



Food Establishment Plan Review Supplement

Alaska Department of Environmental Conservation
Division of Environmental Health
Food Safety and Sanitation Program



If you are proposing to build a new food establishment or extensive remodeling of an existing food establishment in Alaska (except in the Municipality of Anchorage) you must submit:

- Food Establishment **Application**
- Fees
- Food Establishment **Plan Review Supplement**

Submit your Food Establishment **Application**, Applicable Fees, and Food Establishment **Plan Review Supplement** to your local Alaska Department of Environmental Conservation office at least 30 days prior to construction.

- Keep a copy of the Food Establishment **Application** and Food Establishment **Plan Review Supplement** for your records.

NOTICE:

Failure to provide all the required information will delay the plan review process and permit issuance.

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Food Establishment Plan Review Process

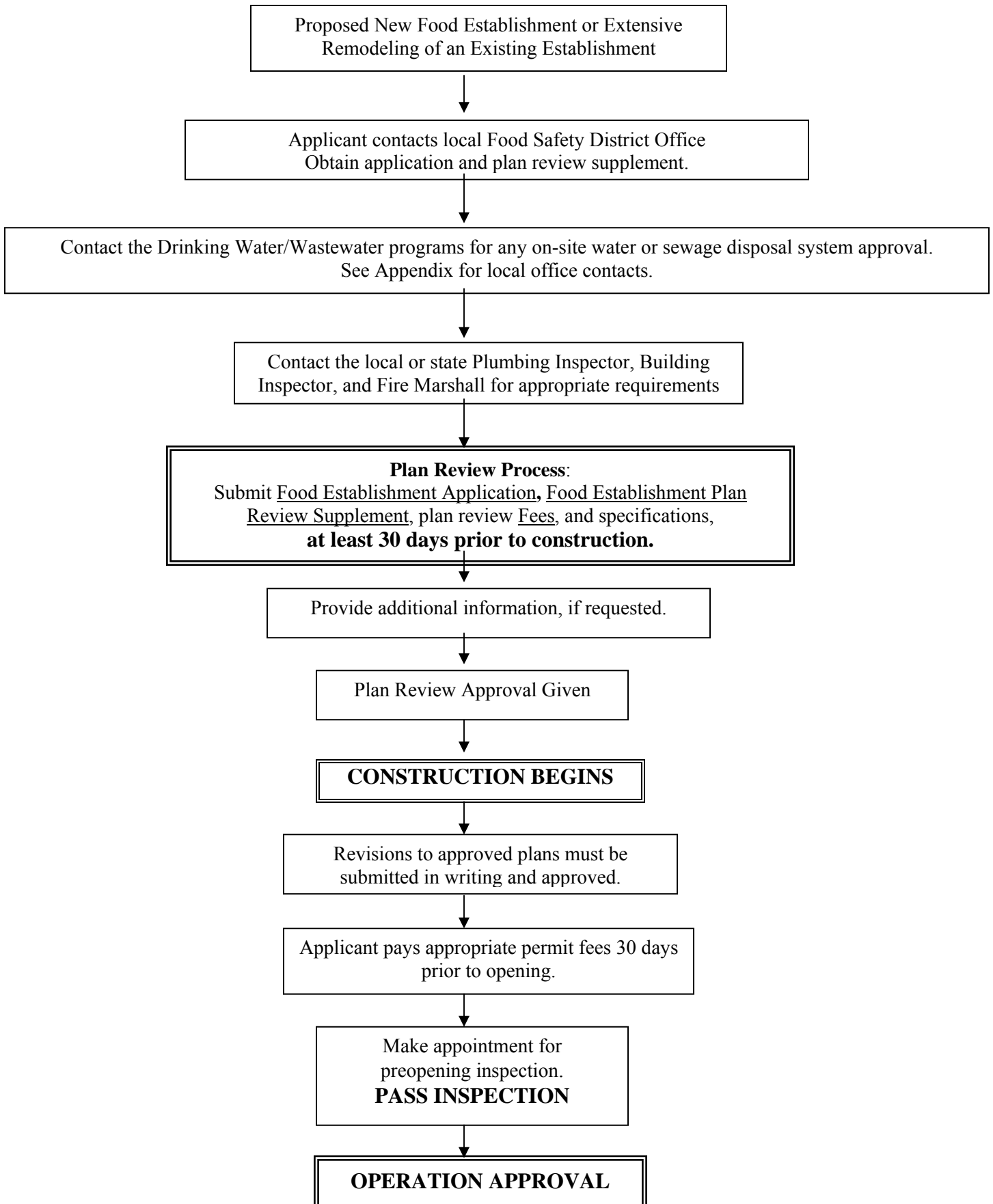


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Establishment Name: _____ Date: _____
Plan Review contact name: _____
Plan Review contact phone number and address: _____

DIRECTIONS FOR FILLING OUT THE PLAN REVIEW SUPPLEMENT

- Use form as a checklist to ensure your compliance with applicable requirements.
- Check all boxes that apply to your facility.
- **Attach** supporting documents when applicable.
- Use appendix for references, examples, and forms.
- For definitions of terminology used in this supplement refer to the definitions section of the Alaska Food Code.

PLOT PLAN (Site Plan)
(See example, Appendix page 1)

Attach a plot plan of the entire premises showing location of:

- All buildings
- Refuse storage site
- Potable water supply
- Sewage disposal system
- Access for deliveries
- Outside walk-in cooler(s)/freezer(s)
- Outside storage areas
- Oil/Fuel tanks
- Identify nearby roads, streets, other landmarks and/or give GPS coordinates

FACILITY FLOOR PLAN

Attach floor plan

A floor plan is a measured drawing that is an exact miniature representation of your establishment as seen from an overhead view. These plans can be drawn by either the owner/operator or a professional. However, the plans must be legible and to scale, which means that everything must be in the correct proportions.

How to draw a floor plan (See example, Appendix Page 2)

- If your establishment does not yet exist or if you have not decided upon the exact equipment, your measurements will be estimates.
- For facility in an existing building, begin by measuring, with a tape measure, the length and width of your establishment as well as the lengths and widths of all interior rooms including kitchens, dining rooms, bars, store rooms, walk-in coolers, etc.
- Next measure the length and width of all sinks, tables, worktables, counter tops, and other equipment throughout the establishment.
- Write down all your measurements for future reference.
- Draw the plan on graph or quad paper that is at least 8.5" x 11" with a minimum scale of ¼ inch=1 foot. Draw all interior rooms, walls, hallways and doorways according to your measurements.
- Add all the equipment, sinks, and tables, etc., positioned accurately on the plan.

- Identify each piece of equipment with a number. (This includes all sinks.)
- Create a list identifying each number to the item depicted. (See page 7)

EQUIPMENT SPECIFICATIONS

Note: For plumbing requirements, including indirect plumbing connections and hot and cold water requirements, see Plumbing section page 10.

DISHWASHING

- Required three-compartment sink with attached, self-draining drainboards with hot and cold water under pressure to all three sinks is provided. Complete the following chart or **attach** a copy of the manufacturer's specification.

3-compartment sink	Length (inches)	Width (inches)	Depth (inches)
Drain board, soiled			n/a
Wash sink			
Clear rinse sink			
Sanitize sink			
Drain board, clean			n/a

- Sink compartments are adequate for the complete immersion of most equipment and utensils.
- All sinks are self-draining. (Sink compartments drain completely, no pooling water.)
- Dishwashing machine (if provided)
- Heat sanitize rinse **OR** Chemical sanitize rinse
- Temperature gauges provided
 Pressure Gauge provided
 Manufacturer's Specifications attached
 Self-draining drainboards provided on both sides of the machine
 Drainboard (soiled) size _____
 Drainboard (clean) size _____
- Template placard with operating specifications on dishwashing machine
 Test kits/strips for verifying chemical or heat sanitizing rinse available.
- The operator of a bar or tavern shall ensure that a 4th sink compartment, or separate handwash sink, is installed for dumping drinks and handwashing.

HAND WASH SINKS

(Except for specific food operations listed in 18AAC31.525 (b))

- At least one hand wash sink is provided in each food preparation area to be used exclusively for hand washing.
- Hand washing sink will not create splashing on other food contact surfaces.
- Splash guard provided (material & size)
-
- Hand wash sink is accessible to mechanical ware washing equipment.
- Hot and cold running water under pressure that can be tempered to a temperature of 100-120°F by a mixing valve or combination faucet is provided.
- Soap provided.
- Individually dispensed paper towels are provided.
- All sinks are self-draining.
- Trash receptacle provided.

- Sign posted directing employees to wash hands.

UTILITY SINK

- At least one utility sink or curbed cleaning unit with a floor drain is provided.
- Utility or curbed cleaning unit is not located in a preparation, processing, ware washing area or any other location that could cause it to be a source of contamination to food, clean utensils, single serve items, or equipment.
- All sinks are self-draining.

FOOD PREPARATION SINK

- A food preparation sink is provided for the frequent soaking, rinsing, culling or cleaning of raw ingredients or produce.
- All sinks are self-draining.

DISPLAY & SERVICE

- Food is protected from consumer contamination during display.
 - By wrapping
 - Use of a display case (**attach** a copy of design specifications)
 - Use of a sneeze guard or shield (**attach** copy of design specifications)
- Cold holding and/or hot holding equipment (**attach** copy of design specifications)

EQUIPMENT DESIGN & LOCATION

- Equipment, including ice makers and ice storage equipment, is not located under exposed sewer lines, non-potable water lines, stair wells, or other potential sources of contamination.
- Submit installation specifications. Indicate the page in the plans with the equipment schedule or use the chart on the following page.

EQUIPMENT DESIGN AND LOCATION

Submit installation specifications. Indicate the page in the plans with the equipment schedule or use the following chart. Make additional pages if necessary. If a schedule in the plans is used, it must include whether equipment is new or used, whether it has plumbing, and the installation methods as shown below.

Please see Equipment Schedule located on page _____ of plans.

Equipment Installation List					Installation Methods							
					At Floor			At Wall		Adjacent Equipment		Portable
Equipment	Make & Model	ID # or code on plans	Equipment Material	New (N) or Used (U)	Plumbing Required? Yes	Masonry Island	Elevated Legs	Casters	Attached	Separation (inches)	Attached	
Example: 3-compartment sink	Sinko #369	#42	Stainless Steel	U	Yes		Yes		X			

Food Establishment Plan Review Supplement

Equipment Installation List					Installation Methods								
					At Floor			At Wall		Adjacent Equipment			
Equipment	Make & Model	ID # or code on plans	Equipment Material	New (N) or Used (U)	Plumbing Required? Yes	Masonry Island	Elevated Legs	Casters	Attached	Separation (Inches)	Attached	Separation (Inches)	Portable

SANITATION AND PHYSICAL FACILITIES

WATER SUPPLY

It is your responsibility to contact your local Alaska Department of Environmental Conservation Drinking Water program for approvals of on-site water system. See Appendix for local contact information.

Water is from a public water system that is constructed and operated as required by 18AAC80. Have engineer plans been submitted to the department as required?

Yes

No OR N/A (Public Water System)

Specify system name and/or

Public Water System Number: _____

Potable water that is not piped to the food establishment, (haul and hold system) is transported, delivered, and stored as required by 18AAC80. Specify source _____

Steam used in contact with food and food-contact surfaces is free from harmful substances and is from an approved source.

Mobile Food Units or Kiosks

Specify water supply source _____

Potable water tanks, plumbing, and hoses that come in contact with potable water consist of materials approved for that use by the National Sanitation Foundation (NSF), Federal Drug Administration (FDA), or an organization recognized as equivalent by the department.

Attach manufacturer's specifications for tanks and hoses.

Potable water inlet of a mobile unit is capped and cannot be contaminated by waste discharge, road dust, oil, or grease.

Potable water inlet of a mobile unit is three-fourths inch diameter or less.

Potable water tanks supply a sufficient supply of water between refilling and hold at least one day's supply. Size of proposed tank _____.

- Rule of thumb is a minimum of 30 gallons per day for units with limited utensils or 5 gallons per day for units with handwash only. (Reports back to commissary daily.)
- For units washing dishes more than twice per day, use the calculation below to determine additional water capacity.

<p>Calculate the Volume for each Sink Compartment Volume = Length x Width x Depth</p>	<p>Example 21" x 18" x 14"= 5292 cubic inches</p>
<p>Divide Cubic Inches by 231 cubic inches per gallon Cubic inches ÷ 231 cubic inches/gallon</p>	<p>5292 ÷ 231= 22.9 gallons</p>
<p>Multiply x Number of Sink Compartments</p>	<p>22.9 x 3 sink compartments = 68.7 gallons to fill this 3 compartment sink once</p>

Show calculations below:

WASTEWATER

It is your responsibility to contact the Alaska Department of Environmental Conservation Wastewater program for approvals of on-site wastewater systems. See Appendix for local contact information.

- Wastewater from the establishment is discharged into a public sewer or a wastewater disposal system built and operated if required by 18AAC 72. Have plans been submitted to the department as required?
 Yes No OR N/A (Public Wastewater System)
Specify System Name: _____

Mobile Food Units or Kiosk

- Wastewater is stored in permanently installed tank with a volume at least 15% larger than that of the water supply tank.
 Size of proposed tank _____
 Specify where wastewater is disposed: _____
 The wastewater discharge connection is lower than the potable water inlet connection.

PLUMBING

It is your responsibility to contact the City or State Plumbing Departments to ensure that plumbing is sized, installed, and maintained as required.

- Cross-connections between potable water and non-potable water supplies, chemical feed lines, or similar devices are prohibited. Please complete the Plumbing Cross-Connection Form, page 11.
- Fixtures or equipment in which food or drink is stored, prepared or served are indirectly connected to a drainage system.
- Non-potable water systems are used only for fire-protection, air-conditioning, heating, or flushing toilets. Pipes carrying non-potable water must be clearly labeled.
- Hot and cold running water under pressure provided to all plumbing fixtures with faucets, including hand wash, ware-washing, preparation, processing, and janitorial sinks.
- A floor drain is provided adjacent to the ware washing machine. Machine must be connected on the sewer side of the floor drain trap, provided that no other drainage line is connected between the floor drain waste connection and the fixture drain. The ware washing machine and floor drain must be trapped and vented properly.
- Grease traps, if used, must be accessible for cleaning.
- Equipment drain lines cannot discharge wastewater directly on the floor.
- Plumbing schematic:** Attach a plumbing schematic that depicts hot and cold lines and wastewater lines

PLUMBING CROSS-CONNECTIONS

The following technical information is needed on the proposed plumbing. This section is best completed by a qualified plumber, architect or engineer. Be sure to include all devices, equipment and fixtures that have cross-connection protection. Remember to complete both the water supply and waste side (i.e. a dishwasher may have an Atmospheric Vacuum Breaker on the water supply and an air-gapped drain.)

Fixture	Designation # on Plans	Sewage Disposal			Water Supply		
		Air Gap	Air Break	Direct Connect	Device*	Air	Gap
Dishwasher							
Glasswasher							
Garbage grinder							
Ice machines							
Ice storage bin							
Mop/utility sink							
3-compartment sink							
Food Prep sink							
Handwash sink							
Steam tables							
Dipper wells							
Threaded hose connections							
Refrigeration condensate drain lines							
Beverage dispenser with carbonator							
Water softener							
Walk-in floor drain							
Chinese range							
Detergent feeder on faucet							
Outside sprinkler or irrigation system							
Power washer							
Retractable hose reel							
Toilet							
Urinal							
Boiler							
Bain-marie							
Espresso machine							
Kettle							
Steamer							
Overhead spray rinse							
Hot water dispenser							
Other							

*Indicate under water supply device, use these abbreviations for completing this section

AVB=atmospheric vacuum breaker

HB=hose bib vacuum breaker

PVB=pressure vacuum breaker

VDC=vented double check valve

RPZ=reduced pressure principle backflow preventer

SIZING WATER HEATERS

An adequate supply of hot water for washing hands, utensils, equipment, and for cleaning the facility is required. A properly sized water heater will ensure that a sufficient amount of hot water will be available at all times.

- **Instantaneous water heaters** must be sized to provide hot water of at least 110°F at a rate of at least 2 Gallons Per Minute (GPM) to each non-hand wash sink and fixture that uses hot water. Hand wash sinks need at least ½ GPM each.
- (Note: Most instantaneous hot water heaters only provide 2-3 gallons/minute).
- The hourly hot water demand for a food establishment in Gallons Per Hour (GPH) is calculated by adding together the estimated hot water demands for all sinks and other equipment that use hot water. Please use the Hot Water Heater Calculation Worksheet (Page 14) to help determine what size hot water heater you will need.

- **Gas water heaters**

$$\text{Thermal BTU input} = \frac{\text{GPH} \times \text{Temperature rise}^* \times 8.33 \text{ lb/gallon of water}}{\text{Efficiency}^{**} (.75)}$$

- **Electric water heaters**

$$\text{KW input} = \frac{\text{GPH} \times \text{Temperature rise}^* \times 8.33 \text{ lb/gallon of water}}{\text{Thermal Efficiency}^{***} (.98) \times 3412 \text{ BTU/KW}}$$

* **Temperature Rise:** the average temperature of tap water varies throughout the state depending upon the location, elevation, and time of year. For purposes of these guidelines a tap water temperature of 35°F will be used. Therefore, to achieve a temperature of 110°F, the required rise would be 75°F.

** **Thermal Efficiency (Gas):** The thermal efficiency for gas water heaters will be assumed to be 75%, unless otherwise listed by NSF International or other nationally recognized testing laboratories.

*** **Thermal Efficiency (Electric):** The thermal efficiency for electric water heaters will be assumed to be 98%, unless otherwise listed by NSF International or other nationally recognized testing laboratories.

SAMPLE PROBLEM FOR SIZING WATER HEATERS

An operator proposes to open a new foodservice establishment with a full service menu using multi-service utensils. There will be a three-compartment sink, 3 hand wash sinks (2 in restrooms and 1 in preparation area), and a mop sink.

- Using the Hot Water Heater Calculation Worksheet, the total gallon per hour comes to 85. (60 for one three compartment sink, 5 x 3 = 15 for the hand wash sink, and 10 for one utility sink).

- **For a gas water heater:**

$$\text{BTU input} = \frac{85 \text{ GPH} \times 75^\circ\text{F} \times 8.33 \text{ lb/gallon of water}}{.75 \text{ Thermal Efficiency}} = \frac{53103.75}{.75} = 70805.0$$

- **For electric water heaters:**

$$\text{KW input} = \frac{85 \text{ GPH} \times 75^\circ\text{F} \times 8.33 \text{ lb/gallon of water}}{.98 \text{ Thermal Efficiency} \times 3412 \text{ BTU / KW}} = \frac{53103.75}{3343.7} = 15.88$$

- **Instantaneous water heaters** must be sized to provide hot water of at least 110°F at a rate of at least 2 Gallons Per Minute (GPM) to each non-hand wash sink and fixture that uses hot water. Hand wash sinks need at least ½ GPM each.

	1 three compartment sink	2.0 GPM	
	3 hand wash sinks	1.5 GPM	
1	mop-sink	2.0	<u> </u> GPM
			5.5 GPM

Use table on page 14 to calculate your gallons per hour hot water needs.

Show calculations below for determining size of water heater:

HOT WATER HEATER CALCULATION WORKSHEET

EQUIPMENT	QUANTITY OF EQUIPMENT	TIMES	GALLONS PER HOUR (GPH)		EQUALS GPH
			HIGH*	LOW**	
Vegetable Prep Sink		X	5	5	
Three Compartment Sink		X	60	45	
Pre-Rinse Spray Hose Sink		X	30	30	
Commercial Dish wash Machine		X	Varies with Unit***		
Bar Three Compartment Sink		X	20		
Chemical Sanitizing Glass Washer		X	60		
Hand Sink-Kitchen & Restroom		X	5	5	
Bain Marie		X	10	10	
Mop Sink		X	10	10	
Garbage Can Wash Station		X	30	30	
Clothes Washer		X	45	45	
Employee Shower		X	20	20	
				TOTAL	

* High-to be used when multi-use eating utensils are used.
 * * Low-to be used when single service eating utensils are used.
 *** Refer to manufacturer's specifications for gallons per cycle times cycles per hour

TOILET FACILITIES

- Toilet facilities provided (If seating for patrons is provided, then separate facilities are needed for each sex.)
 - Location and fixtures for each toilet room indicated on floor plan.
- Restrooms are mechanically vented to the outside.
- Self-closing device installed on restroom door.
- Hand cleanser available at all handwashing sinks.
- Hand drying facilities (dispense paper towels or hand-drying device that provides heated air) are available at all sinks.
- Handwashing signs provided at all handwash sinks used by employees.
- Hot and cold running water under pressure is available at each handwash sink. Hot water is tempered at 100-120° F by combination faucet or mixing valve.
 - Self-closing metering faucets, if provided, have a flow of water for at least 10 seconds.
- Easily cleanable waste containers are provided;
 - In a toilet room used by females, a covered waste container is provided.
- Toilet tissue in a wall-hung or protected container is provided at each toilet.
- Entrances to toilet rooms are located so that access by the public does not require passing through a food preparation, handling or storage area.

GARBAGE AND REFUSE

It is your responsibility to contact the Alaska Department of Environmental Conservation (ADEC) Solid Waste Program for approvals of on-site solid waste (garbage/refuse) disposal.

- Will you have on-site garbage/refuse disposal?
 - Yes
 - No
 - N/A
- Will you burn garbage or trash on the premises? **(Contact the local ADEC Air Quality Program.)**
 - Yes
 - No
- Containers used to store garbage outside the food establishment must be easily cleanable, have tight-fitting lids, doors, or covers, and must be kept reasonably clean. What type of garbage and refuse storage will be used on the premises?
 - Compactor
 - Dumpster
 - Cans
 - Other _____
- Garbage removal service used, if applicable:
Specify _____

- Rooms used to store garbage must be made of easily cleanable, nonabsorbent, washable, insect-proof, and rodent-proof materials. Will garbage be stored inside the food establishment facility?
 - Yes
 - No

INSECT AND RODENT CONTROL

- Outside doors are self-closing and rodent proof. (Tight fitting doors)
- Describe method provided on all entrances left open to the outside for exclusion of insects (ie: self-closing door, etc.) _____
- Openable windows have a minimum #16 mesh screening.
- All pipes & electrical conduit chases be sealed; ventilation systems exhaust and intakes protected.
- Area around building clear of unnecessary brush, litter, boxes and other harborage.
- For a facility with a drive-thru or walk-up window, describe how insects will be kept out:

LIGHTING

- Permanently installed artificial light sources are provided.
 - At least 50 foot candles of light, evenly distributed on preparation, processing and warewashing surfaces
 - At least 20 foot candles of light, evenly distributed in other areas, dining areas must meet this standard only during cleaning activities
- Lighting schematic – **Attach** a separate floor plan with size and location of fixtures.
- Protective shielding provided.
 - a. over equipment used to hold or display food;
 - b. in walk-in refrigerators or freezers
 - c. over any area where food or food-contact surfaces are exposed such as preparation, service, and display areas.

Light Fixtures	Location	Type of Shielding
Example: Incandescent Bulb	Example: Walk-in Cooler	Example: Shatterproof cover with metal protective shield

VENTILATION

It is your responsibility to contact the local or state Fire Marshall and/or the local Building Dept. or Mechanical Inspectors.

- Fire prevention or extinguishing equipment installed in a hood does not obstruct cleaning or cause grease to collect.
- Equipment that produces excessive heat, steam, condensation, vapors, noxious odor, smoke or fumes is adequately vented to outside air through a hood and filter system.
- Ventilation system prevents grease and other filth from collecting on walls and ceilings or from draining or dripping on food or food contact surfaces.
- Indicate type of ventilation provided in the following areas:
Attach ventilation systems specification sheets.
 - Grills _____
 - Deep fryers _____
 - Ranges _____
- Automated deep frying system with a ventless, hoodless design, if used, is approved by Underwriters Laboratories (UL) and National Sanitation Foundation (NSF).

- Commercial cooking equipment that produces grease-laden vapors is vented through a hood and grease collection system designed and installed in accordance with the International Mechanical Code, 2003 edition, chapter 5, sections 506-509, adopted by reference in 18 AAC31.011.

DRESSING ROOMS AND LOCKER ROOMS

- Describe the means to provide orderly storage of employee clothing, outer garments and other belongings.

- Location indicated on floor plan.

POISONOUS OR TOXIC MATERIALS

Describe location and means to store poisonous or toxic materials.

- Cleaning compounds _____
- Sanitizing compounds _____
- Pesticides and pesticide containers _____
- Medication and first aid supplies _____

PREMISES

- The location of laundry facilities if provided are indicated on floor plan.
- Indicate on plans the laundry facilities located on site.
- If on-site laundry is not provided, describe means for washing uniforms, cleaning cloths and aprons.

- Describe means for storing clean clothing, linens and wiping cloths.

- Describe means for storing soiled clothing, linens and wiping cloths.

- If applicable, describe how the establishment is separated from any living or sleeping quarters.

INTERIOR FINISHES

Submit room finish specifications. Indicate the page in the plans with the schedule or use the following chart. Make additional pages if necessary.

- Room Finish Schedule located on page _____ of the floor plans.
- Page 18 of Supplement completed.

ROOM FINISH SCHEDULE:

Area Name/ Designated number as shown on floor plans	Floors			Walls	Ceilings	
	Material	Finish	Base			
Example: Cook Line	Room #	Example: Quarry tile	Example: Smooth, sealed	Example: 6" quarry tile	Example: FRP smooth	Example: Vinyl acoustical tile
Food Preparation area						
Food Storage						
Toilet Rooms						
Dressing Rooms						
Garbage & Refuse Storage						
Mop Service Basin Area						
Warewashing						
Walk-in Refrigerators						
Walk-in Freezers						
Food Display						
Dining Area						
Waitress Station						
Beverage Dispensary or Bar Area						

FOOD PROTECTION

- Display shelving and equipment allows food to be stored at least 6 inches above the floor or:
- Food in cases, or large containers of packaged foods, such as flour and sugar, are stored on dollies, skids, or open-ended pallets if that equipment is easily moveable by hand or with the use of pallet-moving equipment that is available on the premises at all times.

Food, food ingredients, utensils, equipment and packaging materials are **not** stored:

- In a toilet room
- Under exposed sewer line
- Under a refrigerator condenser prone to leaking
- Under a waterline prone to leaking

CALCULATING REFRIGERATED STORAGE

- To plan refrigeration storage these items need to be taken into consideration:
Days between deliveries

Meals per day _____

Typical volume per meal- 0.037 to 0.85 cubic feet average for typical meal
 Taken from the estimated typical meal volumes for:

Meat, Poultry & Seafood	=.010-.030 Cu. ft. per meal
Dairy	=.007-.015 Cu. ft. per meal
Vegetables & fruits	=.020-0.40 Cu ft. per meal

At a minimum a food service should consider having enough space to handle the supplies needed over a weekend (i.e. three days). Also to determine the volume per meal value, take into consideration how many and what items a typical meal on the menu takes. A meal of a soup and sandwich would be less than a meal that consists of appetizers, salad, soup, main course with vegetable and potato and dessert.

The following is a suggested formula to establish required reserve refrigeration storage:

<p>Cubic Feet Storage=</p> <p><u>Volume per meal X number of meals X Days between deliveries</u> .40 Usable space in refrigeration unit</p> <p>Number of meals =This is the number of meals served per day Days between deliveries= This is the days between deliveries Useable space in refrigeration unit = .40 Only 40% of refrigeration space such as a walk-in provides usable space</p>	<p>EXAMPLE:</p> <p>Volume per meal = .085 The menu consists of dinner meals with appetizers, salad or soup, main course and potato. Therefore the higher value of 0.85 is being used. Number of meals = 300 Days between deliveries= 7 Useable space in refrigeration unit = .40</p> <p><u>.085 x 300 x 7</u> <u>178.5</u> .40 = .40 = 446.25 Cubic Ft.</p>
<p>To calculate the interior space (in square feet) required divide the volume (Cu. Ft.) by the height of the unit.</p> <p><u>Cubic Ft.</u> Height of Unit = Interior Storage Space (sq. ft.)</p>	<p><u>446.25</u> 7 ft. = 63.75 Square feet</p>
<p>Then multiply by 1.25 to convert the interior space to exterior floor area</p> <p>Square Feet needed x 1.25 = Exterior floor areas in square feet needed.</p>	<p>63.75 x 1.25=79.69 sq. ft. of exterior floor area needed</p>

List below the number and cubic feet of refrigeration space provided at your facility. Use the total height divided by the number of units to equal the average height which can be used in the above calculation to determine amount of refrigerated storage is needed:

Unit	Number	Total Cu Ft	Height
Reach In/Cabinet refrigeration units			
Homestyle Refrigerators			
Walkin Refrigeration unit			
Freezers Walkins			
Homestyle Freezers			
Totals			Total height /#units= average height

Show your calculations below for determining the amount of refrigeration storage needed:

Indicate here the amount of refrigeration space provided in your facility:

CALCULATING DRY STORAGE:

There are two suggested formulas shown below. Volume per meal is estimated at 0.025 to 0.050 cubic feet per meal. Consideration in determining which value to use would depend on whether single service utensils (i.e. paper plates, cups, and tableware) are used. Also to take into consideration for caterers is storage area for the portable catering equipment used.

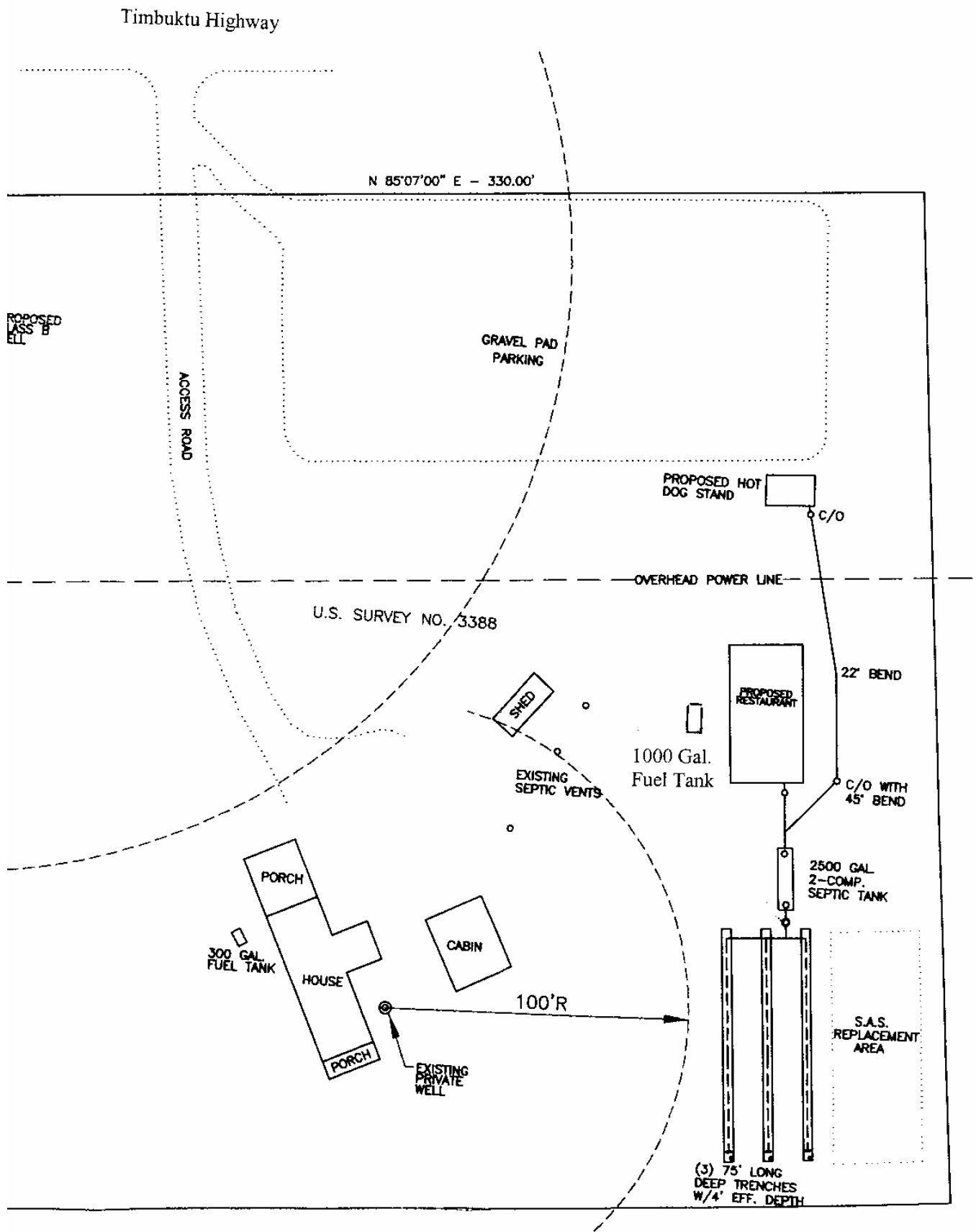
<p>Formula #1-Linear feet of shelving for storage (feet)=</p> <p><u>Volume per meal x number of meals x days between deliveries</u></p> <p style="text-align: center;">DxHxC</p> <p>D=Depth of shelves in feet H=Height of clearance between shelves in feet (usually this will be at least 1 to 1.5 feet (12" to 18") C=80% effective capacity of shelf height</p>	<p>EXAMPLE:</p> <p>Volume per meal = 0.050 (Because the example facility is take out and has a good supply of single service items the higher value will be used.)</p> <p>Meals per day = 300 Days between deliveries =7</p> <p>D=1.5 or 18 inch shelves H=1.5 C=80%</p> <p>$\frac{0.050 \times 300 \times 7}{1.5 \times 1.5 \times 80\%} = \frac{105}{1.8} = 58.33$ linear feet of shelving</p>
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<p>Formula # 2- Required Storage Area (sq. ft.) =</p> <p><u>Volume per meal x number of meals x days between deliveries</u> Average height x fraction of usable storeroom area</p> <p>Average height usually ranges from 4 to 7 feet depending on height of shelving or if products are stored on pallets. Lower range would be used for those items that would be on pallets.</p> <p>Fraction of useable storeroom floor area = .3 to .6 Things that must be taken into consideration here is how wide it is will be between shelves, how far away from the wall shelves are located, etc.</p>	<p>EXAMPLE:</p> <p>Volume per meal = 0.050 (Because the facility is take out and has a good supply of single service items the higher value will be used.)</p> <p>Meals per day = 300 Days between deliveries = 7 Average Height = 7 feet Fraction of useable storeroom floor area = .4</p> <p>$\frac{.050 \times 300 \times 7}{7 \times .4} = \frac{105}{2.8} = 37.5$ sq. ft of storage required</p>
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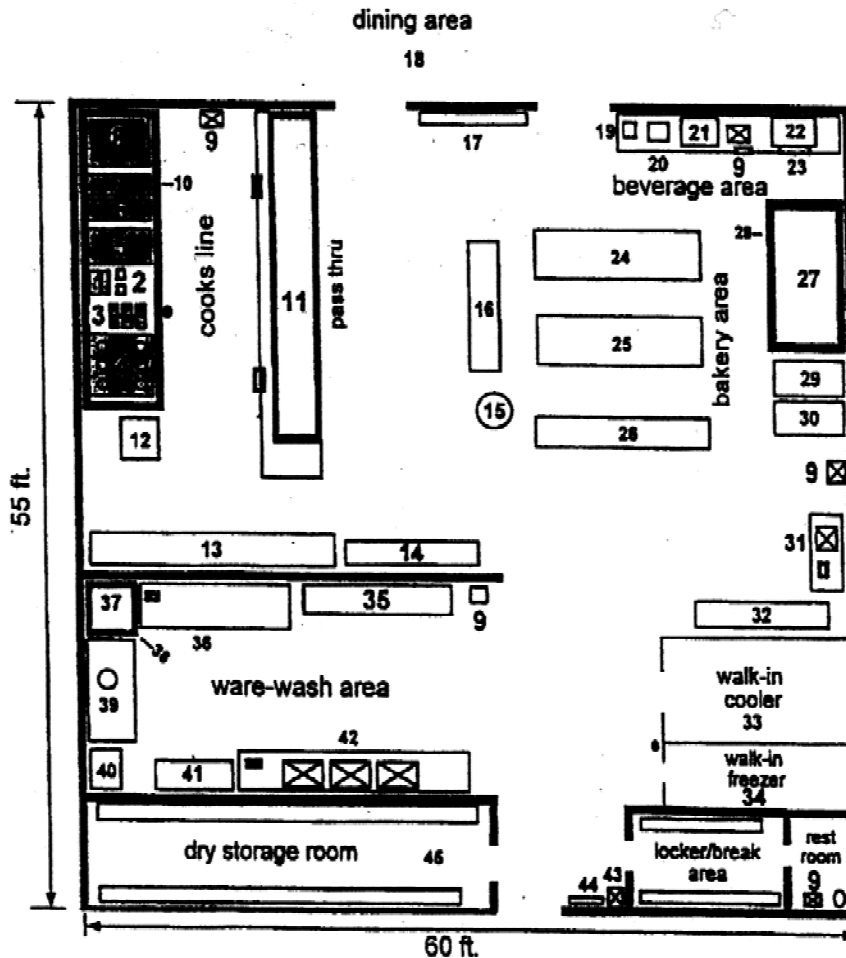
Show your calculations below for determining the amount of dry storage needed:

Indicate here the square feet of storage provided in your facility:

EXAMPLE PLOT PLAN



EXAMPLE FACILITY FLOOR PLAN



Equipment (make and model #)

- | | | |
|--|--|---|
| 1. Cheese Melter (ABC #123) | 16. Shelving Unit | 32. Stainless prep table |
| 2. Microwave (XYZ #34) | 17. Bread Shelving Racks | 33. Walk-in cooler (COLD #AZ1) |
| 3. Steamtable (HOT #A1) | 18. Dining Area | 34. Walk-in freezer (COLD #AZ3) |
| 4. Stove (AOK #22) | 19. Coffee maker (ABC #16) | 35. Drying Shelf |
| 5. Griddle (AOK #Q17) | 20. Tea Maker (ABC #87) | 36. Clean drainboard |
| 6. Fryer (ABC #55) | 21. Soda Machine (PDQ #2A) | 37. Dishmachine (Magic #15) |
| 7. Fryer (ABC #55) | 22. Espresso Machine (ABC #5) | 38. Hood, type II (Ezair #17) |
| 8. Charbroiler (HOT #A7) | 23. Undercounter Refrigeration Unit (COLD #A3) | 39. Dirty drainboard w/ sprayhose, & garbage disposal |
| 9. Handsink | 24. Bakers Table | 40. Dirty dish rack |
| 10. Hood, type I (Ezair #99) | 25. Bakers Table | 41. Drying shelf |
| 11. Refrigerator/freezer Maketable unit with pass thru and shelf. (Cold #10) | 26. Shelving Unit | 42. 3-comp. sink w/ 36" drainboards |
| 12. Stainless Steel Table | 27. Bake Oven (JAM #33) | 43. Mop sink |
| 13. Sliding 3 door Refrigeration unit (Cold #12) | 28. Hood, type II (Ezair #35) | 44. Chemical storage shelf |
| 14. Shelving unit | 29. Proof Cabinet (ABC #T2) | 45. Shelving |
| 15. Mixer (XYZ #q23) | 30. Proof Cabinet (ABC #T2) | <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> Floor Sink </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="width: 10px; height: 10px; border: 1px solid black; border-radius: 50%; margin-right: 5px;"></div> Floor Drain </div> |
| | 31. Vegetable Prepsink & 18" drainboard | |

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WASTEWATER PROGRAM

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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