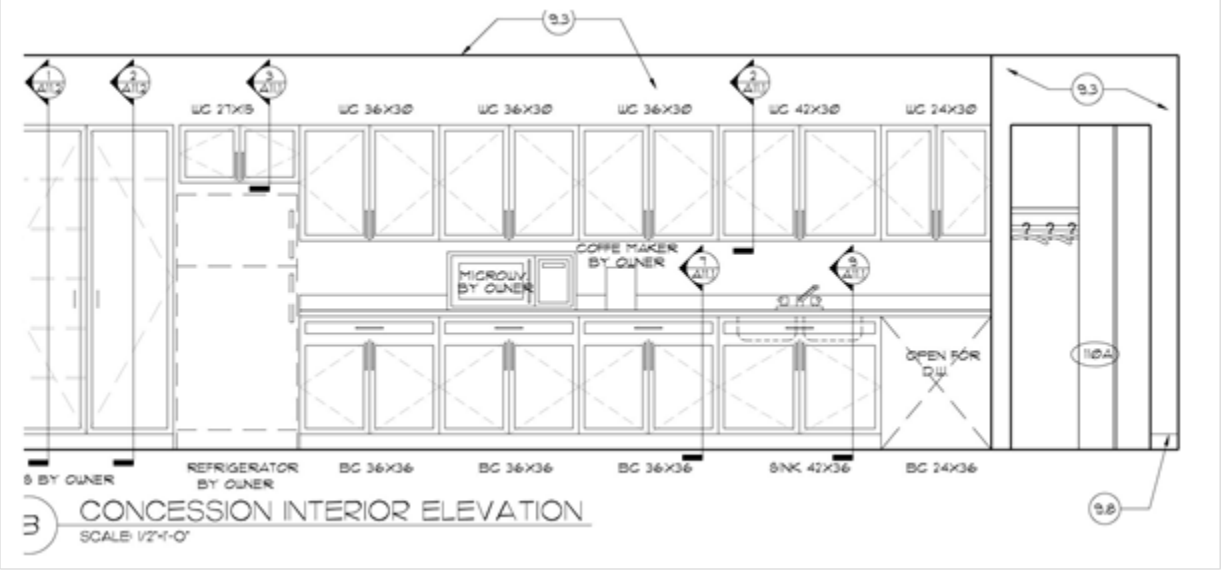


Our Mission: Promote, protect and advocate for health and wellness in the community.

Partial Kitchen Layout





Drawing courtesy of
Cordogan Clark & Associates

Food Service Construction Guide

Table of Contents

Locations……2
Partial Kitchen Layout……3
Glossary of Terms……7
Introduction……10
Objectives……10
Design……10
Plan Review Process……10
Menu Review and Food Flow……11
Inspections……11
Fees……12
Risk Categories……12
Preventative Tools for The Food Establishment & Active Managerial Control……12
HACCP……13
Facilities to Maintain Product Temperature……14
Refrigeration Storage Calculations……14
Walk-in Cooler/Freezer Units……15
Reach-in Refrigerators……15
Reach-in Freezers……15
Blast Chillers/Rapid Chill Units……15
Refrigeration Processing Rooms……15
Display Storage Refrigeration……15
Customer Service Display Units/Cold Buffet Units……16
Ice Machine……16
General Cooking and Hot Holding……16
Stove tops and Grills……16
Ovens……16
Combination Oven/Steamer……16
Rice Cooker/Warmer……16
Kettle……16
Rotisserie……16
Small Appliances……16
Fryers……17
Hot Tables……17
Customer Service Display Units/Hot Buffet Units……17
Dry Storage……17
Equipment and Installation……17
Floor-Mounted Equipment……18
Counter-Mounted Equipment……19
Cheese Melter's……20
Cold Plates……20
Dipper Wells……20

Food Preparation Sink……20
Single Service Dispensing Equipment……21
Buffets……21
Drive-Thru and Walk-Up Windows……21
Sushi Stations……22
Tepenyaki Grills……22
Other……22
Elevate Equipment for Effective Equipment……23
Equipment Spacing……24
Ware Washing Facilities……24
Manual Ware Washing……24
Mechanical Ware Washing……25
Hot Water Ware Washing Machine……25
Plumbing & Water Supply……26
Hot Water……26
Backflow Protection……27
Hygiene Facilities & Hand Washing……27
Toilet Rooms……29
Dry Storage……29
Poisonous or Toxic Materials Storage……30
Maintenance Equipment……30
Shelving……31
Lighting……31
Protective Light Shielding……32
Finishes……32
Server, Pick Up or Wait Stations……32
Bar……32
Restrooms, Dressing Rooms and Locker Rooms……33
Dining Room……33
Buffets, Salad Bars, and Beverage Stations……33
Areas with Multiple Uses……33
Floors……33
Walls……34
Ceilings……34
Coving……34
Floor Installation……35
Summary of Room and Area Finishes……36
Floor Drains……37
Pest Control……37
Windows……37
Deliver, Customer, and Toilet Room Doors……38
Insect and Rodent Control Tips……38
Garbage……39
Sewage Disposal……39

Overhead Sewer Lines……39
Portable Water Backflow……39
Grease Inceptors……40
Exhaust Hood Ventillation……41
Exhaust Hood Ventillation Plans Submittal……41
Codes and Requirements……41
When Exhaust Hood Ventillation Systems are Required……41
Exhaust Hood Ventillation System Design……42
Size of the Exhaust Hood Ventilation System……42
Types of Exhaust Hood Ventillation Systems……43
Exhaust Hood Ventillation Ducts……43
Exhaust Hood Ventillation Filters and Extractors……44
Exhaust Hood Ventillation Fan……44
Exhaust Hood Ventillation System Make-Up Air……44
Construction and Criteria Checklist……45
Exhaust Hood Ventilation Systems……45
Type II Hood over Ware Washing Machine……46
Laundry……46
Outdoor Bars……47
Outdoor Eating Areas/Patios……47
Outdoor Food Service……47
Catering……47

Glossary of Terms

Accredited Program: Means a food protection manager certification program that has been evaluated and listed by an accrediting agency as conforming to national standards for organizations that certify individuals.

Approved: Means acceptable to the regulatory authority based on a determination of conformity with principles, practices, and generally recognized standards that protect public health.

Corrosion-resistant material: Means a material that maintains acceptable surface cleanability characteristics under prolonged influence of the food to be contacted, the normal use of cleaning compounds and sanitizing solutions, and other conditions of the use environment.

Counter-mounted equipment: Means equipment that is not portable and is designed to be mounted off the floor on a table, counter, or shelf.

Critical control point: Means a point or procedure in a specific food system where loss of control may result in an unacceptable health risk.

Critical limit: Means the maximum or minimum value to which a physical, biological, or chemical parameter must be controlled at a critical control point to minimize the risk that the identified food safety hazard may occur.

Cut leafy greens: Means fresh leafy greens whose leaves have been cut, shredded, sliced, chopped, or torn. The term "leafy greens" includes iceberg lettuce, romaine lettuce, leaf lettuce, butter lettuce, baby leaf lettuce (i.e., immature lettuce or leafy greens), escarole, endive, spring mix, spinach, cabbage, kale, arugula and chard. The term "leafy greens" does not include herbs such as cilantro or parsley.

Dealer: Means a person who is authorized by a shellfish control for the activities of shell stock shipper, shucker-packer, repacked, reshipped, or depuration processor of molluscan shellfish according to the provisions of the National Shellfish Sanitation Program.

Easily cleanable: Means a characteristic of a surface that: Allows effective removal of soil by normal cleaning methods; and is dependent on the material, design, construction, and installation of the surface.

Equipment: Means a freezer, grinder, hood, ice maker, meat block, mixer, oven, reach-in refrigerator, scale, sink, slicer, stove, table, temperature measuring device for ambient air, vending machine, dishwashing machine, or other article that is used in the operation of a food establishment. *Equipment does not include hand trucks, forklifts, dollies, pallets, racks, skids, or other items used for handling or storing large quantities of packaged foods that are received from a supplier in a cased or overwrapped lot.*

Extensive remodeling: Means an addition or change to the physical facility, a major equipment addition, addition of cook line equipment, addition of plumbing, wall addition or removal, or an equipment installation that result from changes in the menu. *Extensive remodeling does not include redecorating, cosmetic refurbishing, altering seating design, or reducing seating capacity.*

Food: Means a raw, cooked, or processed edible substance, ice, beverage, or ingredient used or intended for use or for sale in whole or in part for human consumption, or chewing gum.

Food-contact surface: Means a surface of equipment or a utensil with which food normally comes into contact; or a surface of equipment or a utensil from which food may drain, drip, or splash: Into a food; or onto a surface normally in contact with food.

Food Zone Surfaces: Surface material in a food zone shall be smooth, corrosion resistant, nontoxic, stable and nonabsorbent under use conditions. They shall not impart odor, color, taste, or contribute to the adulteration of food. Exposed surfaces shall be easily cleanable. *(Examples are: surfaces that food is*

prepared on including cooking equipment, counters food is prepared on, inside coolers and equipment that comes into direct contact with food.)

Splash Zone Surfaces: Surfaces shall be durable, nonabsorbent, corrosion resistant, smooth and easily cleanable. *(Examples are: walls behind sink, dishwashing, food preparation areas, open food storage areas, beverage areas.)*

Food Service Establishment: Means any place where food is prepared and intended for, though not limited to, individual portion service, and includes the site at which individual portions are provided. The term includes any such place regardless of whether consumption is on or off the premises and regardless of whether there is a charge for the food. The term also includes delicatessen-type operations that prepare foods intended for individual portion service. The term does not include lodging facilities serving only a continental breakfast (a continental breakfast is one limited to only coffee, tea, and/or juice and commercially prepared sweet baked goods), private homes or a closed family function where food is prepared or served for individual family consumption.

HACCP plan: Means a written document that outlines the formal procedures for following the hazard analysis critical control point principles developed by the National Advisory Committee on Microbiological Criteria for Foods.

Highly susceptible population: Means persons who are more likely than other people in the general population to experience foodborne disease because they are: (1) Immunocompromised; preschool age children, or older adults; and (2) Obtaining food at a facility that provides services such as custodial care, health care, or assisted living, such as a child or adult day care center, kidney dialysis center, hospital or nursing home, or nutritional or socialization services such as a senior center.

NSF International (or Equivalent): National Sanitation Foundation, an independent, not-for-profit, non-government organization that evaluates food service equipment. In addition, equivalent equipment certified by Edison Testing Laboratories (ETL-SAN) to NSF standards Underwriters Laboratories (UL-SAN) to NSF standards, or, Canadian Standards Association (CSA-SAN) to NSF standards is acceptable.

Plumbing Fixture: Means a receptacle or device that is permanently or temporarily connected to the water distribution system of the premises and demands a supply of water from the system; or discharges used water, waste materials, or sewage directly or indirectly to the drainage system of the premises.

Major food allergen: Milk, Egg, Fish (such as bass, flounder, cod, and including crustacean shellfish such as crab, lobster, or shrimp), tree nuts (such as almonds, pecans, or walnuts), wheat, peanuts, and soybeans.

Molluscan shellfish: Means any edible species of fresh or frozen oysters, clams, mussels, and scallops or edible portions thereof, except when the scallop product consists only of the shucked adductor muscle.

Ready-to-eat food: Means food that is in a form that is edible without washing, cooking, or additional preparation by the food establishment or the consumer and that is reasonably expected to be consumed in that form.

Regulatory Authority: Means the local, state, or federal enforcement body or authorized representative having jurisdiction over the Food Service Establishment.

Sanitization: Means the application of cumulative heat or chemicals on cleaned food-contact surfaces that yields a reduction of five logs, which is equal to a 99.999 percent reduction, of representative disease-causing microorganisms of public health importance.

Sealed: Means free of cracks or other openings that allow the entry or passage of moisture.

Sewage: Means liquid waste containing animal or vegetable matter in suspension or solution and may include liquids containing chemicals in solution.

Single-service article: Means tableware, carry-out utensil, bag, container, placemat, stirrer, straw, toothpick, wrapper, or other item that is designed and constructed for one-time, one-person use.

Single-use article: Means a utensil or bulk food container designed and constructed to be used once and discarded.

Smooth: Means for a food-contact surface, free of pits and dents with a cleanability equal to or exceeding that of number 3 (100 grit) stainless steel; For a non-food-contact surface of equipment, equal to the surface of commercial grade hot-rolled steel free of visible scale; or for a floor, wall, or ceiling, even or level with no roughness or projections that makes the surface difficult to clean.

Utensil: Means a food-contact tool or container used in the storage, preparation, transportation, dispensing, sale, or service of food, including kitchenware or tableware that is multi-use, single-service, or single-use; gloves used in contact with food; and food temperature measuring devices.

Ware washing: Means the cleaning and sanitizing of utensils and food-contact surfaces of equipment.

Introduction

This information is made available to architects, building contractors, food equipment suppliers, consultants, and other related professions for the purpose of developing plans and specifications that meet the requirements of the Kane County Health Department and at the same time allow for individual freedom of design. For local building, mechanical and plumbing codes, the local building and zoning departments should be contacted.

Objectives

The primary objective of the plan review process is to have a completed food establishment that is easily maintained, designed with efficient food flow patterns, and equipped to serve a maximum number of customers for an indefinite period of time.

A second objective is to eliminate any unnecessary complications regarding planning, design, construction or final approval before opening for business.

Design

Completion of the operator's plan review form will help ensure that proper equipment and space will be provided, and that the layout is based on HACCP (Hazard Analysis and Critical Control Point) quality assurance concepts. Typical menus should be planned before designing the facility. The type and variety of foods to be served will influence the type and quantity of equipment, and the amount of storage space needed. A menu must be submitted with your plans.

Food preparation, storage and dishwashing areas must be large enough to accommodate the number of customers being served, type of menu and type of operation. An orderly flow of food from the point of delivery through the storage, processing, preparation and service to the customers must be provided.

Equipment must be designed for cleanability and installed where it is most useful and will not create an unsanitary condition.

Plan Review Process

The plan review process provides the Kane County Health Department with the opportunity to complete an effective evaluation of a food establishment's ability to ensure the following:

- □ Minimum standards are met for the protection of environmental health and safety of the public.
- □ Prevention of environmental health related illness and promote public health.
- □ Minimum standards are met for the sanitary design, facility layout, operational and product flow, menus, construction, operation and maintenance of regulated establishments, premises, and surroundings.
- □ Food Code violations are eliminated prior to construction or implementation.
- □ Conditions are corrected and prevented that may adversely affect persons utilizing 5 Food Establishment Plan Review Manual regulated establishments.
- □ Technical assistance is provided to industry to establish organized and efficient operations.
- □ Meets consumer expectations for the safe operation of a permitted food establishment.

Your plans must be approved by the Kane County Health Department before constructing, enlarging, altering, or converting any building for use as a restaurant, bar, or other food service facility.

Submit completed plan review forms, including the operator's plan review form, and two sets of plans drawn to scale. These plans must include:

- □ Complete floor plans pre-labeled with food service equipment and numbered; elevation drawings of equipment.
- □ All food service equipment specifications with manufacturer's name and model number, and equipment specification sheets.

- Plumbing: plumbing layout and waste/vent diagram.
- Finish schedule for walls, floors, ceilings, counter surfaces and lighting in walk-in coolers.
- Complete ventilation plans including kitchen exhaust, make-up air and completed exhaust plan review form.
- Submit two (2) sets of complete plans. One 8 ½ x 11in. set and a set using ¼ in. = 1ft. scale approximately 24 x 36in. Both sets of plans are to be numbered and labeled.
- Incomplete information will not be accepted.

No establishment is to be constructed and no major alteration or addition is to be made until detailed plans and specifications for such construction, alteration or addition have been submitted to and approved by the Kane County Health Department.

The plan review process cannot begin when submittals do not contain the necessary information and fee.

For complete applications, allow ten (10) business days for a review and written response. All resubmittals to this Department will be reviewed in five (5) business days.

Menu Review and Food Flow

The menu review and the flow of food through the food establishment are integral parts of the plan review process. The menu or a listing of all of the food and beverage items to be offered at the food establishment must be submitted as part of theplan review application to the regulatory authority.

As with the inspection process, the plan review process should focus on the food and its flow through receipt, storage, preparation and service. The source and quantity of food to be served should be reviewed along with the preparation and post-preparation operations. It is imperative to have knowledge of this information so that a proper assessment of the physical facilities can be made.

The food that flows through retail food establishment operations can be placed into the 3 following processes:

- **FOOD PROCESSES WITH NO COOK STEP**
  - Receive – Store - Prepare – Hold – Serve (Other processes may occur, but there is NO cooking step)
  - Examples: Salads, deli meats, cheeses, sashimi, raw oysters
- **FOOD PREPARATION FOR SAME DAY SERVICE**
  - Receive – Store - Prepare - Cook – Hold – Serve (Other processes may occur, including thawing)
  - Examples: Hamburgers, fried chicken, hot dogs
- **COMPLEX PROCESSES**
  - Receive – Store - Prepare – Cook – Cool – Reheat – Hot Hold – Serve (Other processes may occur, but the key is repeated trips through the temperature danger zone)
  - Examples: Refried beans, leftovers Menu Review and Food Flow

Inspections

During the course of construction, field inspections of the facility construction and installation of the equipment may be made by representatives of the health department. Pre-opening inspections are required. At the time of the pre-opening inspection, major construction must be complete and all foodservice equipment installed. In addition, hot water must be operational, refrigeration must be

maintaining temperature and a ventilation balance sheet must be available for review. Approval must be obtained from the health department before food may be brought into the facility.

A final inspection is required prior to your opening date. Final health department approval is dependent upon the following:

1. Correction of all items noted on the pre-opening inspection.
2. All food contact surfaces must be cleaned and sanitized.
3. Submission of a completed permit application and food establishment permit fee.
4. Approval of other regulatory department including building departments, fire departments and plumbing inspectors.

Fees: *See current fee schedule on file on kanehealth.com*
Plan Review Fees Are Non-Refundable

Risk Categories:

Category Type Low: *means a food service facility where the facility meets one or more of these criteria*

- □ Only time/temperature control for safety (TCS) foods commercially pre-packaged in an approved processing plant are available or served in the facility.
- □ Only limited preparation of non-time/temperature control for safety (TCS) foods and beverages, such as snack foods and carbonated beverages, occurs at the facility.
- □ Only beverages (alcoholic and non-alcoholic) are served at the facility.

Category Type Medium*: means a food service facility where the facility meets one or more of these criteria*

- □ Hot or cold foods are held at required temperatures for no more than 12 hours and are restricted to same day service.
- □ Foods are prepared from raw ingredients, using only minimal assembly.
- □ Foods that require complex preparation (whether canned, frozen or fresh prepared) are obtained from approved processing plants, high risk foodservice establishments or retail food stores.
- □ ***A Food Service Sanitation Manager must be on the premises at all times of operation.***

Category Type High: *means a food service facility where the facility meets one or more of these criteria*

- □ Time/temperature control for safety (TCS) foods are cooled as part of the food handling operation at the facility.
- □ Time/temperature control for safety (TCS) foods are prepared hot or cold food and held hot or cold for more than 12 hours before serving.
- □ Time/temperature control for safety (TCS) foods cooked and cooled foods must be reheated.
- □ Complex preparation of foods or extensive handling of raw ingredients with hand contact for ready to-eat foods occurs as part of the food handling operations at the facility.
- □ Vacuum packaging, other forms of reduced oxygen packaging or other special processes that require a HACCP plan.
- □ Immunocompromised individuals such as the elderly, young children under age four and pregnant women are served, where these individuals compose the majority of the consuming population.
- □ ***A Food Service Sanitation Manager must be on the premises at all times of operation.***

Preventative Tools for The Food Establishment & Active Managerial Control (AMC's)

To effectively reduce the occurrence of foodborne illness risk factors, operators of food establishments must focus their efforts on achieving active managerial control. The term "active managerial control" is used to describe industry's responsibility for developing and implementing food safety management systems to prevent, eliminate, or reduce the occurrence of foodborne illness risk factors.

Elements of an effective food safety management system may include the following:

- Certified food protection managers who have shown a proficiency in required information by passing a test that is part of an accredited program.
- Standard operating procedures (SOPs) for performing critical operational steps in a food preparation process, such as cooling.
- Recipe cards that contain the specific steps for preparing a food item and the food safety critical limits, such as final cooking temperatures, that need to be monitored and verified.
- Purchase specifications

HACCP

Hazard Analysis and Critical Control Points (HACCP) plays a vital role in proper food establishment design. However, the risk management tool is not considered a "standalone" food safety system. Design and construction are essential pre-requisites and must be put in place prior to the implementation and operation of effective food production practices. The purpose of quality plan review is to ensure that food establishments are safe, sanitary, and efficient. Proper design, construction, and HACCP principles work to achieve these purposes and minimize the aforementioned hazards.

Effective HACCP principles are essential to a successful food establishment and begin with the design and layout of the facility, monitoring the food flow throughout the establishment, from delivery, storage, preparation, cooking, service and consumption. A well-designed progressive food flow system will minimize cross contamination and maximize efficiency in an establishment.

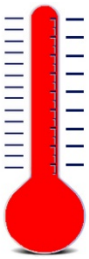
Good manufacturing policies or practices, standard operating procedures (SOPs), and documentation are essential to an establishment's HACCP-based food safety program and control over potential hazards. HACCP policies specifically address requirements set out in the FDA Food Code. *Examples include employee hygiene, employee restriction or exclusion, general sanitation, design, etc.*

The FDA Food Code requires an ***approved HACCP Plan*** to be in place for some specialized processes not listed under §3-502.11. A formal HACCP Plan review is required and needs to be ***approved*** prior to conducting these operations.

HACCP Activities: Processes that may require a variance and/or HACCP Plans include

- Juice packaged for retail sale;
- Custom processing of meat, poultry, or fish;
- Fermentation of kimchi, sausage, cheese, kombucha, tepache;
- Smoking of meat, poultry, or fish (does not apply to food smoked for flavor enhancement only);
- Curing of meat, poultry, or fish;
- Drying of meat, poultry, or fish;
- Reduced Oxygen Packaging (includes Reduced Oxygen Packaging (ROP), Modified Atmospheric Packaging (MAP), Cook-chill, etc.);
- Live Molluscan Shellfish life support system;
- Sprouting (alfalfa sprouts, mung bean sprouts, popcorn, etc.);
- Food additives (includes adding vinegar to sushi rice to prolong shelf life).

Facilities to Maintain Product Temperature



Refrigerators and freezers are required to maintain TCS Food at or below 41°F and 0°F (frozen) respectively. It is recommended that refrigerators be maintained between 36°F and 38°F. Thermometers must be conspicuously located in all units. Thermometer sensing elements should be located near the door. All refrigeration units must have numerically scaled indicating thermometers accurate to +3°F. Sufficient refrigeration and freezers shall be provided to support the intended menu. Consideration must be taken with the placement and installation of refrigeration units to allow for adequate ventilation. Air circulation within refrigeration and freezer units should not be obstructed and should allow for an even and consistent flow of cold air throughout the units.

Refrigeration and freezer storage involve five major areas:

- Storage for short-term holding of perishable and TCS Food
- Long-term storage
- Storage space for quick chilling of food's
- Space for assembling and processing of TCS food
- Display storage for customer service

If TCS foods are prepared a day or more in advance of service, a rapid cooling procedure capable of cooling TCS foods from 135°F to 41°F within 6 hours (135°F to 70°F within 2 hrs.) must be provided. The capacity of the rapid cooling facilities must be sufficient to accommodate the volume of food required to be cooled to 41°F within 6 hours.

The location of the rapid cooling facilities (e.g., sinks for ice baths, freezer storage for ice wands, blast chillers) must be identified. Refrigerators and freezers at work stations for operations requiring preparation and handling of TCS foods should be considered. For example, it may be necessary to locate a freezer near the fryer where frozen products will be deep-fried. Refrigeration units, unless designed for such use, should not be located directly adjacent to cooking equipment or other high heat producing equipment which may adversely impact the cooling system's operation.

When assessing the refrigeration needs, shelving space within refrigeration and freezer units should be designed to prevent the cross-contamination of foods.

Consideration must be given to separate raw meats and poultry from ready-to-eat foods such as produce and pre-prepared food items.

Refrigeration Storage Calculations

Calculating the amount of refrigeration and freezer space should be based on the menu and expected food volume. The amount and location of refrigeration and freezer equipment should complement the food flow of the operation from receiving, storage and food processing, to the point of service.

To plan refrigeration storage, the following items should be considered: menu, type of food operation, number of meals per day, number of deliveries per week, and adequate ventilation in the areas where the refrigeration systems will be located. When assessing the refrigeration needs, shelving space within the refrigeration and freezer units should be designed to prevent the cross-contamination of foods. Separating raw meats and poultry from ready-to-eat foods such as produce and prepared food items.

Formulas can be used to estimate refrigerated storage space. To calculate, you will need information on number of meals estimated to be served per day, days between deliveries and storage area availability.

Refrigeration Facilities Sizing

$$\frac{.050 \text{ Cu. ft. (volume per meal)} \times \text{Number of meals}}{.40} = \text{Total Interior Storage Volume Needed}$$

Walk-in cooler/freezer units

Walk-in units should meet an ANSI accredited certification or equivalent, or deemed acceptable by the Kane County Health Department. A walk-in beverage or beer cooler is not recommended for food storage. Approved flooring and integral cove bases need to be provided. Quarry tile, ceramic, and galvanized flooring are not recommended flooring materials for walk-in units. All gaps, cracks, penetrations, seams, and plug holes shall be sealed smooth and flush with the surface material.

Walk-in units should be installed when there is a need for long-term storage of perishable and TCS food or when cooling space is needed for prepared and cooked foods. These refrigerators should be located near delivery or receiving areas.

Remote outdoor walk-in refrigerators or freezers are prohibited 

If the walk-in floors will be water-flushed for cleaning or receive the discharge of liquid waste or excessive melt water, the floors should be sloped to drain. If the structure of the walk-in is integral with the building, properly installed floor drains may be installed inside the unit. Each walk-in unit shall be equipped with lighting that provides 10-foot candles of light throughout the unit when it is full of product. Lights must be properly shielded or shatter resistant.

Condensate lines from walk-in units shall drain to approved floor drains or alternative method approved by the regulatory authority. Without prior approval floor sinks or floor drain sinks shall not be installed in walk-in units. All walk-in units shall be properly flashed off and sealed to the ceiling and side walls. Walk-in units are not to be confused with refrigerated food processing rooms.

Reach-in refrigerators

These units are for short-term storage of perishable and TCS Food's. These units should be considered to meet the daily storage demands of the kitchen operation. They are to be conveniently located at points of food preparation and food assembly. These units are not to be considered for the quick chilling of cooked and prepared foods.

Reach-in freezers

Freezers are for long-term storage. They are not designed to be used as quick-chill units. These units should be located near delivery and dry storage areas.

Blast Chillers/Rapid Chill Units

These units are recommended for use when handling large volumes of food that require quick chilling. A blast chiller is an efficient cooling mechanism for any amount of food to be chilled, and where refrigeration cooling space is limited.

Refrigeration Processing Rooms

These units are suggested when the menu includes assembling TCS Foods. These units provide easy access of foods from the top of the unit. These units are not designed for long-term storage of food or cooling.

Display Storage Refrigeration

These units are designed to display TCS Foods under refrigeration. Examples of these units are deli display, fresh fish, and meat and poultry cases.

Customer Service Display Units/Cold Buffet Units

These units are designed for holding food under refrigeration for customer access. They are designed for short-term display and are not designed for the cooling of food. Beverage display coolers are not approved for storing open TCS Foods. Cold buffets and salad bars are designed for short-term display. They should be mechanically refrigerated, and have approved sneeze guards with side panel protection.

Ice Machine

If ice is to be used as a cooling medium for food and beverage items the unit should be adequately designed and sized to meet all operational needs in an approved location.

General Cooking and Hot Holding

Cooking and hot holding units are designed to heat food to a required temperature within a required amount of time for food safety. Cooking and reheating temperatures have been determined using scientific analysis. The time and temperature requirements are based on the pathogens that are likely to be present on the product. It is recommended that the units are commercial grade and meet NSF/ANSI standards. Consideration must be taken with the placement and installation of cooking/reheating/hot holding equipment to ensure that proper ventilation and sanitation can occur. Construction of these units should be durable and easily cleanable.

Note: The commercial appliances described in this section are placed under a vent hood to evacuate grease, steam, and fumes, which could pose a potential fire or health risk.

Units used to heat food are divided into two categories:

- □ Cooking/Reheating
- □ Hot Holding

Stovetops and Grills

Gas, electric, or wood-burning stoves are used to cook and reheat product in pots or pans. A grill is similar to a stove with the ability to place the food directly over the flame.

Ovens

Ovens are thermally insulated chambers used for cooking or reheating foods. They can be gas, electric, or wood-burning units.

Combination Oven/Steamer

A Combination oven/steamer is similar to a convection oven with the ability to produce dry heat, moist heat, or a combination of the two.

Rice Cooker/Warmer

The unit is an electric appliance that is capable of cooking rice and then hot holding the rice at 135°F or above. Scoops or ladles for serving may be stored in a running dipper well.

Kettle

Kettles are cooking pots used to boil large quantities of food products. The units are generally clean-in-place and should have the necessary tools for sanitation. Adequate floor drains must be present for disposal of spent water.

Rotisserie

Rotisseries are self-contained units that include a heat source and racks for skewers or spits. Beef, pork, or poultry is rotated over the fire to cook the food to the required temperature.

Small Appliances

Small appliances (table top) include microwaves, Panini press, broilers, and toasters. These units are used to heat food to the required cook or reheat temperature depending on the application.

Fryers

Fryers are cooking devices that use oil heated to a high temperature. The hot oil has a flash point that can result in a fire. Follow the manufacturer's instructions for operation, maintenance and cleaning to prevent a fire incident.

Hot Tables

Hot tables are gas or electrically heated units that are design to maintain temperature. They should never be used to cook or reheat TCS Food's. The design should allow for disassembly and deep cleaning of interior surfaces. These units must be able to maintain a minimum temperature of 135°F.

Customer Service Display Units/Hot Buffet Units

These are gas or electrically heated units that are designed to maintain temperature. They should never be used to cook or reheat TCS Foods. They should be constructed of durable and easily cleanable materials. The design should allow for disassembly and deep cleaning of interior surfaces. The design should protect food from contamination that could occur from the environment or customers by using sneeze shields or covers. The units must be able to maintain a minimum temperature of 135°F.

Dry Storage

Provide suitable space on your plans for storing all food-related items including food, liquor, beverages, food utensils and dishware. A separate dry storage room is strongly recommended; this room should be located near an exterior door so delivery people do not have to walk through your kitchen.
The minimum space required is 25 percent of all kitchen areas, based on wall-to-wall dimensions.

- □ Equip dry storage areas with adequate NSF (or equivalent) approved shelving.
- □ Storage space does not include floor areas where desks, equipment, ladders or other items may be placed.
- □ Storage areas must be separate from customer areas.
- □ You should have an exterior door near the storage area so that delivery personnel do not have to walk through your food preparation area.
- □ Installation: All shelving must be at least 6 inches above the floor.
- □ The storage area shall be designed so that relative humidity remains at 50% - 60% and the temperature is maintained at 50 F–60 F; all food related items shall not be stored in direct sunlight.
- □ Walls shall be designed to withstand damage from normal use.

Equipment and Installation

All food service equipment is to be commercial and meet the standards regarding design, materials and workmanship of the National Sanitation Foundation International (NSF). An NSF or other recognized testing agency seal is usually a good indicator the equipment is approved. Unmarked equipment may not meet the standards. Include make and model numbers on your plans so that equipment approval can be verified. Food equipment that is certified or classified for sanitation by an ANSI accredited program is deemed to comply with Parts 4-1 and 4-2 of the FDA Food Code.

Equipment including ice makers and ice storage equipment, shall not be located under exposed or unprotected sewer lines, open stairwells or other sources of contamination. The following equipment

installation recommendations will help ensure proper spacing and sealing allowing for adequate and easy cleaning.

Floor-Mounted Equipment

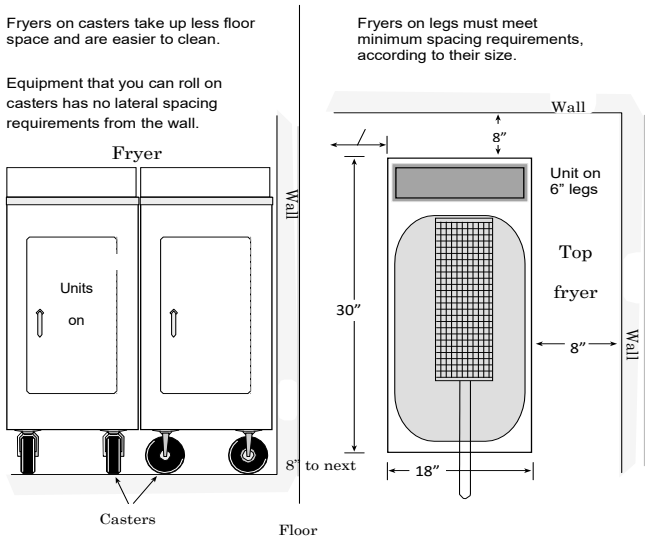
Equipment should be mounted on approved lockable casters, gliders or wheels to facilitate easy moving, cleaning, and flexibility of operation whenever possible.

Moveable equipment requiring utility services such as gas or electrical connections should be provided with easily accessible quick-disconnects or the utility service lines should be flexible and of sufficient length to permit moving the equipment for cleaning. If a flexible utility line is used, a safety chain that is shorter than the utility line must be installed. Check with local fire safety and building codes to ensure that such installations are acceptable.

Casters: The preferred method of installation is to put equipment on casters. Use coated steel, commercial-grade utility connections that are smooth and flexible with quick disconnects. They must meet NSF standards. Connections must be long enough to move the equipment so the area around and behind can be cleaned. When you cannot meet other equipment spacing criteria, you must mount the equipment on casters.

Floor-mounted equipment that is not mounted on wheels or casters with the above utility connections should be:

- □ Permanently sealed to the floor around the entire perimeter of the equipment. The sealing compound should be pliable and non-shrinking. It should retain its elasticity and provide a water- and vermin-tight joint; or
- □ Installed on a solid, smooth, non-absorbent masonry base. Masonry bases and curbs should have a minimum height of 2" and be coved at the junction of the platform and the floor with at least a 1/4" radius. The equipment should overhang the base by at least 1" but not more than 4". Spaces between the masonry base and the equipment must be sealed as above; or
- □ Elevated on legs to provide at least a 6" clearance between the floor and equipment. The legs shall contain no hollow open ends.
- □ For equipment not readily moveable by one person, spacing between and behind equipment must be sufficient to permit cleaning under and around the unit. Equipment shall be spaced to allow access for cleaning along the sides, behind and above. At least 6" of clear, unobstructed space under each piece of equipment must be provided or equipment must be sealed to the floor.
- □ If equipment is against a wall and is not movable, the equipment must be joined to and/or sealed to the wall in a manner to prevent liquid waste, dust and debris from collecting between the wall and the equipment.
- □ When equipment is joined together, or spreader plates are used between equipment, the resultant joint must be sealed to prevent liquid waste, dust and debris from collecting between the equipment.



Comparing Caster & Leg Installation Methods

Unobstructed and functional aisle and working spaces must be provided. A minimum width of 36" is required by fire and building codes.

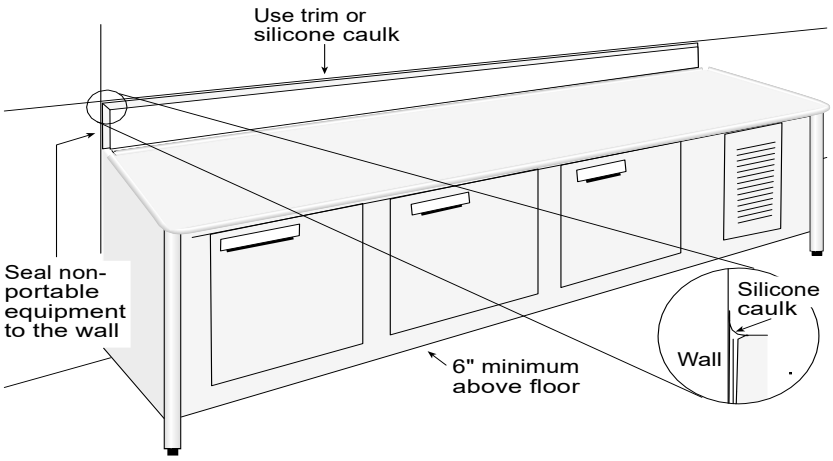
All utility and service lines and openings through the floor and walls must be adequately sealed. Penetrations through walls and floors must be minimized. Exposed vertical and horizontal pipes and lines must be kept to a minimum. The installation of exposed horizontal utility lines and pipes on the floor is prohibited. Any insulation materials used on utility pipes or lines in the food preparation or dishwashing areas must be smooth, non-absorbent, and easy to clean. Electrical units which are installed in areas subject to splash from necessary cleaning operations or food preparation should be water-tight and washable.

Counter-Mounted Equipment

Counter-mounted equipment is defined as equipment that is not portable and is designed to be mounted off the floor on a table, counter, or shelf. All counter-mounted equipment shall be:

- □ Seal cabinets, flooring and wall interfaces that are larger than 1/32 inch and smaller than 6 inches. Seal all gaps, voids and protrusions using silicone caulk or trim that meets the finish material standard.
- □ In high temperature environments (i.e. the cook line) heat resistant caulking shall be used
- □ Sealed to the table or counter; or
- □ Elevated on approved legs to provide at least a 4" clearance between the table or counter and the equipment to facilitate cleaning.
- □ All counter tops to be installed in an establishment must be made of stainless steel, Corian, quartz, or sealed granite. Counter tops for point of sale stations may be made of Formica, however if the point of sale counter is located within a waitress station with plumbing the counter top must be stainless steel, Corian, quartz, or sealed granite. Other materials will be evaluated on a case-by-case basis.

Tip: If you can slide a business card between a crevices, you can be sure that it needs to be sealed



Sealing in Place

Conduits: Keep all exposed utility lines (plumbing, gas, electrical, refrigeration, etc.) to a minimum. Keep exposed lines at least 6 inches off the floor, and at least ½ inch away from walls and ceilings.

Walk-In Refrigeration Units: Choose whether the space between the top of a walk-in refrigerator or freezer and the ceiling will be closed or open.

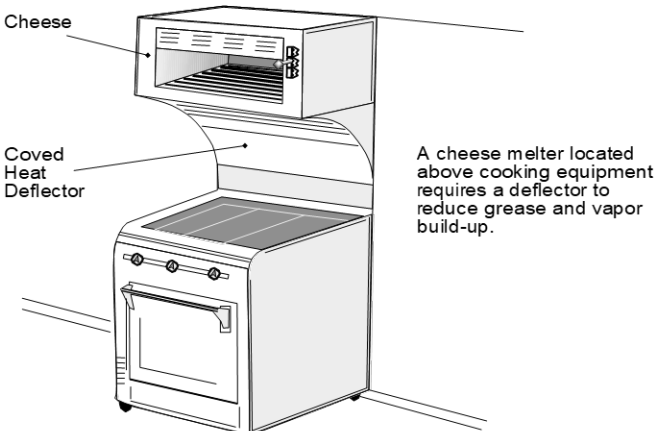
- □ If closed, enclose the space with a panel (either fixed or removable).
- □ If open, provide an unobstructed open space of at least 30 inches between the top of the unit

and the ceiling to permit access for cleaning and servicing.

- □ The space between the side of the walk-in refrigerator or freezer and adjacent walls must be sealed.

Cheese Melter's

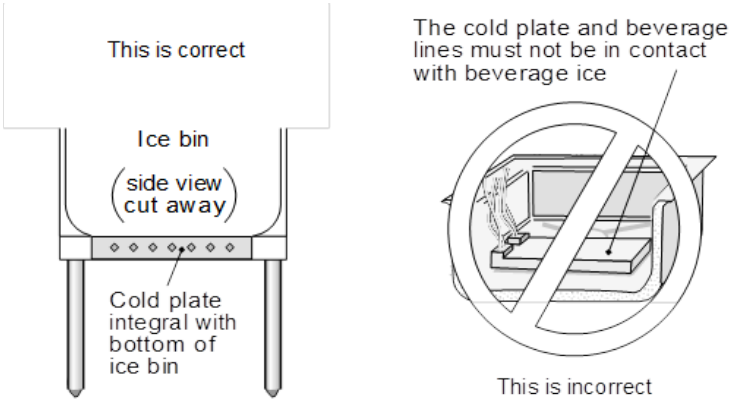
When installed, these must be under an exhaust ventilation system and over non-cooking equipment or low heat producing equipment. If you install the cheese melter over cooking equipment, you must install an angled or coved deflector that completely encloses the bottom and sides of the cheese melter. The deflector must direct vapor and hot gases toward the front of the cheese melter. The deflector must be constructed of stainless steel.



Cheese Melter

Cold Plates

When installed in ice bins, the cold plates must be an integral part of the bin. Drop-in cold plates are not allowed.



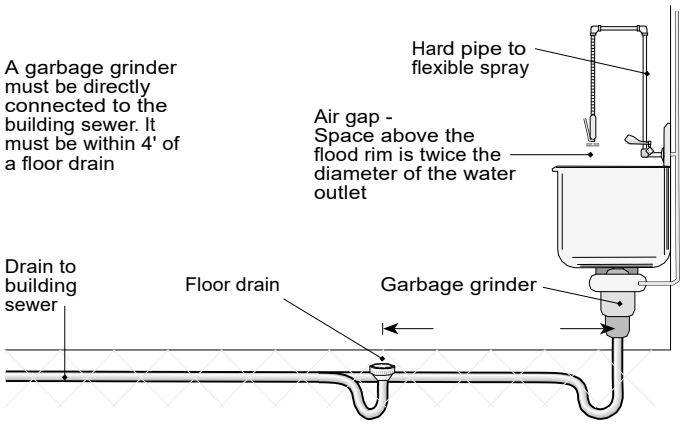
Cold Plate

Dipper Wells

Provide dipper wells with running water where you dispense bulk ice cream and other bulk foods such as cooked rice, whipped butter, etc. If running water dipper wells are installed, methods for filling and draining the units must be identified.

Food Preparation Sink

Install separate sinks designed for vegetable washing or food preparation only in the food preparation area. Options to be considered are multiple compartments, overhead spray faucets and drain boards.



Garbage Grinder & Adjacent Floor Drain

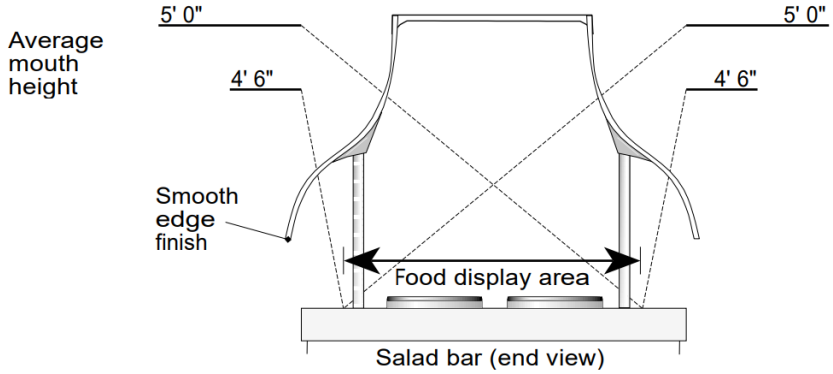
Single Service Dispensing Equipment

Install equipment for properly handling single service items like paper cups, lids and straws.

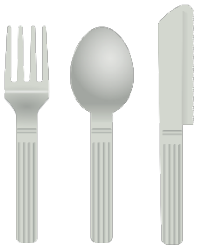
Buffets

Open Food Display: Protect food on display from consumer contamination by using easily cleanable sneeze shields, display cases and similar equipment. Design and install these devices to intercept a direct line between a customer's mouth and foods on display. Temporary buffet setups also require sneeze shield setups. Submit a scaled drawing of this equipment to the Kane County Health Department for approval.

Temperature Control: Provide equipment to maintain all readily perishable foods at 41° F or below, or 135° or above. Provide thermometers to monitor all hot and cold food temperatures in the holding units temperatures in the holding units.



Food Display Protection Example



Serving Utensils: Provide one serving utensils (spoons, tongs, etc.) to each food item of adequate size to prevent the handle of the utensil from falling into the food. Keep the serving utensil in the food to prevent bacterial growth.

Eating Utensils: Protect food contact surfaces of plates and eating utensils from contamination by customers.

Drive-Thru and Walk-Up Windows

The counter surface of the pass-thru window should be made of stainless steel or other solid NSF approved surface. The windows must be durable under conditions of normal use and cleaning.

Sushi Stations

The sushi area must be separate from other food and beverage operations. Each sushi station shall have the following pieces of equipment:

- □ NSF approved (or equivalent), traditional sized wall-hung hand sink(s);
- □ NSF approved (or equivalent) food preparation sink(s);
- □ NSF approved (or equivalent) stainless steel work surface;
- □ NSF approved (or equivalent) refrigeration
- □ Food guards / Sneeze shield
- □ NSF approved (or equivalent) refrigerated sushi display case

Tepenyaki Grills

Each Tepanyaki Grill area must have the following pieces of equipment:

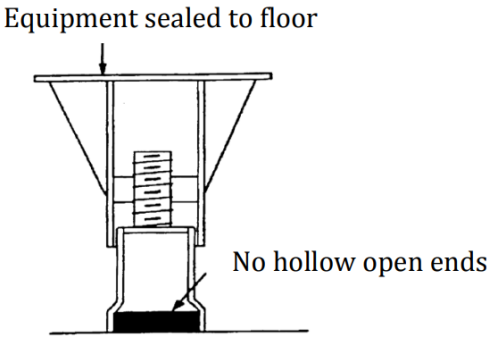
- □ NSF approved (or equivalent) grill;
- □ Multiple clean utensils.

Other

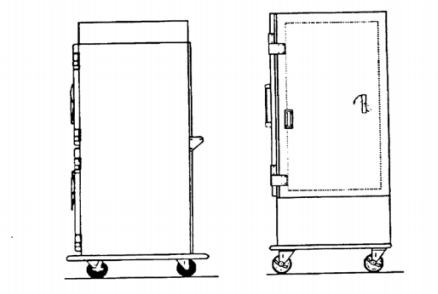
Equipment that is open underneath, such as drain boards, dish tables, and other tables that are not moveable should be spaced to allow for ease of cleaning or should be sealed to the wall.

Non-food contact surfaces of equipment that are exposed to splash, spillage, or other food soiling or that require frequent cleaning shall be constructed of corrosion-resistant, non-absorbent, and smooth material.

Elevate Equipment for Effective Equipment

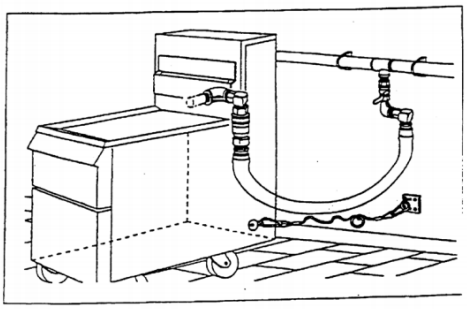


Sanitary Leg Example



Holding Cabinet & a Reach-in Refrigerator

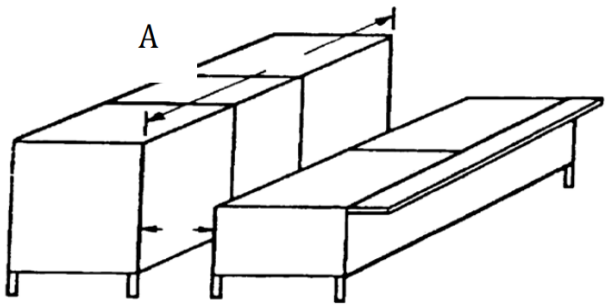
Mobile Kitchen Equipment Mounted on Castor

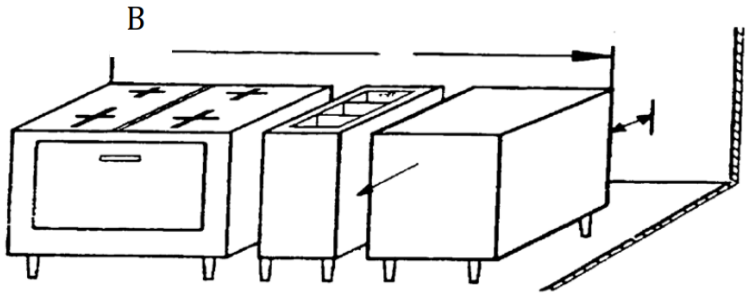


Flexible Gas Connection with Safety Chain

Refer to your Local Regulatory Authority for Gas Code Requirements

Equipment Spacing





Recommended equipment spacing; provided access is available from both ends:

Equipment Length (A)	Space from Walls and Adjacent Equipment (B)
4' or less 6" 4' - 8' 12"	8' or more 18

Ware Washing Facilities

The minimum requirement for ware washing in a food establishment is a three-compartment sink. A mechanical ware washing machine may be installed in addition to the three-compartment sink.

A 40-gallon storage capacity commercial water heater is the minimum size required. If the water heater is suspended above the floor, the support shelf must have a minimum clearance of 80 inches above the finished floor.

Heat on demand or “tankless” water systems must be NSF (or equivalent) approved with design capacity calculations on the plan. If the tankless water tank fails, a standard water heater must be installed.

All sinks are to be supplied with hot and cold water under pressure.

Manual Ware Washing

For Manual Ware Washing, a stainless-steel sink with no fewer than three compartments must be provided.

The sink compartments shall be large enough to completely immerse the largest pot, pan or piece of equipment to be used in the establishment that will not be cleaned in-place.

- □ Each compartment shall be supplied with adequate hot and cold potable running water, temperature of the wash solution shall be maintained at not less than 120°F, or the temperature specified on the cleaning agent manufacturer’s label instructions.
- □ Drain boards, utensil racks or tables large enough to accommodate clean and soiled utensils shall be provided. The drain boards shall be self-draining. The installation of integral manual and

mechanical ware washing drain boards will not be accepted due to cross- contamination concerns.

- □ Adequate facilities for pre-flushing or pre-scrapping equipment and utensils must be provided.
- □ If hot water is used to sanitize equipment and utensils, the means for heating the water to 171°F in the 3rd compartment must be identified. The racks for the immersion of equipment and utensil must be specified.

Mechanical Ware Washing

Ware washing machines shall be installed in accordance with the manufacturer's recommendations and applicable code requirements. If used, the hot water booster for ware washing machines must be identified during plan review. Adequate facilities shall be provided to air dry washed equipment and utensils.

Under counter style ware washing machines must be installed on 6-inch legs and adjacent to but not underneath the three-compartment sink.

Easily readable numerically scaled indicating thermometers are needed. They must be accurate to ±3°F and show the temperature of the water in each tank of the machine, including the temperature of the final rinse water as it enters the manifold.

Mechanical exhaust ventilation is required over the ware washing machine to remove steam and vapors effectively. Non-venting ware washing machines will be evaluated on a case by case basis.

Drain boards, utensil racks or tables must be large enough to allow proper and sufficient air drying of equipment and utensils. Storage facilities shall be provided to store cleaned and sanitized utensils and equipment at least 6" above the floor; protected from splash, dust, overhead plumbing or other contamination. The plan must specify the location and facilities used for storing all utensils and equipment.

A mechanical ware washing machine, does not eliminate the need for a three-compartment sink. A mechanical ware washing machine cannot discharge through the grease interceptor.

Hot Water Ware Washing Machine

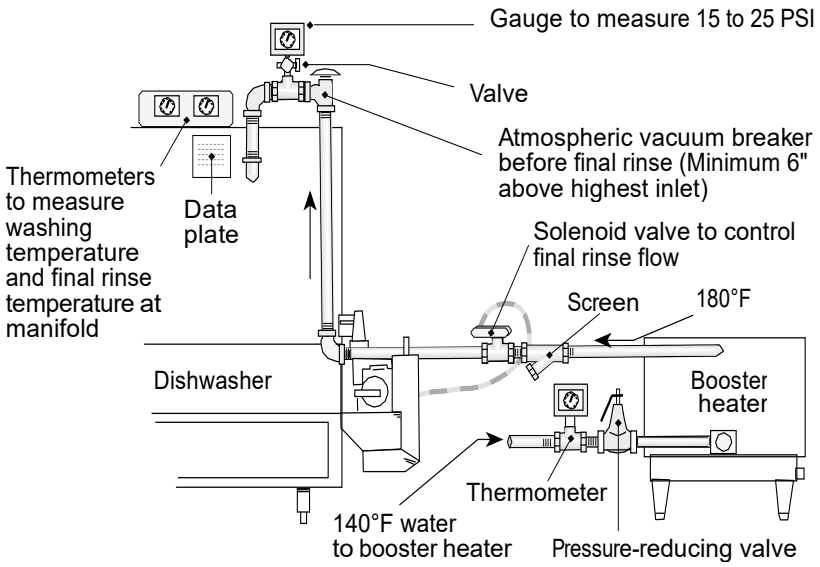
A booster heater is needed to heat 140°F water to at least 180°F for the final rinse of the dish machine. The temperature rise demand of the dish machine will determine the heater size. A temperature gauge on the service line just before the booster heater is required.

Installation of the hot water heater and the booster heater should be as close as possible to the dish machine to avoid heat loss in the lines.

The water system should deliver hot water to the final rinse when the rinse valve opens. Machines designed for intermittent operation will require special equipment. When the length of the line from the booster to this type machine exceeds 50 feet, the system should be recirculating.

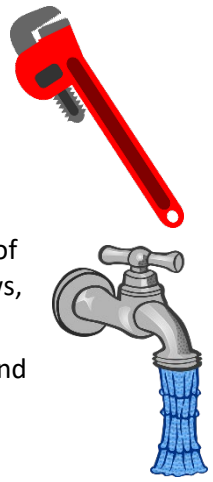
A pressure regulator is needed on the final rinse line. The flow pressure needs to be 15 to 25 pounds per square inch.

A thermometer and pressure gauge on the final rinse line is needed. You must install the pressure gauge after the pressure regulator as close to the manifold as possible. Install a valve with standard threads upon which you may attach a pressure gauge to check flow pressure.



Hot Water Ware Washing Machine

Plumbing & Water Supply



The primary concerns relative to the water supply in a food establishment are:

- Ensure the facility is supplied with a safe and adequate water supply, including adequate supply of hot water; and
- Verify that the water can remain safe while it is in the facility.

Safe Source: Start at the water source. Determine if the water is potable or non-potable. The availability of an approved public water supply must be verified. Any use of a nonpublic water source (well water) shall comply with local, state, and/or federal laws, and construction and testing standards.

Sufficient potable water: Potable water shall be provided from a source constructed and operated according to law that meets the peak water demands of the food establishment.

Hot water

The hot water supply shall be sufficient to satisfy peak hot water demands of the food establishment. Hot water for hand washing and most food establishment uses shall be at least 100°F. Hot water for mechanical ware washing must be boosted up to 150°F-165°F for washing and 165°F-180°F for sanitizing or according to the manufacturer's data plate on the machine. The temperature of the wash solution for spray-type ware washers that use chemicals to sanitize may not be less than 120°F. The temperature of the wash solution for manual ware washing must be maintained to not be less than 110°F. The water temperature for manual hot water sanitization must be at least 171°F. Tank less water heaters shall be installed and used in accordance with the manufacturer's recommendations.

Sizing of the water heater in an establishment without a ware washing machine: The water heater must be capable of supplying 120°F water to fill the three-compartment sink, and to operate all other sinks and equipment using hot water during periods of maximum demand. The required size of the water heater is equal to the number of gallons the three-compartment sink can hold.

Hot Water Calculation

$$\frac{\text{(Length X Width X Depth of one sink)}}{231} \times 3 \text{ compartments} = \text{Minimum \# of Gallons of Water Heater}$$

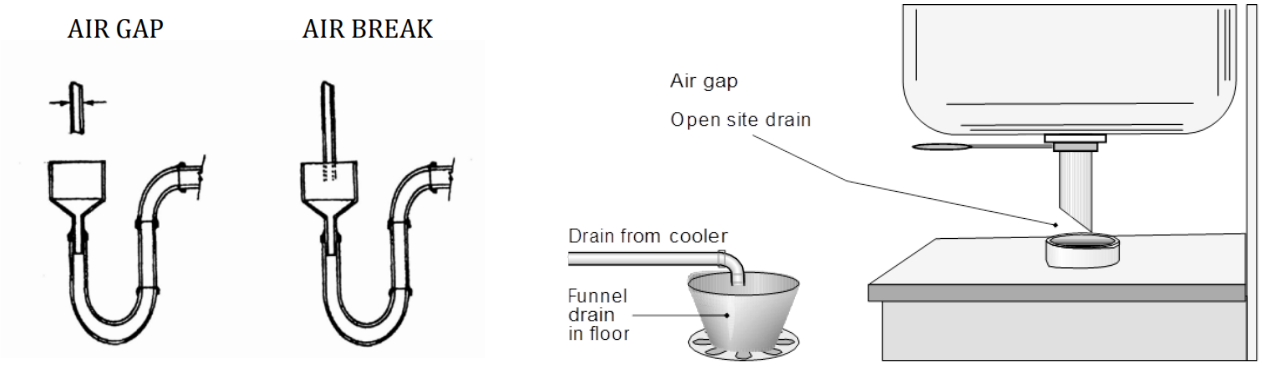
Backflow Protection

Plumbing shall be sized and installed according to applicable codes. There shall be no cross connections between the potable water supply and any non-potable system or a system of unknown quality. Where non-potable water systems are permitted for purposes such as air conditioning and fire protection, the non-potable water must not contact directly or indirectly: food, potable water or equipment that contacts food or utensils. The piping of any non-potable water system shall be durably identified so that it is readily distinguishable from piping that carries potable water.

A connection to a sewer line may be direct or indirect. A direct connection may not exist between the sewerage system and any drains originating from equipment in which food, portable equipment, or utensils are placed, except if otherwise required by law. When a ware washing machine is located within 5 feet of a trapped floor drain, the dishwasher waste outlet may be connected directly on the inlet side of a properly vented floor drain trap.

An indirect connection may be one of two types, air gap or air break:

- For a potable water supply, an air gap means the unobstructed, vertical air space that separates a potable system from a non-potable system.
- An air break is a waste line from a fixture that discharges used water or liquid waste to a drain where the waist line terminates below flood level.



Air Gap Examples

Hygiene Facilities & Hand Washing

Handwashing is a critical factor to prevent contamination of foods. Proper handwashing reduces the amount of pathogens that can be transmitted via cross contamination from raw foods to ready-to-eat-foods. It is imperative to have adequate numbers and conveniently placed hand washing sinks to ensure employees are washing hands. It is important that handwashing be done only at properly equipped hand washing sinks to help ensure that employees effectively clean their hands and minimize contamination of food and food-contact surfaces.

Hand Sanitizers do not replace good hand washing practices

Nothing must block the approach to a hand washing sink.

Foot pedal hand sinks are not allowed.

A hand washing sink, hand drying device or disposable towels, hand cleanser and waste receptacle shall be located for convenient use by employees who work in food preparation, food dispensing, and ware washing areas.

Hand washing sinks must also be located in or immediately adjacent to toilet rooms.

Hand washing sinks shall be of sufficient number and conveniently located for use by all employees in food preparation, food dispensing, and ware washing areas.

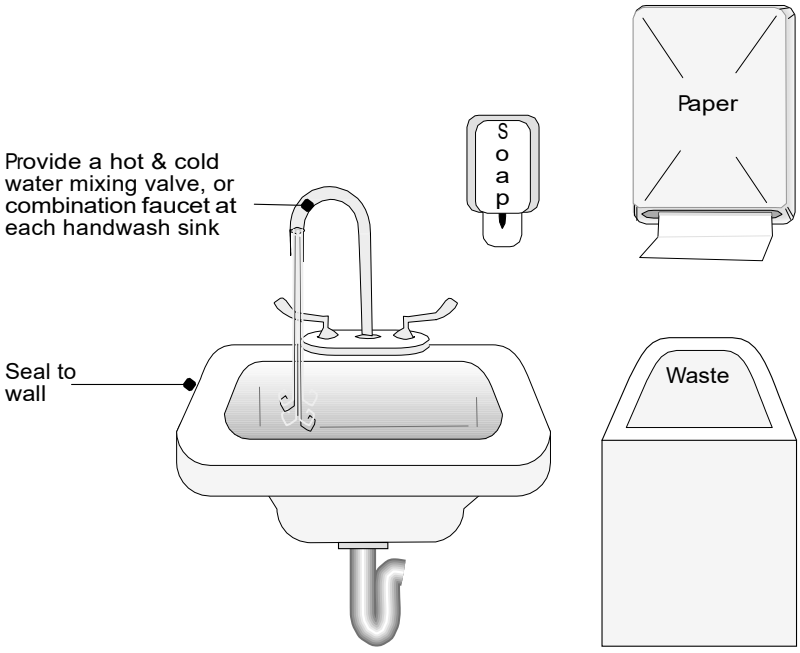
Hand washing shall be easily accessible and may not be used for purposes other than handwashing. Sinks used for food preparation, washing equipment or utensils, or service (mop) sinks shall not be used for handwashing.

Each handwashing sink shall be provided with hot and cold water tempered by means of a mixing valve or a combination faucet to provide water at a temperature of at least 100˚F. If used, self-closing, slow-closing or metering faucets shall be designed to provide a flow of water for at least 15 seconds without the need to reactivate the faucet.

Splash from use of a handwashing sink may not contaminate food, food-contact surfaces, clean equipment or utensils. A washable baffle or barrier may be needed if the handwashing sink is located next to a food preparation area, utensil or equipment storage, or food-contact surface and if the space between the handwashing sink and food, food preparation, food-contact surfaces, and clean utensils and equipment does not provide adequate protection.

The installation of mirrors and medicine cabinets is not allowed at hand washing sinks except if eye wash stations are installed.

Similarly, the location of soap and paper towel dispensers at hand washing sinks must be reviewed during plan review so that their use does not contaminate food, food contact surfaces, utensils and equipment. In addition, the distance that employees would have to reach the faucet handles, soap and paper towels must be reviewed during plan review to assure that they will have proper access to the hand washing sinks and will not have to reach across dirty surfaces while washing their hands.



Hand Washing Sink Design

Toilet Rooms

The Equitable Restrooms Act (410 ILCS 35/), which takes effect on January 1, 2020, mandates that all single-occupancy restrooms "in a place of public accommodation or public building" to be identified as "all-gender and designated for use by no more than one person at a time or for family or assisted use…" and "[e]ach single-occupancy restroom shall be outfitted with exterior signage that marks the single-occupancy restroom as a restroom and does not indicate any specific gender."

Properly functioning toilet facilities must be accessible to employees at all times.

The floors, walls, and ceiling in toilet rooms shall be smooth and easily cleanable. The walls around toilets, urinals, toilet paper dispensers, soap dispensers, and paper towel dispensers should be water resistant and durable for frequent cleaning.

The minimum requirements for toilet facilities shall include:

- Toilet: At least one toilet and not fewer than the number of toilets required by law shall be provided. If authorized by law, urinals may be substituted for additional toilets in men's toilet rooms.
- Hand Washing Sink: Each hand washing sink shall be provided with hot and cold water tempered by means of a mixing valve or a combination faucet to provide water at a temperature of at least 100˚F. If used, self-closing, slow-closing or metering faucets shall be designed to provide a flow of water for at least 15 seconds without the need to reactivate the faucet.

- Handwashing cleanser: Each hand washing sink or group of two adjacent hand washing sinks shall be provided with hand cleaning liquid, powder, foam or bar soap. A dispenser shall be provided for handwashing cleanser provided in liquid or powder form.

- Hand drying facility: Each hand washing sink or group of adjacent hand washing sinks shall be provided with individual, disposable towels; a continuous towel system that supplies the user with a clean towel; heated-air hand drying device; or hand drying device with air-knife, high velocity air at ambient temperatures. Restrooms specifically for employees are to be provided with dispensed disposable paper towels only.
- Toilet paper: A supply of toilet paper shall be provided in a dispenser at each toilet.
- Waste receptacle: If disposable towels are used, a waste receptacle shall be located at each sink or group of sinks. At least one covered waste receptacle shall be provided in toilet rooms used by females.
- Ventilation: Toilet rooms must be vented to the outside. Mechanical Ventilation shall be installed in toilet rooms according to law. If allowed by law, operable screened windows may be used in lieu of mechanical ventilation devices.
- Toilet room doors: Provide completely enclosed toilet rooms with tight-fitting, self-closing doors. To meet ADA requirements self-closing doors must open into the restroom.
- Lighting: At least 215 lux (20-foot candles) shall be provided in toilet rooms.
- Diaper Changing: It is recommended to provide diaper changing tables. If you provide diaper changing tables you must provide covered waste containers with tight fitting lids. Diaper changing stations shall be caulked to the wall.

Dry Storage

The dry storage space needed depends on the menu, number of meals served between deliveries, frequency of deliveries, and the amount and type of single-service articles to be stored. The location of dry storage should be adjacent to the food preparation area and convenient to receiving. Adequate

ventilation should be provided. Food should not be stored under exposed sewer lines. Similarly, a cabinet that is used for the storage of food, shall not be located under exposed or unprotected sewer lines, open stairwells or other sources of contamination. Stationary shelving needs to have a minimum 6" floor clearance.

Approved food containers with tight-fitting covers and dollies should be used for storing bulk foods such as flour, cornmeal, sugar, dried beans, rice and similar.

Clean Equipment, Utensil and Linen Storage Designate areas for clean cooking utensils, cutting boards, glassware and dishware. Store them at least 6-inches off the floor in a clean, dry location where they will be protected from dust and splash.

Dry Storage Calculations Formulas can be used to estimate the amount of dry storage space that may be needed. To determine, you will need information on number of meals estimated to be served per day, days between deliveries and storage area availability.

$$\text{Required Storage Area (sq. ft.)} = \frac{\text{Volume per Meal (0.1 cu. ft.) X Number Meals between Deliveries}}{\text{Avg. Height of Area (ft.) x Fraction of Usable Floor Area}}$$

Poisonous or Toxic Materials Storage

Designate an area for poisonous or toxic material storage that is away from food and clean utensils. These include detergents, sanitizers, related cleaning or drying agents and caustics, acids, polishes and other chemicals. Install cabinets, cages, or physically separate shelves for storing chemicals.

Install cages, cabinets or physically separated shelves for storing chemicals in each of the following categories:

- □ **Pesticides:** We highly recommend contracting the services of a professional, licensed pest control operator for proper integrated pest management.
- □ **Cleaners:** These include detergents, sanitizers, related cleaning or drying agents and caustics, acids, polishes and other chemicals.
- □ **Miscellaneous facility products and chemicals:** Road salt, fertilizer, herbicide, oil, gasoline cans, etc. shall be stored in a well-ventilated area.

Maintenance Equipment

Designate an area for storing maintenance equipment and cleaning supplies. Include either a floor basin sink or a janitorial sink. Connect the basin or sink with a drain to the grease interceptor. Provide hot and cold water, under pressure, with a mixing faucet and approved backflow protection.

The splash areas must be finished with a durable and waterproof material such as fiberglass reinforced panels (FRP) or stainless steel. Painted drywall is not acceptable.

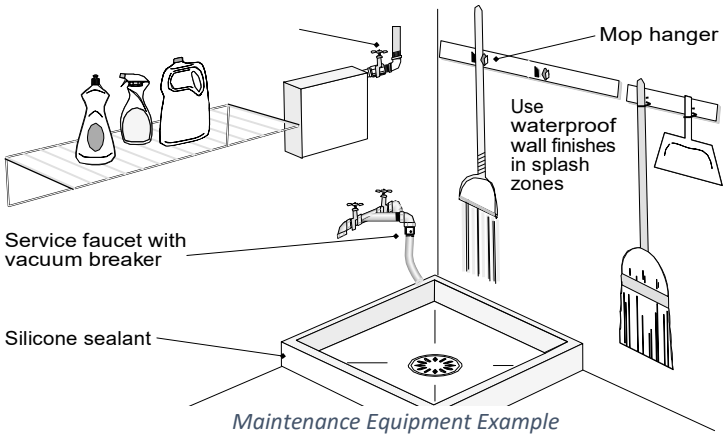
Maintenance equipment stations should be conveniently placed for maintaining food service areas. They should be separate from the food preparation, food storage and utensil washing areas. The mop basin or sink must be accessible for use during food service operations. More than one maintenance station may be necessary, depending on the size of the operation.

Other stationary equipment, such as water softeners or water filter systems may not obstruct the mop basin or sink. Allow for space adjacent to the mop sink for storage of mop buckets. Place chemical dispensing systems so they do not interfere with maintenance equipment storage or use. Install a separate water line for chemical cleaning systems and include appropriate backflow protection. If you suspend a hot water heater over the mop basin, maintain a minimum clearance of 80 inches to provide adequate space for the storage of wet mops.

- □ **Wall-Hung Storage:** Specify adequate broom racks to keep brooms, dust pans, etc., off the

floor.

- **Mop Hooks:** Install heavy-duty mop hooks that can support wet mops over the janitorial sink so that wet mops may drip dry into the sink basin.
- **Shelving:** Provide NSF (or equivalent) approved open wire or solid metal shelving at each janitorial station for a working supply of cleaning items.
- **Firewood:** If firewood is used, designate an area for firewood separate from food service and storage areas (including outdoors). Provide special measures to ensure insect and rodent control. Firewood shall be stored six inches above the floor.



Maintenance Equipment Example

Shelving

Shelving, dollies, racks, pallets and skids shall be corrosion-resistant, non- absorbent and smooth. Pallets, racks and skids used for bulk cased or overwrapped items shall be designed to be moved by hand or by conveniently located hand trucks or forklifts. Shelving, dollies, racks, pallets and skids should be spaced away from walls to allow for cleaning and pest monitoring/inspection.

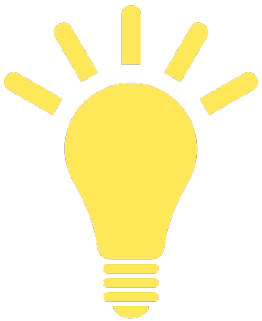
Additional requirements may be made if equipment is near food preparation areas, splash, or wash areas.

Refrigerators and Freezers: All shelving must meet NSF (or equivalent) standards.

> ***Tip:*** *Consider using heavy-duty dunnage racks for storing case products, heavy containers and bulk products.*

Lighting

Intensity The light intensity shall be at least 108 lux (10-foot candles) at a distance of 75 cm (30 inches) above the floor, in walk-in refrigeration units and dry food storage areas and rooms during periods of cleaning.



The light intensity shall be at least 215 lux (20-foot candles) at a surface food is provided for consumer self-service such as buffets and salad bars or where fresh product or packaged foods are sold or offered for consumption; inside equipment such as reach-in and under-counter refrigerators; at a distance of 75 cm (30 inches) above the floor in areas used for handwashing, ware washing, and utensil storage, and in toilet rooms. The light intensity shall be at least 540 lux (50-foot candles) at a surface where a food employee is working with food or working with utensils or equipment such as knives, slicers, grinders, or saws where employee safety is a factor.

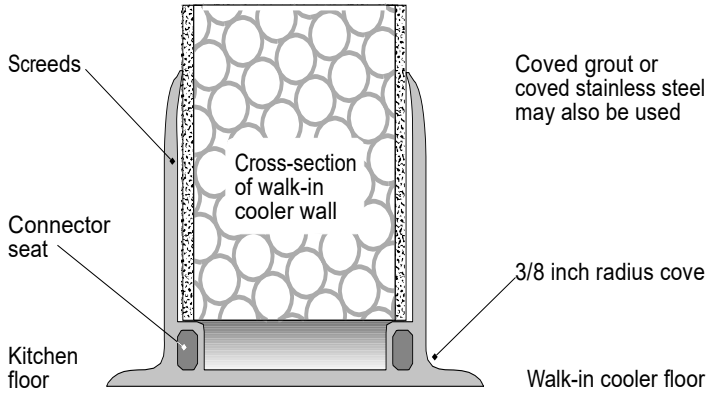
Protective Light Shielding

Shielding such as plastic shields, plastic sleeves with end caps, shatterproof bulbs and/or other approved devices shall be provided for all artificial lighting fixtures located in areas where there is exposed food; clean equipment, utensils, and linens; or unwrapped single-service and single-use articles. Heat lamps shall be protected against breakage by a shield surrounding and extending beyond the bulb, leaving only the face of the bulb exposed.

Finishes

Walk-in Coolers or Freezer Units Finishes

- □ **Floors, Walls and Ceiling:** Fabricate and install finishes that are NSF approved, waterproof, corrosion resistant, free of difficult-to-clean internal corners and crevices, and durable under conditions of normal use.
- □ **Coving:** The installation of screeds is recommended so that you have an effective 3/8-inch radius cove on both the interior and exterior of the unit.
- □ Other approved methods include grout radius as an integral part of the flooring material or corrosion-resistant metals. Because of breakage and separation problems, you should avoid using tile or vinyl base as coving.



Screeds Example

Server, Pick Up or Wait Stations

Server stations without food pick-up or plumbing connections, located within a dining room, may use the same wall and ceiling finishes as the dining room. Server stations with plumbing connections or those extending from the kitchen must utilize the same room and area finishes as stated in page 33, with the following modifications:

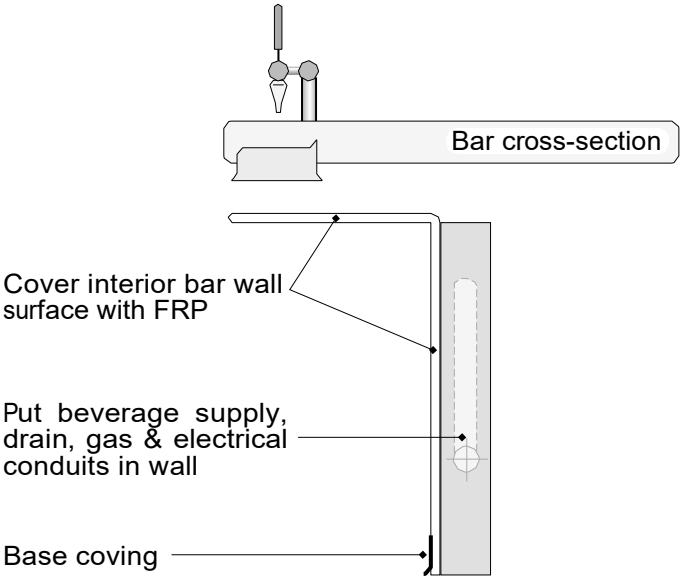
- □ **Floors:** In food pick-up stations or wait stations with plumbing, specify floors of durable, waterproof and easily cleanable material extending a minimum of 3 feet from the counter.
- □ **Coving:** A 3/8-inch base coving must be provided at the juncture of the floor and wall or cabinet.
- □ **Walls:** Walls must be light-colored, smooth, non-absorbent and easily cleanable.
- □ **Ceilings:** Smooth, non-absorbent and light-colored ceilings that can withstand frequent cleaning must be installed at any station where food is picked up.

Bar

- □ **Floors:** Floor finishes must be of durable, light-colored, waterproof, grease-resistant and easily cleanable material.
- □ **Coving:** A 3/8-inch base coving must be provided at the juncture of the floor and wall or cabinet.
- □ **Walls:** Walls may have the same finish as the rest of the room except that the interior bar wall surfaces and undersides of the bar counter tops must have smooth, non- absorbent and light-

colored finishes (FRP) that can withstand frequent cleaning. Exposed joints or other support structures will not be accepted.

- □ **Ceilings:** Smooth, non-absorbent and light-colored ceilings that can withstand frequent cleaning be installed.



Interior Bar Wall Surface

Restrooms, Dressing Rooms and Locker Rooms

- □ **Floors:** Floor finishes must be of durable, light-colored, waterproof, grease-resistant and easily cleanable material.
- □ **Coving:** A 3/8-inch base coving must be provided at the juncture of the floor and wall or cabinet.
- □ **Walls:** Construct walls with a smooth and easily cleanable material that has a light-colored finish.
- □ **Ceiling:** Smooth, non-absorbent and light-colored ceilings that can withstand frequent cleaning must be installed.

Dining Room

Carpeting, if used as a floor covering, must be of tightly woven construction and maintained in good repair.

Buffets, Salad Bars, and Beverage Stations

- □ **Floors in Dining Areas:** Floor finishes must be of durable, light-colored, waterproof, grease-resistant and cleanable materials extending at least 3 feet from the serving side(s) of buffets, salad bars and beverage stations.
- □ **Coving:** A 3/8-inch base coving must be provided at the juncture of the floor and wall or cabinet.
- □ **Walls:** When the buffet is placed against a wall, the wall must be light colored, easily cleanable, smooth and non-absorbent.
- □ **Ceilings:** You may use the same finish as the dining room.

Areas with Multiple Uses

Any area used for a combination of previously defined activities must meet the more stringent requirements imposed on that area or activity.

Floors

Floors Example floor materials are as follows:

- □ Quarry tile, ceramic tile
- □ Sealed curbed concrete

- □ Seamless poured epoxy minimum 3/16-inch thick.
- □ Commercial-grade sheet vinyl (no felt backing)
- □ The use of poured monolithic floors will require specific approval for kitchen applications.
- □ Commercial-grade vinyl composition tile (VCT) Pre-approval from the Kane County Health Department should be obtained prior to use of carpet and/or wood.

Walls

Construct walls with a smooth and easily cleanable material that has a light-colored finish. Example wall materials are as follows:

- □ Stainless steel
- □ Ceramic tile
- □ Aluminum
- □ Fiber-glassed reinforced panels (FRP)
- □ Sealed Concrete blocks or bricks
- □ Epoxy or glazed drywall
- □ *Wall finishes behind the cookline must be of stainless steel.*

> ***Tip:*** *Galvanized metal will rust when used as a finish in a walk-in refrigerator. It is not recommended.*

Ceilings

Install smooth, non-absorbent and light-colored ceilings that can withstand frequent cleaning. Exposed joists, studs or other support structures will not be accepted.

Example ceiling materials may include wall finish material listed above along with the following:

- □ Easily cleanable, non-absorbent ceiling tiles
- □ Painted drywall

Coving

A 3/8-inch base coving must be provided at the juncture of the floor and wall or cabinet. Wood base coving is not acceptable.

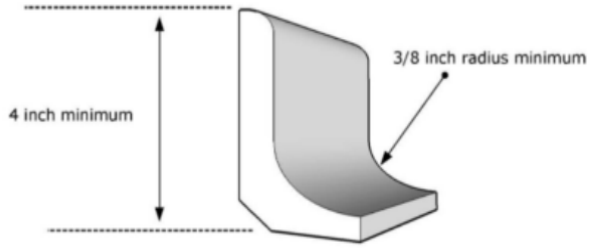
Coving is the floor material found at the base of walls (wall/floor junctures) and is required in most areas of the food establishment, food preparation, storage, handling, and packaging areas:

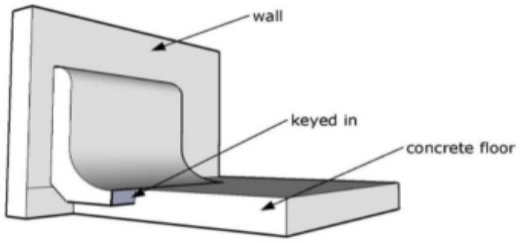
- □ Utensil washing and storage areas
- □ Interior waste disposal areas (garbage, refuse, grease)
- □ Restrooms
- □ Hand washing areas
- □ Janitorial facilities
- □ Walk-in refrigerator and freezer units (inside and outside)
- □ Bars (employee side)
- □ Customer self-serve areas where non-individually prepackaged foods or beverages are sold or dispensed (e.g., salad bars, buffets, bulk food sales, beverage stations)
- □ Employee change and storage areas
- □ Wait stations

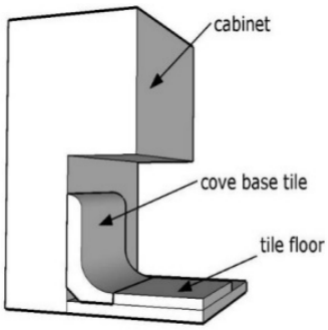
Coved flooring material should extend integrally up the walls. Integral coving is not required in areas used exclusively for dining, point-of-sale, or the storage of utensils or foods contained in the original un-opened container.

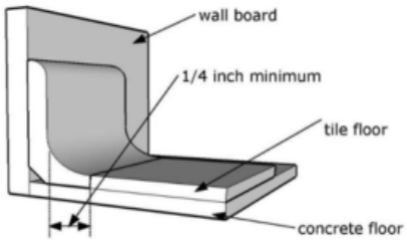
Floor Installation

Example of quarry tile cove base









Summary of Room and Area Finishes

Room or Area Example	Floors	Coving	Walls	Ceilings
○ **Food Preparation** ○ **Food Storage** ○ **Cookline**	○ Light colored ○ Waterproof ○ Grease resistant ○ Easily cleanable ○ Durable	○ 3/8" radius cove ○ Sealed	○ Light colored ○ Easily cleanable ○ Stainless steel behind cookline	○ Light colored ○ Non- absorbent ○ Smooth ○ Durable
○ **Ware Washing** ○ **Janitorial Stations**	○ Light colored ○ Waterproof ○ Grease resistant ○ Easily cleanable ○ Durable	○ 3/8" radius cove ○ Sealed	○ Light colored ○ Easily cleanable ○ Durable ○ Waterproof in splash zones	○ Light colored ○ Non- absorbent ○ Smooth ○ Durable in splash areas
○ **Walk-In Coolers** ○ **Refrigerators & Freezers**	○ Corrosion resistant ○ Waterproof ○ Easily cleanable	○ 3/8" radius cove ○ Sealed ○ Inside & outside unit	○ Corrosion resistant ○ Easily cleanable	○ Corrosion resistant ○ Waterproof ○ Easily cleanable
○ **Server Areas**	Within 3 ft of counter: ○ Waterproof ○ Easily cleanable	○ 3/8" radius cove ○ Sealed ○ Include cabinets	○ Light colored ○ Waterproof ○ Easily cleanable ○ Durable	○ Light colored ○ Smooth ○ Durable ○ Non-absorbent
○ **Bar**	○ Light colored ○ Grease resistant ○ Easily cleanable ○ Durable	○ 3/8" radius cove ○ Sealed	Back of the bar & under bar top: ○ Light colored ○ Waterproof ○ Easily cleanable ○ Durable	○ Light colored ○ Smooth ○ Durable ○ Non-absorbent
○ **Restrooms** ○ **Dressing Areas** ○ **Locker Rooms**	○ Light colored ○ Waterproof ○ Grease resistant ○ Easily cleanable ○ Durable	○ 3/8" radius cove ○ Sealed	○ Light colored ○ Easily cleanable ○ Durable ○ Water resistant	○ Light colored ○ Smooth ○ Durable ○ Non-absorbent
○ **Buffets Salad Bars** ○ **Beverage Stations**	Within 3 ft of counter: ○ Light colored ○ Waterproof ○ Grease resistant ○ Easily cleanable ○ Durable	○ 3/8" radius cove ○ Sealed	If placed against a wall: ○ Smooth ○ Light colored ○ Smooth ○ Durable ○ Non-absorbent	If placed against a wall: ○ Smooth ○ Light colored ○ Smooth ○ Durable ○ Non-absorbent
○ **Combination Areas**	**Any area used for a combination of activities must meet the more stringent requirements.**			

Floor Drains

A sufficient number of floor drains should be located throughout the establishment to facilitate cleaning.

Floor drains should be located in areas that require frequent water flushing to clean the floor or equipment. Floor drains must not be installed in walk-in refrigeration units except under the following conditions:

- When required by another jurisdiction, the floor drain must have an approved backwater valve installed.
- Floor drains may be located in refrigerated processing rooms or high moisture storage areas, such as produce coolers, provided that the doors to the area or room have been undercut or are swing doors.

Pest Control

All openings to the outside shall be effectively protected against the entrance of insects and rodents. All roller doors, sliding or bi-fold doors, or similar movable wall systems that are not self- closing and create a continuous opening to the exterior must have an effective means of pest control.

Building

- All masonry or cement foundations must be rodent proof.
- Cover all building vents with a minimum of 16 mesh per inch wide screen.
- Seal openings into the foundations and exterior walls around pipes, wires or conduits.
- Tightly seal the opening around conduits or pipelines entering a wall, ceiling or floor.

Delivery Doors

- **Pest Control:** All delivery doors leading to the outside must be self-closing and tight fitting.
- **Garage Doors:** Vertically-opening, garage-type delivery doors must be protected against pests. They should have an overhead air curtain with a minimum velocity of 750 feet of air per minute measured 3 feet above the floor. We will consider suitable alternatives for pest control for this type of door.
- **Entrance Doors:** Make all outside customer doors self-closing and tight fitting. You may need to adjust the threshold sweep to prevent the entrance of insects and rodents.

We recommend installing sodium vapor lights near delivery doors to avoid attracting insects.

Windows

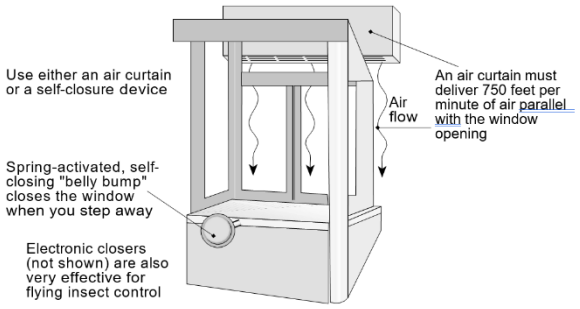
Screen all openable windows, except drive-thru or walk-up windows, with at least 16 mesh to the inch screening. Drive-thru and walk-up service windows must have effective means to prevent pest entry, to include minimum #16 mesh screens, properly designed and installed air curtains, or other effective means such as self-closing devices (spring-loaded, bump pad, electronic opener, or gravity operated).

Provide fly protection by one or more of the following methods:

- **Self-Closing:** Equip windows with a self-closure device, such as a spring-loaded bump pad or an electronic opener.
- **Air Curtain:** Install an air curtain so that a layer of fast-moving air is produced vertically downward. The air flow runs parallel with the window and within 1 inch (inside or outside) of the window opening.
    - The air curtain must protect the entire width of the window opening. Minimum air velocity is 750 feet per minute, measured at the furthest point in the window opening

from the air curtain. Use a solenoid switch to activate the unit. Manual switches will not be accepted.

Example of Air Curtain



Drive-Thru Windows

This may not apply if a food establishment opens into a larger completely enclosed structure such as a coliseum, arena, warehouse, shopping mall, superstores, airport, or office building, where the outer openings from the larger structure are protected against the entry of insects and rodents.

Insect Control Devices, Design and Installation Insect control devices that are used to electrocute or stun flying insects shall be designed to retain the insect within the device. These devices must not be located above food preparation areas and installed to prevent the contamination of exposed food, clean equipment, utensils, and linens, from insect fragments.

Delivery, Customer, and Toilet Room Doors Exterior doors

All outside doors shall be self-closing and tight fitting. Install a door sweep and weather stripping to prevent the entrance of insects and rodents. Note: Daylight shall not be visible around the perimeter of the door. Garage Doors, Roller Doors, and Loading Docks: Garage and roller type delivery doors must be protected against pests. Loading docks shall have properly installed tight fitting dock seals at all loading bays. If the location of one of these doors exposes the kitchen or other food service, air curtains will be required.

Insect and Rodent Control Tips

- Keep dumpster lid closed to prevent access by pests.
- Keep dumpster area clean and free of loose debris at all times, and bag all garbage from the establishment.
- Keep exterior doors and windows closed at all times. Screen doors are an option to install to provide airflow to the establishment. The screen must be at least 16 mesh/inch material.
    - *Windows / doors designed to remain open during business hours are not acceptable*
- Install UV light traps with integral glue boards.
- Do not install fly strips over food preparation, utensil washing or serving areas.
- Install air curtains at all outside entrances including drive thru windows.
    - *This does not include customer entrances; all customer entrances and exits are to be equipped with tight-fitting, self-closing doors.*
- Install self-closing devices on all doors that open to the exterior of the building.
- Provide weather stripping to all exterior doors.

- Provide covers for indoor garbage cans.

Garbage

Each food facility is to secure their own garbage service. Remember to provide sufficient garbage containers, sized to hold any garbage or refuse in a nuisance-free manner, until a disposal company can pick it up.

Consideration as to the cleaning and proper disposal of the liquid waste requirements may vary from municipality to municipality.

- **Outside Storage:** Place outside refuse containers, grease containers and compactor systems on smooth cleanable surfaces of non-absorbent material such as concrete or machine-laid asphalt. These areas should be as far as possible from the building's doors and windows.
- **Pest Control:** When outside refuse containers are within 20 feet of the food facility's door or window, install an air curtain, in addition to a self-closure device on doors. Air curtains must maintain a minimum velocity of 750 feet of air per minute measured 3 feet above the floor.
- **Enclosures:** Garbage enclosure shall be constructed of durable, non-absorbent materials and a washable interior finish able to withstand frequent cleaning.
- **Recycling:** If you plan to recycle, check with your local municipality or waste management company for additional rules, guidelines or details.

Inside Storage, Interior Garbage Storage, Refuse Rooms, Grease Storage:

- If used, garbage room and area finishes must meet the same requirements as the food preparation area.
- Indoor garbage temperatures of 50°F or less should be maintained to eliminate fly breeding.

Sewage Disposal

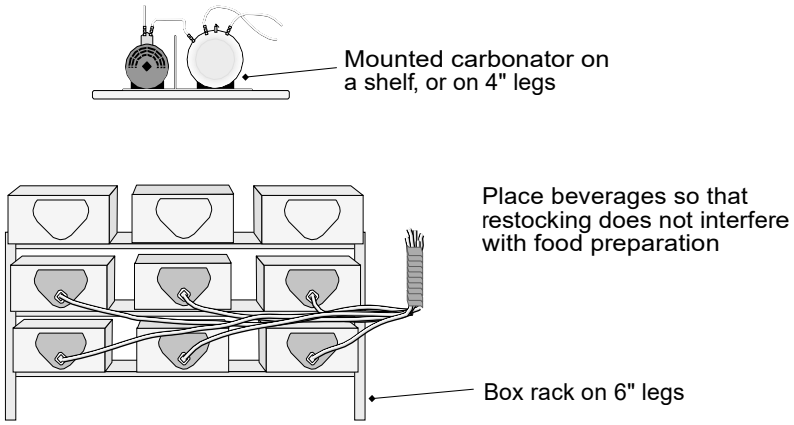
Dispose of all water-carried sewage by means of a public sewage system or a compliant private septic system approved by the Kane County Health Department. ***All septic system records shall be maintained for review by the Kane County Health Department.***

Overhead Sewer Lines

- **Location:** Waste lines and roof drains should not be directly above food preparation, food display, food storage and utensil washing areas, except automatic fire protection sprinkler heads that may be required by law.
- **Shielding:** If you have sewer lines over any of these areas, provide seamless gutters under the pipes that will divert leakage away from the food or utensil zone. Gutters may have an open end at the wall.

Potable Water Backflow

- **Inlets:** All water inlets (faucets, etc.) must have an air gap between the water inlet and the fixture it is serving. The air gap must be twice the diameter of the water inlet or faucet. Any water inlet, faucet, etc., that does not meet this requirement is a submerged inlet. A water faucet that can has a hose attached to it, can be a submerged inlet.
- **Vacuum Breakers:** Provide vacuum breakers on submerged inlets such as toilets, urinals, dish washing machine, garbage grinders and any threaded water outlets.
- **Special Conditions:** Provide dual check valves with intermediate atmospheric vents or reduced pressure zone backflow preventers capable of being submerged on water inlets where you cannot install a vacuum breaker after the last shut-off valve or solenoid switch (i.e., pressure spray hoses).
- **Carbonators:** Carbonators must have dual check valves with intermediate atmospheric vents plus equipment to meet any other specific Plumbing Code requirements.



Carbonator Example

Equipment Drains: Provide indirect waste connections for dish washing machines, dish washing sinks, pot washing sinks, pre-rinse sinks, food prep sinks, silverware sinks, bar sinks, soda fountain sinks, ice machines, steam tables, steam cookers, ice bins, salad bars, dipper wells, walk-in refrigerator or freezer condensate and other similar fixtures. Drainage into a bucket is not acceptable.

- □ An indirect connection discharges waste through an air gap into the drainage system. Do not connect it directly with the drainage system.
- □ The indirect piping from the fixture to the air gap must not exceed 5 feet.
- □ Indirectly connected fixtures must discharge to a vented trap placed as close as possible to the fixture and in the same room. To avoid cross connections, each fixture will require a separate vent.
- □ Install receptors (floor sinks, etc.) receiving indirect wastes in accessible and ventilated areas.
- □ Design and size receptors to prevent overflows and splashing. When installed inside cabinets, you must extend the drain hub receiving waste through the base of the cabinet and seal the base around the drain.
- □ Food service equipment sinks or buckets cannot receive the discharge of an indirect waste pipe. However, a mop sink can receive the discharge of an indirect clear waste water.

Adjacent Floor Drain: You may directly connect a utensil washing sink or a dish washing machine with a floor drain provided that the following conditions are met:

- □ The floor drain is trapped and vented as required by the State of Illinois Plumbing Code.
- □ The floor drain is placed within 4 feet horizontally of the utensil washing sink or dish washing machine, and in the same room.
- □ Additional fixtures are not to be connected upstream from the floor drain trap, utensil washing sink or dish washing machine.
- □ Garbage grinders, if installed, must meet the above provisions and be directly connected.

Grease Inceptors

Grease interceptors are required by the Illinois State Plumbing Code to be installed on all fixtures from which grease, fats, or culinary oils are wasted including three-compartment sinks, food prep sinks, dump sinks, mop sinks, and floor drains located within the kitchen.

Install an outside grease interceptor with access for maintenance purposes. If an outside interceptor is not feasible, install an indoor recessed grease interceptor in the following manner:

- □ The lid must be flush with the floor;

- □ Inlets and outlets that are a minimum 3 inches in diameter are required;
- □ The interceptor must be durable, corrosion-resistant and have a watertight lid securely fastened in place;
- □ The lid and baffles must be easily accessible for maintenance**.**

Minimize Size

Individual municipalities may have stricter codes regarding the sizing and location of grease interceptors. According to the Illinois State Plumbing Code, the minimum size for a grease interceptor is:

- □ One-half the liquid holding capacity of the fixture if the grease interceptor is installed on the same floor as the fixture, or
- □ Sixty percent of the liquid holding capacity of the fixture if the grease interceptor is installed on a floor below the fixture.
- □ If two or more sinks or fixtures are connected to a grease interceptor, base the interceptors size in gallons on the combined volume of the fixtures served.
- □ To determine the volume or liquid-holding capacity in gallons of a fixture, use the following formula:

$$\frac{\text{length x width x height (inches) x \# of compartments}}{231} = \text{gallons}$$

Exhaust Hood Ventilation

Exhaust Hood Ventilation Requirements Commercial cooking or display equipment, which produces smoke, steam, grease, mists, particulate matter, condensation, vapors, fumes, odors, or create sanitation or indoor air quality problems, will require a hood.

Hoods shall be designed and installed to prevent grease and condensation from collecting on walls, ceilings, and dripping into food or onto food contact surfaces. All hoods should comply with the current International Mechanical Code (IMC) and/or all local building and fire safety codes.

Balancing of the exhaust and make-up air must be ensured so that the system can be operated efficiently.

Exhaust Hood Ventilation Plans Submittal

- □ **Specifications:** Complete the Exhaust Plan Review form(s) for new exhaust system installations or modifications to existing systems for approval (one form per hood).
- □ **Equipment:** Submit exhaust plans indicating the type of equipment being proposed for installation under the cook line exhaust hood.

Codes and Requirements

Install all ventilation systems as specified by all municipal, county, state, fire, and building department's requirements. For all proposed installations that are not of conventional design, a detailed review may be required to determine the system's adequacy.

Prior to the opening of the establishment, the owner or operator must submit an air balance report to the Kane County Health Department. A field approval may be required to assure ventilation performance requirements.

When Exhaust Hood Ventilation Systems are Required

General: Cooking, ware washing 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.

A commercial exhaust hood is required for each cooking appliance, with the following exceptions:

- □ 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,
- □ Electric cheese melters and soup wells.

Other Examples, Non-traditional equipment that would require installation under a hood include:

- □ Kettles,
- □ Pasta cookers
- □ Hot plates
- □ Salamanders
- □ Gas cooking equipment.

Exhaust Hood Ventilation System Design

General: The hood is to be fabricated and reinforced to withstand the actions of normal use without buckling, cracking, or significantly distorting. Design hoods to not interfere with normal combustion processes and/or exhaust from cooking equipment.

Materials: Construct the hood of a minimum 20 U.S. Standard Gauge (0.037 inch) stainless steel and the other parts of the primary collection system of low carbon steel (2-10%). The minimum thickness of steel must be number 18 Manufacturers Standard Gauge (0.048 inch). Galvanized steel and black iron steel are not acceptable materials. Paint or epoxy coatings are also not acceptable on the hood.

Joints and Seams: All joints must be structurally sound without the use of solder. Design and construct joint and seams to be easily cleanable by normal cleaning methods. Seal joints and seams on surfaces of the plenum, hood, or other portions of the system containing exhaust air.

Reinforcing and Framing: Minimize exposed bracing, channels, crevices, or other areas in which dirt, grease, and similar materials may accumulate.

Gutters: Design and construct gutters for grease extractors to be easily cleanable. Locate drip pans outside of the plenum and in an easily accessible location.

Lights: Install a sufficient number of fire-resistant and properly shielded lights on the inside of the hood.

Grease Extractors: Follow grease extractor manufacturer's recommendations in the design and construction of new systems so as to have optimum total grease removal, air movement, and air velocity.

An exhaust system that meets U.L. requirements for NSF standard 2 does not need to meet Kane County's performance requirements.

General: The area of the open-faced portion of the hood will determine the cubic feet per minute (CFM) required by the entire system. All exhaust hood systems must maintain a minimum of 50 feet per minute capture velocity at the cooking surface.

Size of the Exhaust Hood Ventilation System

Wall-Mounted Hoods: Canopy hoods attached to a wall must have a minimum air removal of 100 CFM per square foot of open-faced portions of the hood.

Island Hoods: Canopy hoods exposed on all sides must have a minimum air removal of 150 CFM per square foot of open- faced portions of the hood.

Ventilators: Non-canopy hoods must have a minimum air removal of 300 CFM per linear foot of hood length.

Skirted Hoods: Wall-mounted canopy hoods, which are less than 6 feet in length and have only one side exposed, must have a minimum air removal of 50 CFM per square foot of the open-faced portion of the hood.

General: All exhaust hood systems must maintain a minimum of 50 feet per minute (FPM) capture velocity at the cooking surface. Factory engineered cook line exhaust systems must follow the manufacturer's recommendations in the performance of new systems to have optimum grease removal, air movement and air velocity, in addition to meeting the above criteria. A letter stating that this standard will be met must accompany documentation supporting compliance with NSF criteria, C-2.

Type of Exhaust Hood Ventilation Systems

Canopy Coverage: Each wall-hung canopy or island canopy hood must be designed as an overhead hood that completely covers the equipment it is designed to serve. The hood must overhang all open sides by at least 6 inches.

Ventilators: Any ventilator-type non-canopy hood must be designed as a wall hood that has a maximum height of 3 feet above the cooking surface and a maximum 1-foot setback from the front of the cooking surface. This hood is often referred to as a low sidewall hood.

Water Wash Hoods: Water wash hood systems must be designed to include the following additional requirements:

- □ Provide a floor drain.
- □ Keep exposed piping below the filter bank to a minimum. Do not install exposed horizontal piping.
- □ Drain through the building grease interceptor, or provide an additional grease interceptor specifically for the hood system.
- □ Install an RPZ (Reduced Pressure Zone backflow preventer) on the potable water supply. Locate the RPZ to be accessible for inspection.

Steam Only: Box condensate hoods must be designed for removing steam and vapor only and include all or part of additional requirements.

- □ Provide a floor drain.
- □ Provide duct work with a fan.

Filters and Durability: Exhaust hoods must be designed for collecting vapors, mists, particulate matter, grease, steam, heat and smoke before entering the exhaust duct via filters or extractors. The hood is to be fabricated and reinforced to withstand the actions of normal use without buckling, cracking or significantly distorting.

Exhaust Hood Ventilation Ducts

Construction: All ducts should be constructed with a minimum of bends. Ducts are to be smooth, easily cleanable and made of a corrosion-resistant metal.

Number: Multiple takeoff ducts are required for all hoods 10 feet or more in length. When required, multiple ducts must be equally spaced.

Velocity: Duct air velocity must be a minimum of 1,500 feet per minute, with a maximum of 2,200 feet per minute.

Outside Exhaust: Kitchen exhaust systems must be designed and constructed to exhaust the air through duct(s) directly to the outside atmosphere in a safe and nuisance- free manner.

Interference with Other Fuel-Burning Equipment: Kitchen hoods and ducts must be designed so they will not interfere with normal combustion processes or combustion exhausts from commercial cooking or heating equipment. Locating a water heater or a furnace near the kitchen exhaust system is not recommended.

Cleanouts: Provide cleanouts every 20 feet in a horizontal exhaust duct, and at every change in direction. Openings must be at the sides and large enough to permit cleaning. In horizontal sections, the opening must be at least 1 ½ inches from the bottom of the duct. Covers must be made of the same material as the duct and be grease –tight when in place.

Multiple Take-Off Ducts	
Hood Length	Number of Ducts
10 ft. or less	1
10 ft. to 16 ft.	2
16 ft. to 24 ft.	3
24 ft. to 32 ft.	4
32 ft. to 40 ft.	5

Exhaust Hood Ventilation Filters and Extractors

Size: All exhausted air, before entering the duct work, must pass through approved, removable filters or extractors. Calculate the appropriate number of filters needed, based on the length of the filter bank.

Design: Grease filters or extractors must be installed at a 45-degree angle to horizontal, and be sized appropriately to fit the filter bank.

Type: Filters or extractors specified must be of the same type so they will not adversely affect the static pressure of the total system.

Grease Extractors: Kitchen exhaust systems using grease extractors must follow the manufacturer's recommendations in the design and construction of new systems so as to have optimal grease removal, air movement and air velocity.

Grease Filters: Grease filters must be tested and listed in accordance with UL 1046.

Mesh filters are not allowed for grease removal.

A hood cleaning schedule will be requested. The schedule must indicate methods of cleaning and the time interval between cleanings.

Exhaust Hood Ventilation Fan

Size: The number and size of the fan(s) specified are required to remove the total CFM of exhausted air as determined by the type of hood at a specified static pressure.

Specifications: All fan specifications (make and model) need to be included on the Exhaust Plan Review form and indicated on the plans.

Location: All fans must be located to direct exhaust away from the building.

Exhaust Hood Ventilation System Make-Up Air

Make-up air must be supplied during the operation of the kitchen exhaust system. The amount of make-up provided must be approximately equal to the amount of exhausted air.

Balanced Air Flow: Exhaust systems with air removal of over 1,500 CFM must be provided with sufficient make-up air equal to or slightly less than the total CFM to be exhausted.

Tempering: The make-up air is to be introduced in a manner, which will not interfere with the capture characteristics of the exhaust system nor create discomfort to the employees. It is recommended that the temperature differential between the make-up air and air in the conditioned space should not exceed 10°F.

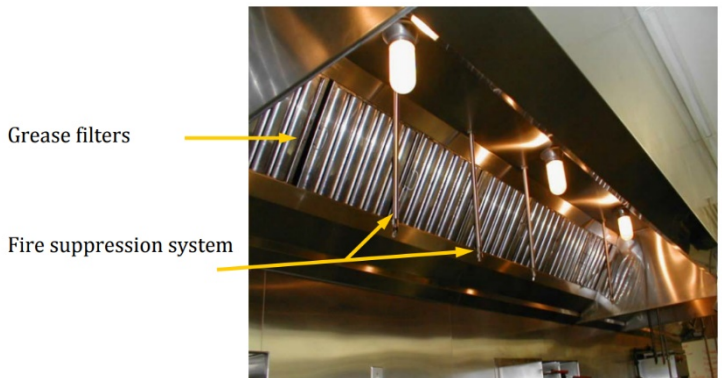
Quality: The air supplied to the kitchen and food preparation areas must be free from contamination by dust, vapors or gases. Screening must be provided to prevent entry of foreign matter.

Construction and Criteria Checklist

- ☐ The maximum distance between the bottom edge of hood and the floor is 7 feet.
- ☐ The maximum height of the bottom edge of the hood above the cooking surface is 4 feet.
- ☐ The minimum height of the hood itself is 24 inches.
- ☐ The minimum static pressure is 1/2 inch.
- ☐ Hoods less than 18 inches from the ceiling or wall must be closed with approved material to the ceiling and wall. Closed, means having an opening of no more than 1/32 of an inch.
- ☐ The minimum distance between the lowest edge of a grease filter or extractor and the cooking or heating surface is:
    - For exposed or unexposed flame units, 3 feet.
    - For charcoal, 4 feet.
- ☐ There must be no horizontal runs of piping, electrical conduit or fusible links of the fire protection system exposed below the filter bank in the hood or the make-up air plenum. All piping, including electrical conduit, exposed on the exterior of the exhaust hood must be spaced 1/2 inch to 1 inch away from all surfaces.
- ☐ Air intakes must be located at least 10 feet from any exhaust outlet or vent.
- ☐ Insulation must not be applied on the interior of the duct work.
- ☐ All installations must be in complete accordance with all municipal, county, state, fire and building department requirements and recommendations. Note: Many local fire departments require compliance with the International Fire Code (IFC) 2000.
- ☐ For all proposed installations that are not of conventional design, a detailed review and conference may be required with design engineers to determine the system's adequacy.
- ☐ Field approval must be obtained. A smoke test may be performed.
- ☐ Fire suppression tanks must not be located over food preparation areas.

Exhaust Hood Ventilation Systems

Type I hoods are required over equipment that produce grease, smoke, excessive steam, heat, condensation, particulate matter, odors, or create indoor sanitation or indoor quality problems. *Examples of equipment requiring installation under a hood include: Kettles, pasta cookers, hot plates, salamanders, Mongolian-style grills, gas cooking equipment, tableside cooking equipment, such as Teppanyaki-style cooking, Tandoori ovens, rotisserie units, Panini grills, etc.*

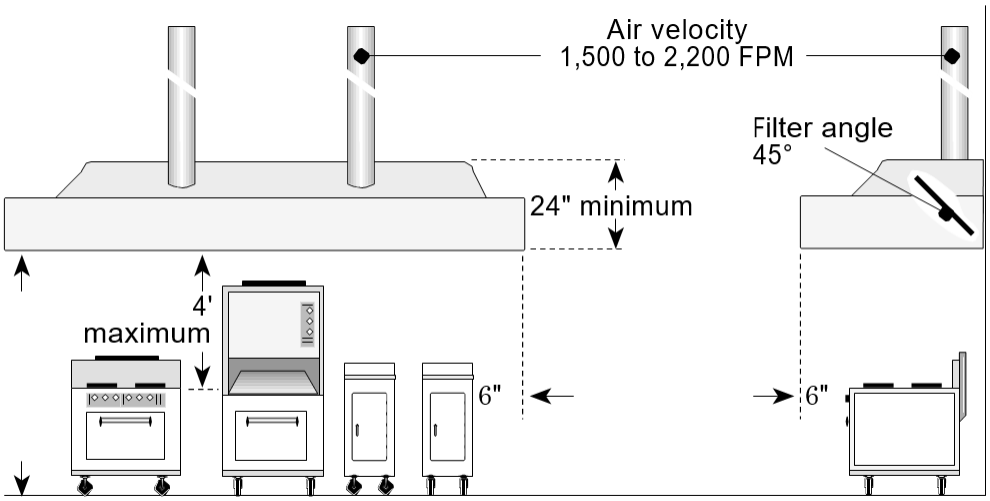


Type I Hood over Cook Line

Type II Hood over Ware Washing Machine

Type II hoods shall be installed over equipment that produce steam, heat, mists, condensation, fumes, vapors, and non-grease laden foods.

Type II Hood over Ware Washing Machine



Typical Hood Installation

Vent less Hood Systems or ventilation systems integral to the cooking equipment need to be reviewed and approved by the local mechanical code, and other applicable fire safety codes.

Laundry

Install laundry in a separate room with a door to separate food service operations from any laundry area. We recommend that you provide a vented door grill to exhaust heat from the room.

If washing machine is provided, you must also provide a mechanical dryer. Dryers must be vented to the outside.

- **Clean Linen:** Provide a storage area for linens, if you use them. Protect clean linens from contamination, and store them away from soiled linens.
- **Soiled Linens:** Specify the location of covered, non-absorbent containers or washable laundry bags designated for holding damp or soiled linens, soiled uniforms, aprons, etc.

Outdoor Bars

A seasonal outdoor beverage facility is an outdoor beverage facility which must be operated in conjunction with a licensed Food Service Establishment that can provide support services. The following must be provided for:

- □ Compliance with zoning, building, electrical and plumbing codes.
- □ The dates of operation must be provided to the Regulatory Authority.
- □ Plans and specifications must be submitted to the Regulatory Authority for approval prior to construction.
- □ An additional license may be required.
- □ The facility must have convenient access to support services, such as utensil washing.
- □ Permanent overhead protection must be provided (i.e. roof).
- □ Facility must be able to be fully enclosed on the sides when not in use. For example, use of garage doors or durable panels. Establishment may purpose other means of environmental protection.
- □ Operations must cease during adverse weather.
- □ Smooth, easily cleanable and durable, stain resistant and non-absorbent flooring (i.e. quarry tile, epoxy poured flooring), integral cove base and walls (i.e. FRP, tile) must be provided. Other flooring options may be approved on a case by case basis.
- □ Adequate shielded lighting must be provided if natural lighting is not used.
- □ Local regulation governing ventilation and fire protection must be provided.
- □ Food preparation must take place inside the licensed Food Service Establishment.
- □ Ice must be in a self-draining approved covered ice bin and ice melt water must drain to a sanitary sewer.
- □ All beverages and utensils must be stored inside the permanent food establishment at the end of the day.
- □ A handwashing sink with permanent hot and cold running water under pressure must be provided in each outside beverage area or bar.
- □ All water must come from a potable water supply. All water shall be supplied under pressure with a mixing valve.
- □ If multiuse utensils are used, dish washing facilities must be provided or all utensils must be cleaned and sanitized inside the permanent foodservice.
- □ Provide adequate pest control and garbage removal.

Outdoor Eating Areas/Patios

It is recommended that floors in outdoor seating areas be made of materials that are durable and easily cleanable.

Outdoor Food Service

Cooking or preparing food is not permitted outside a licensed Food Service Establishment unless approved by the Kane County Health Department. A separate license will be issued by the Kane County Health Department for Food Service Establishments that want to cook food outside of a permanent food establishment.

Catering

Food must be prepared, stored and delivered from a licensed commercial kitchen. Food, equipment or single use items are not allowed to be prepared or stored at a private residence (home).
Food must be maintained at safe temperatures during transport (i.e. portable hot/cold hold units, mechanical hot/cold holding units) and must be transported in a sanitary manner in food grade containers.

All food and beverages must be prepared in a permanent licensed Food Service Establishment. The Food Service Establishment must have at least a Category II Food Service Establishment license.

Portable handwashing may be required.