



# **Food Establishment Construction Guide**

FOOD, POOLS, AND LODGING SERVICES

FEBRUARY 2019

FOOD ESTABLISHMENT CONSTRUCTION GUIDE

**Food Establishment Construction Guide**

FEBRUARY 2019

Minnesota Department of Health  
Food, Pools, and Lodging Services  
PO Box 64975  
St. Paul, MN 55164-0975  
651-201-4500  
[health.foodlodging@state.mn.us](mailto:health.foodlodging@state.mn.us)  
[www.health.state.mn.us](http://www.health.state.mn.us)

*To obtain this information in a different format, call: 651-201-4500.*

# Contents

Purpose .....	5
Definitions .....	5
Food and beverage service establishment .....	5
HACCP plan .....	5
Food catering .....	5
Restrictions .....	5
HACCP plan review.....	5
Catering.....	6
Approved source.....	6
Plan Submittal and Review .....	6
Projects that require plan review .....	6
Plan review process .....	6
Minnesota Department of Labor and Industry (DLI) .....	7
Required plan contents.....	7
Licensing and preoperational inspections .....	8
General Equipment Information.....	9
Equipment design and construction.....	9
Equipment numbers and capacities .....	10
Equipment locations and installation .....	10
Sinks .....	11
Handwashing sinks.....	11
Manual warewashing sink .....	11
Food preparation sink.....	11
Service sink.....	12
Other sinks .....	12
Warewashing Machines.....	12
Chemical sanitizing.....	12
Hot water sanitizing .....	13
Ventilation Systems .....	13
Counters, Cabinetry and Tables.....	13
Food-contact surfaces.....	13

## FOOD ESTABLISHMENT CONSTRUCTION GUIDE

Non-food-contact surfaces .....	14
Floors, Walls and Ceilings .....	14
Floors.....	15
Walls and ceilings.....	15
Non-food Areas.....	16
Toilet rooms .....	16
Garbage and recyclables.....	16
Personal items.....	16
Laundry facilities .....	16
Utilities .....	16
Water supply.....	16
Water heaters .....	17
Sewage disposal .....	17
Lighting.....	17

## Purpose

This guide will help individuals or groups submit food establishment plans to the Minnesota Department of Health (MDH). Construction, equipment, and physical facility standards outlined in this guide are [Minnesota Food Code](http://www.health.state.mn.us/communities/environment/food/rules/foodcode/index.html) ([www.health.state.mn.us/communities/environment/food/rules/foodcode/index.html](http://www.health.state.mn.us/communities/environment/food/rules/foodcode/index.html)) minimum requirements.

In Minnesota, different agencies license food and beverage establishments. The food establishment's menu and location of operation determine which agency is responsible for plan review, licensing and inspection. To find out which agency is responsible, visit the MDH [Licensing](http://www.health.state.mn.us/communities/environment/food/license/index.html) ([www.health.state.mn.us/communities/environment/food/license/index.html](http://www.health.state.mn.us/communities/environment/food/license/index.html)) website or call MDH at 651-201-4500.

## Definitions

### Food and beverage service establishment

*"Food and beverage service establishment" means a building, structure, enclosure, or any part of a building, structure, or enclosure used as, maintained as, advertised as, or held out to be an operation that prepares, serves, or otherwise provides food or beverages, or both, for human consumption.* – Minnesota Statutes, section 157.15, subdivision 5

### HACCP plan

*"Hazard analysis critical control point (HACCP) plan" means a written document that delineates the formal procedures for following the HACCP principles developed by the National Advisory Committee on Microbiological Criteria for Foods.* – Minnesota Statutes, section 157.15, subdivision 17

### Food catering

*"Food catering" means food that is prepared for service in support of an event with a predetermined guest list such as a reception, party, luncheon, conference, ceremony, or trade show. A food establishment doing catering is responsible for maintaining control of and ensuring the safety of the food from preparation to service to the consumer.* – Minnesota Rules, part 4626.0020, subpart 32a

## Restrictions

### HACCP plan review

[Specialized Processes in Retail Food Establishments \(PDF\)](http://www.health.state.mn.us/communities/environment/food/docs/fs/specialprofs.pdf) ([www.health.state.mn.us/communities/environment/food/docs/fs/specialprofs.pdf](http://www.health.state.mn.us/communities/environment/food/docs/fs/specialprofs.pdf)) require a HACCP plan review.

## Catering

Preparing, storing, transporting, and serving large volumes of food at catered events presents increased food safety risks. Include catering operations in the project description so that equipment needs specific to [Catering \(PDF\)](#) ([www.health.state.mn.us/communities/environment/food/docs/fs/cateringfs.pdf](http://www.health.state.mn.us/communities/environment/food/docs/fs/cateringfs.pdf)) are considered during the plan review process.

## Approved source

Food establishments must not use or serve food that was stored or prepared in a private home. All food prepared, sold or served in a food establishment must come from [Approved Sources for Food Products \(PDF\)](#) ([www.health.state.mn.us/communities/environment/food/docs/fs/apprvdsrcefs.pdf](http://www.health.state.mn.us/communities/environment/food/docs/fs/apprvdsrcefs.pdf)).

## Plan Submittal and Review

### Projects that require plan review

- [New construction \(PDF\)](#) ([www.health.state.mn.us/communities/environment/food/docs/license/newconstrplannapp.pdf](http://www.health.state.mn.us/communities/environment/food/docs/license/newconstrplannapp.pdf)): A building that is newly constructed or conversion of an existing building for use as a food establishment.
- [Remodel or addition \(PDF\)](#) ([www.health.state.mn.us/communities/environment/food/docs/license/remaddplannapp.pdf](http://www.health.state.mn.us/communities/environment/food/docs/license/remaddplannapp.pdf)): The extensive remodeling of a food establishment or a change of type of food establishment or food operation if the regulatory authority determines that plans and specifications are necessary to ensure compliance.

Plans must be submitted to MDH at least 30 days before beginning construction, extensive remodeling or conversion of an existing structure to a food establishment. Changes to your proposed plan may be required during the plan review process. If you begin work before plans are approved, MDH may order work to stop when it determines work may lead to noncompliance. – Minnesota Rules, part 4626.1720, subpart D and F

Please contact MDH at 651-201-4500 if you have questions about whether a plan review is needed for your food establishment.

## Plan review process

1. Submit your plan review application, all required information and appropriate fee to:

Mailing Address	Street Address
Minnesota Department of Health Food, Pools, and Lodging Services – Plan Review	Minnesota Department of Health Orville L. Freeman Building

Mailing Address	Street Address
P.O. Box 64975 St. Paul, MN 55164-0975	625 Robert Street North St. Paul, MN 55155

Plan review applications:

- [New Construction \(PDF\)](http://www.health.state.mn.us/communities/environment/food/docs/license/newconstrplanapp.pdf) ([www.health.state.mn.us/communities/environment/food/docs/license/newconstrplanapp.pdf](http://www.health.state.mn.us/communities/environment/food/docs/license/newconstrplanapp.pdf))
- [Remodel or Addition \(PDF\)](http://www.health.state.mn.us/communities/environment/food/docs/license/remaddplanapp.pdf) ([www.health.state.mn.us/communities/environment/food/docs/license/remaddplanapp.pdf](http://www.health.state.mn.us/communities/environment/food/docs/license/remaddplanapp.pdf))

Please contact MDH at 651-201-4500 if you have questions about which application to use.

2. Plan review applications are reviewed in the order they are received. Submit all required information listed in the Required Plan Contents section of this guide. If your application is incomplete, the review process may take longer.
3. Your plan reviewer will notify you when review starts, and will contact you to request any missing or additional information.
4. When review is complete, you will receive a letter approving your plans.
5. Wait to begin your project until after plans are approved.

## Minnesota Department of Labor and Industry (DLI)

### Plumbing plan review

Plumbing must be designed, constructed, installed and maintained according to [Minnesota Rules, chapter 4714](http://www.revisor.mn.gov/rules/4714/) ([www.revisor.mn.gov/rules/4714/](http://www.revisor.mn.gov/rules/4714/)), Minnesota plumbing code.

The Minnesota Department of Labor and Industry (DLI) reviews plans for proposed plumbing projects and conducts inspections to ensure compliance with the Minnesota plumbing code. Contact a licensed plumbing contractor for assistance with preparing and submitting plumbing plans. After the plumbing system is installed, DLI will conduct an inspection of the system.

For further information and plan review applications, visit the DLI [Plumbing Plan Review](http://www.doli.state.mn.us/business/get-licenses-and-permits/plumbing-plan-review) ([www.doli.state.mn.us/business/get-licenses-and-permits/plumbing-plan-review](http://www.doli.state.mn.us/business/get-licenses-and-permits/plumbing-plan-review)) website or contact DLI at 651-284-5063 or 1-800-342-5354.

### Local code lookup

Use the DLI [Local Code Lookup](http://workplace.doli.state.mn.us/jurisdiction/) ([workplace.doli.state.mn.us/jurisdiction/](http://workplace.doli.state.mn.us/jurisdiction/)) search tool to find out whom to contact with questions about how building, plumbing, electrical and mechanical codes apply to your project.

## Required plan contents

Make sure to include all the following when you submit your completed plan review application and the required fees.

- The intended menu.

- A description of the proposed project including the anticipated volume of food to be stored, prepared, sold or served.
- Easily readable layout drawn to scale indicating the location of all equipment (e.g., cooking equipment, ventilation hood, refrigerators, food prep counters, handwashing sink(s), three-compartment sink, and food prep sink).
- Finish materials for floors, base coves, walls, and ceilings.
- Proposed equipment list that includes types, manufacturers and model numbers.
- Manufacturer's specification sheets for new equipment.
- Counters and cabinetry shop drawings, indicating cabinet construction, and countertop finish.
- The source of water (private or public) for your food establishment. Include unique well number for private systems.
- The method of sewage disposal (public or private) for your food establishment. Include individual sewage treatment system certificate of compliance for individual sewage disposal systems.
- A copy of the zoning approval or building permit from the local unit of government.

HACCP plan review submittals, if required, must include:

- HACCP Plan Review Submittal Form
- All supporting documents relating to your establishment's HACCP plan
- \$500 HACCP plan review fee (payable to Minnesota Department of Health)

Additional information may be requested during the plan review process to allow for a thorough review. For further information, please visit the MDH [Plan Review](http://www.health.state.mn.us/communities/environment/food/license/planreview.html) ([www.health.state.mn.us/communities/environment/food/license/planreview.html](http://www.health.state.mn.us/communities/environment/food/license/planreview.html)) website, or contact MDH at 651-201-4500.

## Licensing and preoperational inspections

Once your project is near completion, follow these steps:

**1. Apply for license.**

Contact MDH staff listed on your plan review approval letter to request a license application. Submit the completed license application and required license fee prior to the preoperational inspection. **The license fee is separate from the plan review fee.**

**2. Have your food establishment inspected.**

Contact MDH staff listed on the plan review letter 14 days before the intended opening date to schedule a preoperational inspection. The inspection will cover all aspects of your approved project, including:

- Equipment is present, correctly installed and operational.
- Floor, wall and ceiling finishes are installed as approved.
- Mechanical and plumbing installations are approved by the appropriate authority.

### 3. Post the license in the food establishment.

After a successful preoperational inspection, MDH will issue a license. Prominently post the original license in the food establishment at all times. The license is valid for one year and must be renewed annually.

## General Equipment Information

Include specifications, proposed locations and intended use for all new and used equipment in submitted plan. Menu and food processes determine the type of equipment required. Complex food processes may require additional or specialized equipment.

## Equipment design and construction

Some equipment must be certified or classified for sanitation by an American National Standards Institute (ANSI) accredited certification program for food service equipment and include:

- Manual warewashing sinks
- Mechanical warewashing equipment
- Mechanical refrigeration units except for reach-in or chest freezers
- Walk-in freezers
- Food hot-holding equipment
- Cooking equipment, except for microwave ovens and toasters
- Ice machines
- Mechanical slicers
- Mechanical tenderizers and grinders
- Food preparation surfaces including sinks used for food preparation

If there is no certification or classification for sanitation by an ANSI accredited certification program for a piece of equipment, the equipment must:

- Be designed for commercial use.
- Be durable, smooth, and easily cleanable.
- Be readily accessible for cleaning.
- Have food-contact surfaces that are not toxic.

## Most common ANSI accredited certification programs

Certifying Group	Mark
NSF International (NSF)	
Intertek Marked "ETL Sanitation."	
Underwriters Laboratory (UL) Marked "Classified UL EPH."	
Canadian Standards Association (CSA) Marked "CSA Sanitation to NSF/ANSI."	
Baking Industry Sanitation Standards Committee (BISSC) Marked "Certified BISSC."	

## Equipment numbers and capacities

Provide mechanical equipment that meets the cooking, cooling, re-heating, ventilation and hot and cold holding needs of the food establishment. Install and use equipment as intended by the manufacturer.

Some common circumstances with special equipment requirements include:

- Walk-in refrigeration units installed outside must be designed for extra structural loads from snow and ice.
- Food guards, display cases or other effective means must be provided to protect unpackaged food from contamination while on display.
- Food grade containers capable of maintaining food at proper hot and cold holding temperatures in a sanitary manner are required for delivery or catering.

## Equipment locations and installation

Locate or install equipment so that food and food-contact surfaces are not exposed to contamination and the areas around and beneath the equipment are accessible for cleaning.

If equipment is not easily moveable, seal it to the surface or mount it on legs.

- Four-inch legs are required for table-mounted equipment.
- Six-inch legs are required for floor-mounted equipment.

Examples of equipment and storage locations that are frequently submitted but **not approved** include:

- Under an open stairwell
- In a mechanical room
- In a garbage room
- Under a sewer line that is not shielded
- In a toilet room
- Under piping on which water has condensed
- Above unprotected food, such as beverage dispensing equipment above an ice bin

## Sinks

Include specifications, proposed locations and intended use for all sinks.

### Handwashing sinks

Install handwashing sinks to provide easy access for all employees who are:

- Preparing or dispensing food and beverages.
- Conducting warewashing.
- Using the toilet room.

Each handwashing sink must be equipped to provide water at a temperature to allow handwashing for at least 15 seconds through a mixing valve or combination faucet. A self-closing, slow-closing, or metering faucet must provide a flow of water for at least 15 seconds without the need to reactivate the faucet.

MDH may require splash guards on handwashing sinks to limit contamination of food, clean equipment and utensils, and single-service and single-use articles.

### Manual warewashing sink

If your plans do not include a warewashing machine that can accommodate the largest piece of equipment and utensils, provide equipment for manual warewashing.

Provide a sink with at least three compartments and drainboards on each end. All compartments and the drainboards must be part of the same piece of equipment. You cannot attach drainboards to meet this requirement. Utensil racks or tables may be required for storing all dirty and clean equipment and utensils.

Sink compartments must be large enough to allow immersion of the largest piece of equipment and utensils.

Manual warewashing sinks must be certified or classified for sanitation by an American National Standards Institute (ANSI) accredited certification program.

### Food preparation sink

Provide a designated food preparation sink if the proposed menu includes a food product that requires washing or thawing in a sink.

Food preparation sinks must be certified or classified for sanitation by an American National Standards Institute (ANSI) accredited certification program.

## Service sink

Provide one conveniently located service sink or curbed cleaning facility equipped with a floor drain for the cleaning of mops or similar wet floor cleaning tools, and for the disposal of mop water and similar liquid waste. In your plans, include a way to store mops between uses so that they do not soil or damage walls, equipment or supplies.

## Other sinks

The sinks listed above have use limitations. Other common sinks used in a food establishment may include:

- Dump sink – for bars, blender drinks and espresso areas.
- Dipper well sink – for in-use utensils such as ice cream scoops.

## Warewashing Machines

Include specifications and proposed locations for all warewashing machines. Drainboards, utensil racks, or tables are required for storing dirty and clean equipment and utensils.

Warewashing machines must be certified or classified for sanitation by an American National Standards Institute (ANSI) accredited certification program.

## Chemical sanitizing

Component	Requirement
<b>Sanitizer alarm</b>	Audible or visual indicator of low sanitizer level
<b>Space for air-drying</b>	Minimum of five racks
<b>Pre-cleaning area</b>	Spray sink, garbage disposal or other means for disposal of garbage
<b>Interlocking door device (ventless dish machines)</b>	Prevents the door from opening until the vent cycle operation is complete May be an additional accessory for the machine

## Hot water sanitizing

Component	Requirement
<b>Space for drying</b>	Minimum of three racks
<b>Pre-cleaning area</b>	Spray sink, garbage disposal or other means for disposal of garbage
<b>Interlocking door device (ventless dish machines)</b>	Prevents the door from opening until the vent cycle operation is complete May be an additional accessory for the machine

## Ventilation Systems

Include specifications and proposed locations for ventilation hoods in submitted plans. Design and install ventilation systems according to [Minnesota Rules, chapter 1346](#) ([www.revisor.mn.gov/rules/1346/](http://www.revisor.mn.gov/rules/1346/)), Minnesota mechanical and fuel gas code. [Minnesota Rules, part 1346.0507](#) ([www.revisor.mn.gov/rules/1346.0507/](http://www.revisor.mn.gov/rules/1346.0507/)) provides commercial kitchen hood requirements for some equipment.

Ventilation hood systems and devices must be sufficient in number and capacity to prevent grease or condensation from collecting on walls and ceilings. Adequate ventilation and make-up air is required for equipment that produces excessive steam, condensation, vapors, obnoxious or disagreeable odors, smoke and fumes.

Design ventilation systems to prevent grease or condensation from draining or dripping onto food, equipment, utensils, walls, ceiling, linens and single-service articles. Grease filters used in an exhaust ventilation hood or other grease extracting equipment must be designed to be readily removable for cleaning and/or replacing if not designed to be cleaned in place.

## Counters, Cabinetry and Tables

Include specifications, proposed locations and intended uses for all counters, cabinetry, tables, and customer self-service areas in submitted plans.

## Food-contact surfaces

A food-contact surface is a surface of equipment or utensil that directly contacts food. Food-contact surface also includes a surface of equipment or utensil from which food may drain, drip or splash, such as an interior of a reach-in cooler.

Food-contact surfaces must be certified or classified for sanitation by an American National Standards Institute (ANSI) accredited certification program.

Food-contact surfaces must be:

- Safe
- Durable, corrosion-resistant and nonabsorbent
- Sufficient in weight and thickness to withstand repeated warewashing
- Finished to have smooth, easily cleanable surface
- Resistant to pitting, chipping, crazing, scratching, scoring, distortion, and decomposition

Examples of activities requiring approved food-contact surfaces include:

- Chopping, cutting or mixing raw foods
- Cooking foods using equipment such as grills, deep fryers, flat tops, or ovens
- Assembling foods such as sandwiches or salads
- Storing equipment before and after warewashing
- Other activities creating splash, food soiling or requiring frequent cleaning.

## Non-food-contact surfaces

A non-food contact surface is a surface of equipment that does not directly contact food, such as surfaces of millwork and cabinetry. Non-food-contact surfaces of equipment that are exposed to splash, spillage, other food soiling or that require frequent cleaning must be constructed of a corrosion-resistant, nonabsorbent, and smooth material.

Non-food-contact surfaces must be free of unnecessary ledges, projections, and crevices, and designed and constructed to allow easy cleaning and to facilitate maintenance.

Examples of areas with non-food contact surfaces include:

- Beverage service areas for beverage dispensers such as espresso or coffee machines, or pop dispensers
- Customer self-service areas such as condiment display stations
- Cashier or ordering areas at bar or wait stations

Unfinished wood is not allowed. All surfaces (e.g., cutouts in millwork, underside of countertops and shelving) must be properly finished. Cabinets with enclosed hollow bases are prohibited. Base cabinets must be provided with six-inch legs or a solid base.

## Floors, Walls and Ceilings

Include proposed finish materials for all floor, wall and ceiling surfaces. Provide smooth, nonabsorbent, durable and easily cleanable floors, walls and ceilings in the following areas:

- Food and beverage preparation areas
- Walk-in refrigerators or freezers
- Warewashing areas
- Toilet rooms
- Servicing areas
- Service sink areas
- Dry storage
- Areas subject to flushing or spray cleaning methods

Prior to selecting floor, wall and ceiling surfaces, owners, design professionals, and others involved in preparing the plans should consider the following factors:

- Type and amount of use
- Type of soil and cleaning methods
- Life span of the surface

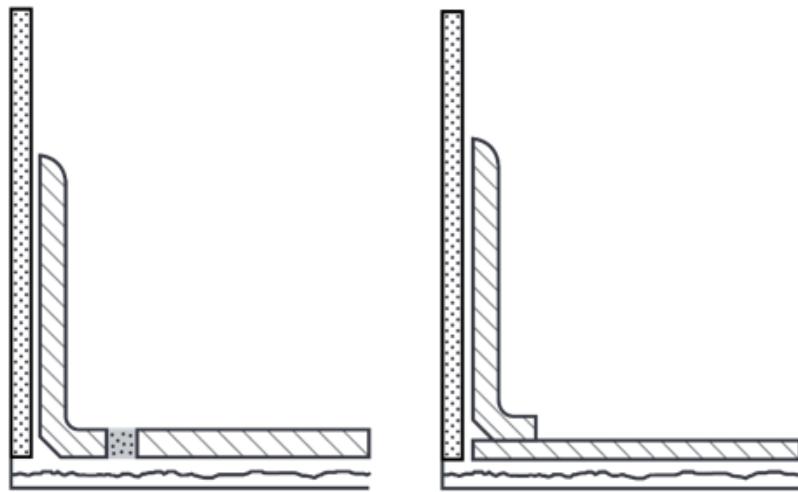
## Floors

Select and install flooring surfaces that meet the needs of your establishment. Follow all manufacturer's recommendations.

Some specific restrictions are:

- Sealed concrete is not allowed except in garbage rooms, or areas used for closed case lot storage.
- Carpeting is not allowed within three feet of permanently installed bars and salad bars and other food service equipment.
- Mats and duckboards must be designed to be removable and easily cleanable.

Install a coved base at all floor-wall junctions. Select and install coved base according to manufacturer's specifications. Figure 1 shows correct and incorrect positioning of coved base tile relative to flooring surface.



*Figure 1: Correct Method (left); Incorrect Method (right)*

## Walls and ceilings

Select and install wall and ceiling surfaces that meet the needs of your establishment. Follow all manufacturer's recommendations.

Some specific restrictions are:

- Unfinished, porous concrete blocks or bricks are not allowed except in dry storage areas.

- Light fixtures, vent covers, fans or other wall and ceiling attachments must be easily cleanable.
- Exposed studs, joists and rafters are not allowed except in areas used only for the storage of unopened packages.

## Non-food Areas

Include proposed locations for non-food areas such as toilet rooms, storage of employee personal items, garbage and recyclables and laundry facilities. Provide non-food areas to meet the needs of your establishment.

### Toilet rooms

If public toilet rooms are not available, provide at least one toilet and handwashing sink for employee use. Refer to [Minnesota Rules, chapter 4714 \(www.revisor.mn.gov/rules/4714/\)](http://www.revisor.mn.gov/rules/4714/), plumbing code, for minimum number of toilets required for your food establishment. Completely enclose the toilet room(s), and provide a tight-fitting and self-closing door.

### Garbage and recyclables

Provide an area separate from food preparation and storage areas for collection and storage of garbage and recyclable materials.

Use concrete, asphalt, or other nonabsorbent material for outdoor garbage and recyclable material storage areas. The pad must be smooth, durable and graded to drain.

### Personal items

Lockers or other suitable facilities must be used for the orderly storage of employee clothing and other possessions.

### Laundry facilities

If laundry facilities are provided on-site, locate the washer and dryer to prevent contamination of food, clean equipment, utensils, linens, or unwrapped single-service or single-use articles.

## Utilities

Include specific information for water supply, water heaters, sewage disposal system, and other utilities in submitted plans. Provide utilities to meet the needs of your food establishment.

Enclose utility service lines and pipes, including beverage lines. Install utilities so they do not obstruct or prevent cleaning of the floors, walls and ceilings.

### Water supply

Identify the source of the water for your establishment in submitted plans.

A safe and adequate supply of water must be provided to meet the needs of your food establishment. Water for your establishment must be obtained from a municipal water supply or a water supply that meets the requirements of Minnesota Rules, chapter 4720 ([www.revisor.mn.gov/rules/4720/](http://www.revisor.mn.gov/rules/4720/)), Public Water Supplies; and chapter 4725 ([www.revisor.mn.gov/rules/4725/](http://www.revisor.mn.gov/rules/4725/)), Wells and Borings.

A representative from the Minnesota Department of Health may conduct an onsite evaluation of your water supply prior to licensing your establishment.

## Water heaters

Include specifications and proposed locations for water heaters in submitted plans. Select and install water heaters (traditional and tankless) that are adequately sized to meet the peak hot water demands of the food establishment.

## Sewage disposal

Identify the method of sewage disposal (public or private) for your food establishment in submitted plans. Provide a sewage disposal system that meets the peak sewage needs of your food establishment.

Septic systems must be designed, installed and maintained according to Minnesota Rules, chapter 7080 ([www.revisor.mn.gov/rules/7080/](http://www.revisor.mn.gov/rules/7080/)), individual subsurface sewage treatment systems (SSTS) and Minnesota Rules, chapter 7081 ([www.revisor.mn.gov/rules/7081/](http://www.revisor.mn.gov/rules/7081/)), midsized subsurface sewage treatment systems.

Individual and midsized SSTS requirements are adopted and enforced locally. A copy of the individual sewage treatment system certificate of compliance for individual sewage disposal systems must be provided with plans. For assistance, contact your local unit of government (county, city, or township).

## Lighting

Provide adequate lighting to meet the needs of your establishment. Use either shatter-resistant bulbs or shielded light fixtures.

Light intensity is measured 30 inches above the floor. Requirements vary depending on food activities:

- 10 foot-candles – walk-in coolers, walk-in freezers or dry storage areas
- 20 foot-candles – consumer self-service areas, inside reach-in and under-counter refrigerators, toilet rooms or areas used for handwashing, warewashing, and equipment and utensil storage
- 50 foot-candles – food preparation areas or where employee safety is a factor