



PUEBLO CITY-COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
101 W. 9TH STREET
PUEBLO, CO 81003
(719) 583-4323 fax: (719) 583-4322
www.pueblohealthdept.org

Retail Food Establishment Plan Review Application

I. INSTRUCTIONS

A. Fill out this form completely and accurately.

- Lack of complete information may delay the review and plan approval.
- Please be prepared with all necessary paperwork when scheduling a plan review appointment.
- Any changes from approved plans must be submitted in writing and approved by the Pueblo City-County Health Department.
- As stated in the Colorado Retail Food Rules & Regulations a minimum of **two (2) weeks** shall be necessary for review of both detailed plans and specifications of a proposed newly constructed retail food establishment and/or any proposed remodeled establishment.
- Plans will not be reviewed until all items are submitted, which includes application, completed plan review packet and fee.

B. Please call Environmental Health Division at 719-583-4323 with any questions or to schedule an appointment.

C. Pay the following plan review fees:

- A non-refundable plan review application fee of \$100 is due when application is submitted.
- Plan reviews, pre-opening inspections and related activities are billed at \$35/hour.

The Retail Food Establishment Plan Review Application is valid for a period of one (1) year from the date of plan review.

PLAN REVIEW CHECKLIST

Please refer to *Section 11-4 Review of Plans in the Colorado Retail Food Rules & Regulations* available online at <http://www.cdphe.state.co.us/regulations/consumer/101002RetailFood.pdf>

- Plan Review Specification Form
- Worksheet for Calculating Minimum Hot Water Requirements
- Proposed menu, including a list of foods that will require cooling after cooking and the method that will be used to cool these foods
- Blueprint plans, drawn to scale (see Floor Plan Requirements)
- Site plan showing the location of the business in the building, location of the building on-site, including alleys, streets and the location of any outside facility (trash dumpsters, walk-in refrigeration units, grease interceptors, etc.)
- Specification sheets of all equipment, including make and model numbers, and equipment installation guide
- Shop drawings of all custom fabricated equipment and cabinetry, drawn to scale
- Water supply and waste water systems
- New facilities must submit 2 sets of plans to the Pueblo Regional Building Department, 830 N Main St # 100 Pueblo, CO 81003 719-543-0002. A Certificate of Occupancy is required on remodeled or newly built facilities and final approval from the Fire and Zoning Departments must be completed before a license for opening is issued. Remodels at an existing restaurant, you will be required to meet current codes. Check with Pueblo Regional Building Department, Zoning, and the Fire Department for additional regulations and fire codes.
- You must obtain a sales tax number from the Colorado Department of Revenue, 827 W. 4th St., Pueblo, 719-542-2920. You must have the sales tax number at the time of your pre-opening inspection.
- You must also obtain a Restaurant License and City Sales Tax License/Permit from the City of Pueblo at the City Business Licensing office, 301 W. B St., 719-553-2659. The Health Department opening inspection approval is needed in order to receive this license. Food vendors, peddlers and mobile vehicle licenses may be applicable.
- A City of Pueblo Liquor License can be obtained from the City Clerk's Office, 200 S. Main St., Courtroom 2, 719-553-2669. This license is needed only if you will be serving liquor in your establishment and are within the city limits.
- A County of Pueblo Liquor License can be obtained from the Pueblo County Courthouse, County Clerk's Office, 10th and Main, 719-583-6514. This license is needed only if you will be serving liquor in your establishment and are outside the city limits.

II. Facility Information

Name of Facility: _____
Address: _____ Suite/Unit # _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Fax: _____
Email: _____
Colorado Sales Tax Account Number _____

Owner Information

Name of Owner/Representative: _____
Address: _____ Suite/Unit # _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Fax: _____
Email: _____

Name of Architect: _____
Address: _____ Suite/Unit # _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Fax: _____
Email: _____

Name of Contractor: _____
Address: _____ Suite/Unit # _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Fax: _____
Email: _____

Who is the primary contact? _____

THE SIGNER (OWNER/REPRESENTATIVE) AGREES THAT ANY DEFICIENCIES WILL BE CORRECTED.

SIGNATURE _____ **DATE** _____

FOR OFFICE USE ONLY:

Date Received: _____ Fee Paid: _____ Staff Initials: _____

Date Construction Will Begin: _____

Date of Planned Opening: _____

New Establishment

Remodel

Type of Establishment (check all that apply):

Fast Food

Caterer

Full Service

Coffee Shop

Mobile Unit

Concession

Bar

Market (Grocery)

Meat Market

School

Fish Market

Convenience Store

Specialty Shop

Deli

Other (please specify): _____

Seating Capacity:

Indoor: _____ Outdoor: _____

Total: _____

Total Square Footage of facility: _____

Total Square Footage of food preparation and storage areas: _____

Seasonal Operation: Yes: _____ No: _____ If yes, dates of operation: _____

Day(s) of operation:	<input type="checkbox"/> Sun	<input type="checkbox"/> Mon	<input type="checkbox"/> Tues	<input type="checkbox"/> Wed	<input type="checkbox"/> Thurs	<input type="checkbox"/> Fri	<input type="checkbox"/> Sat
Hours of operation:	____-	____-	____-	____-	____-	____-	____-

Maximum number of meals served daily:

Breakfast: _____ Lunch: _____ Dinner: _____

Maximum number of employees per shift: _____

Have plans been submitted to, or do you intend to submit plans to other counties in the state of Colorado? Yes No If yes, which county(s): _____

Have plans been submitted to Regional Building? Yes No

III. Menu and Food Handling Procedures:

A. Menu and Facility Management

1. Submit a menu or list of foods to be served. **Plans will not be approved without a menu.**
2. Do you have a food handling procedures manual or Hazard Analysis Critical Control Point (HACCP) plan that describes preparation, cooling, reheating, cooking of foods, and the handling of leftovers?
 Yes No If yes, please submit with plans.
3. Will vacuum packaging be conducted in the establishment? Yes No
If yes, please provide the required HACCP plan for each category of food to be vacuum packaged.
4. Describe food safety training the person in charge has received. Describe the food safety training plan for employees.

B. Personnel Hygiene

5. Describe how employees will prevent direct bare hand contact with food:

6. Describe the handwashing policy (e.g. where and when handwashing will occur):

7. Describe the sick employee policy (including policy for and burns):

C. Food Safety Procedures

8. List the foods that will be cooled and describe your methods for cooling foods to 41°F or below. (note: hot foods must be cooled from 135°F to 70°F within 2 hours and then continued to cool from 70°F to 41 °F within 4 hours):

9. List the foods that will be reheated and describe your method for rapidly reheating to 165°F or above:

10. List the foods and indicate how hot foods will be held at 135°F or above:

11. List the foods and indicate how cold foods will maintain a temperature of 41°F or below:

12. How will food temperature be monitored?

13. How will frozen foods be thawed?

14. Will raw meats, poultry, and seafood be stored/displayed in the same refrigerator(s) and freezer(s) with cooked, ready-to-eat foods? Yes No

15. Where will produce be washed?

16. Will catering be conducted? Yes No

17. Will food be transported or delivered to another location? Yes No

If yes, what equipment will be provided to maintain food at proper temperatures during transport?

18. Describe cleaning and sanitizing procedures for utensils and food preparation equipment (including slicers, prep tables, cutting boards, sinks, etc.):

IV. Facility Floor Plan

A. Submit the floor plan drawn to scale. See Appendix A for a sample floor plan. The floor plan must include location and identification of all equipment and areas including:

1. Sinks
 - a. Handsink(s)
 - b. Vegetable/Food Preparation sink(s)
 - c. Utility/Mop sink(s)
 - d. Dump sink(s)
 - e. Warewashing sink(s)
 - f. Other
2. Wait station(s)
3. Toilet facilities
4. Dry/Food storage area(s)
5. Employee break/locker area(s)
6. Chemical storage area(s)
7. Water heater
8. Salad bar(s) and serving line(s)
9. Bar service area(s)
10. Indoor/Outdoor seating
11. Outdoor cooking/bar area(s)
12. Laundry facility
13. Recycle/damaged/returned goods area
14. Floor sinks and floor drains
15. Grease interceptor or grease trap
16. Ice bins/Ice machines
17. Dipper wells with running water
18. Chemical dispenser units
19. Dumpster location and surface it will be on

B. Submit equipment specification sheets, including make and model numbers of the equipment. If the specification sheet lists more than one piece of equipment, identify the specific equipment to be used. If there is no specification sheet available, the equipment will only be accepted upon a field inspection to determine if it meets commercial design criteria.

C. Submit shop drawings of all ventilation hoods, drawn to scale.

D. Submit shop drawings of all custom fabricated equipment and cabinetry, drawn to scale.

E. Submit the following warewashing information:

1. Manual Warewashing

Include the following for all warewashing sinks (kitchen, dish room, bar, etc.)

a. Size of each sink compartment in inches:

Length: _____ Width: _____ Depth: _____

Length: _____ Width: _____ Depth: _____

Length: _____ Width: _____ Depth: _____

b. Size of all soiled and clean drain board(s)/drying racks inches:

Length: _____ Width: _____

Length: _____ Width: _____

Length: _____ Width: _____

Note: All drain boards must be self-draining. Drain boards must be at least 18 inches (length) for bars, 24 inches (length) in establishments using single service utensils, and 36 inches (length) in establishments using multi-use dishes and multi-use utensils.

c. Pre-rinse / spray hose provided: Yes No

2. Mechanical Warewashing

a. Make and model number of warewashing machine(s):

b. Heat Sanitization or Chemical Sanitization

c. Manufacturer's hot water requirement (gallons per hour): _____

d. Size of all drain boards / drying racks (length and width): _____

e. Pre-rinse / spray hose provided: Yes No

f. Soak sink provided: Yes No

g. Booster Heater (if applicable):

Make and Model number: _____

Recovery rate, 40°F rise, at sea level: _____

F. Garbage Disposal(s): Yes No

If yes, indicate location: _____

G. Submit proposed water heater information using Appendix D of this packet.

H. Refrigeration/Freezer Capacity. Complete the following table:

TYPE OF UNIT	NUMBER OF UNITS PROVIDED	TOTAL CUBIC FEET
Walk-in Refrigeration		
Reach-in Refrigeration		
Walk-in Freezer		
Reach-in Freezer		
Blast Chiller		
Retail Display		

I. Display food items: See Appendix I of the Colorado Retail Food Regulations.

1. Bulk Food Items: Yes No

If yes, submit equipment specifications for food bins, including vendor supplied equipment.

2. Food Shields – Submit the type and location (if custom design, please submit shop drawings).

VI. Premises

A. Submit a site plan which includes the following refuse enclosures, compactors, outside walk-in cooler(s)/freezer(s), location of water supply, sewage disposal system, grease interceptor, alleys, streets parking, and outside storage areas.

B. Water supply and waste water systems:

1. Water Supply:

Community/Public—Name of District: _____

Non-Community/Private _____ PWSID # _____

Well Spring Other (specify) _____

Method of Disinfection: _____

2. Sewage Disposal:

Municipal/Public—Name of District: _____

Individual Sewage Disposal System (ISDS)

C. Exterior doors and windows:

1. Windows: closed, tight-fitting screened air curtain(s)

2. Doors: closed, tight-fitting screened air curtain(s)

VII. Mechanical, Electrical and Plumbing Schedules

A. Mechanical

1. Submit a complete ventilation schedule including exhaust capacities (cubic feet per minute [CFM] ratings) for all hoods and the location and capacity of all make-up air diffusers. See Appendix B for example ventilation schedule.
2. If the ventilation hoods are UL listed for lower air flows, submit the information located on the manufacturers' UL listing card.
3. Include ventilation systems in the restrooms.

B. Electrical

1. Submit the location and type of light fixtures throughout the facility, including the fixtures in walk-in refrigeration/freezer units.
2. Submit the type of bulbs and/or shielding for each type of light fixture, where required.
3. Indicate the location of transformers and electrical panels if located in the food preparation/food storage areas.

C. Plumbing

1. Submit the location of all floor sinks and floor drains.
2. Indicate that the following equipment is provided with **indirect waste** connections:

Dish machine-floor sink	provided_____not applicable_____
Food preparation sink-floor sink	provided_____not applicable_____
Three-compartment utensil washing sink-floor sink	provided_____not applicable_____
Ice machine-floor sink or floor drain	provided_____not applicable_____
Ice bin(s)-floor sink or floor drain	provided_____not applicable_____
Water heater-floor sink or floor drain	provided_____not applicable_____
Refrigeration condensate lines- floor sink or floor drain	provided_____not applicable_____
Dipper well(s)-floor sink or floor drain	provided_____not applicable_____
Salad bar(s)-floor sink or floor drain	provided_____not applicable_____
Steam table(s)-floor sink or floor drain	provided_____not applicable_____
3. Submit the location of all hose bibs.
4. Submit the number and location of all toilet fixtures (including lavatories, urinals & toilets.)
5. Submit the location of the grease trap or interceptor.
6. Submit the make, model and location of all chemical dispensing unit(s).

7. Use the following chart to list the location of all backflow prevention devices, including all vendor supplied items. Any discharge from a backflow prevention device must be indirectly discharged to the sanitary sewer.

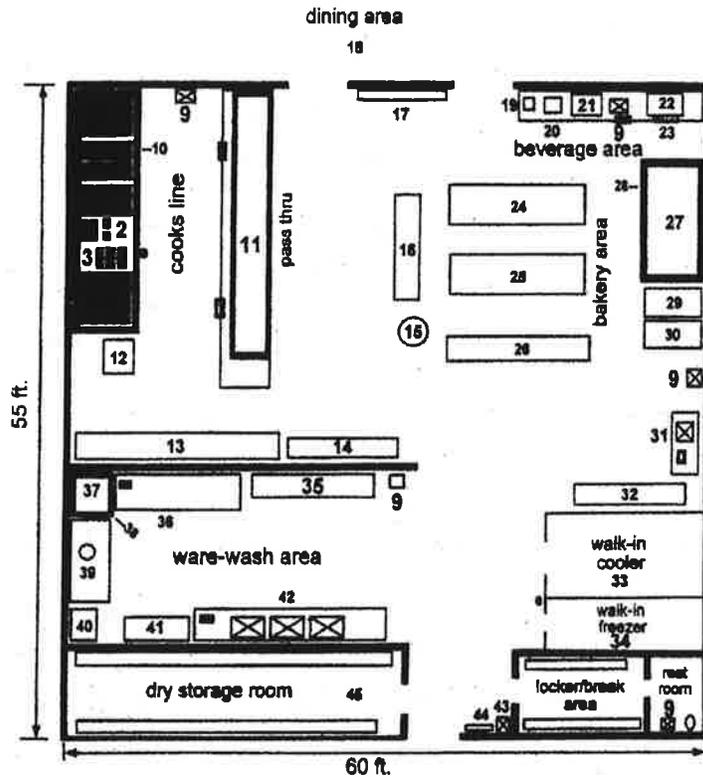
EQUIPMENT	AIR GAP	AIR BREAK	VACUUM BREAKER	OTHER
1. Dishwasher				
2. Garbage grinder				
3. Ice machines				
4. Ice storage bin				
5. Sinks a. Mop b. 3-Compartment c. 2-Compartment d. 1-Compartment				
6. Steam tables				
7. Dipper wells				
8. Refrigeration condensate/drain lines				
9. Hose bib connection				
10. Potato Peeler				
11. Beverage Dispenser w/carbonator				
12. Other				
13. Other				
14. Other				

Identify the locations of all floor drains, if provided.

Appendix A

EXAMPLE

FACILITY FLOOR PLAN



Equipment (make & model #)

- | | | |
|--|--|--|
| 1-Cheese Melter (ABC #123) | 16-Shelving unit | 32- Stainless prep table |
| 2-Microwaves (XYZ #34) | 17-Bread shelving racks | 33-Walk-in cooler (COLD #AZ1) |
| 3-Steamtable (HOT #A1) | 18-Dining area | 34-Walk-in cooler (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 refrig unit (Cold #A3) | 39-Dirty drainboard w/sprayhose & garbage disposal |
| 9-Handsink | 24-Bakers' table | 40-Dirty dish rack |
| 10-Hood, type 1 (EZAir #99) | 25-Baker's table | 41-Drying shelf |
| 11-Refrigerator/freezer maketable unit with pass-thru & 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) | ■ Floor sink |
| | 31-Veg. prep. sink & 18" drainboard | ● Floor drain |

Appendix B Ventilation Systems

The kitchen exhaust hood must be approved by the National Sanitation Foundation (NSF) or its equivalent. Airflow must be calculated, and hoods must be designed according to the 1988 Uniform Mechanical Code, Section 508. Hoods must overhang all equipment that produce grease vapors, steam, fumes, smoke, and excessive heat not less than six inches beyond the edge of the cooking surface on all open sides, or be of other approved engineered design. Riveted or painted hoods are not approved. Make-up air should be filtered and tempered during winter months (when exhaust exceeds 2500 CFM). Make-up air must be mechanically introduced into the establishment at a volume equal to or greater than what is being exhausted. The kitchen should be under a slight negative pressure for make-up air to be exhausted through the kitchen exhaust system after it moves from the dining area into the kitchen. Make-up air must be distributed through several registers to establish necessary air patterns in order not to short-circuit the exhaust system. Windows and doors shall not be used for the purpose of providing make-up air. The exhaust hood switch(s) must be interlocked with the make-up air system(s).

A **Type I Hood** is a kitchen hood designed to collect and remove grease and smoke.

A **Type II Hood** is a kitchen hood for collecting and removing steam, vapor, heat or odors.

Use the following table to list all necessary ventilation equipment. If hoods are UL or NSF listed, submit listing data.

Ventilation Schedule				
Source	Length	Width	CFM Exhaust	CFM Supply
Example: RTU-1				1600
Example: hood #1	6'-6"	5'-0"	1500	500

Appendix C

Minimum Restroom Plumbing Facilities

Total seating capacity: _____ Total employees per shift: _____

Establishments with a total seating capacity of **15 or fewer** may have one unisex restroom that has one toilet and one hand sink.

Establishments with seating capacity or employees per shift of **15 or more** are required to have two restrooms, one male and one female. To determine the minimum fixture requirements, calculate the male/female ratio: $\text{Total seating capacity} / 2 = \text{Ratio of males to females}$.

Appendix D

Worksheet for Calculating Minimum Hot Water Requirements

Use this worksheet to help calculate the hot water usage and the necessary tank type water heater size for your operation.

Step 1: 3-Compartment Sink

1. Measure dimensions of each compartment, if all three compartments are not the same dimensions, see note below.

Length = _____ Width = _____ Depth = _____

2. Insert measurements into this equation:

$$\left(\frac{\text{Length}}{\text{Length}} \times \frac{\text{Width}}{\text{Width}} \times \frac{\text{Depth}}{\text{Depth}} \times 3 \times 0.375 \right) \div 231 = \frac{\text{water usage}}{\text{water usage}} \text{ GPH}$$

Note: If all compartment sizes of the sink are not the same, then take (x 3) out of the equation, do the above calculation for each compartment, and then add the volumes to get the total gallons per hour of hot water used in the sink.

Enter **total water usage** (GPH) into attached "Required Water Calculation Table" for "3-compartment sink"

Step 2: Utensil Soak Sink

1. Measure dimensions of sink

Length = _____ Width = _____ Depth = _____

2. Insert measurements into this equation:

$$\left(\frac{\text{Length}}{\text{Length}} \times \frac{\text{Width}}{\text{Width}} \times \frac{\text{Depth}}{\text{Depth}} \times 0.375 \right) \div 231 = \frac{\text{water usage}}{\text{water usage}} \text{ GPH}$$

Enter **total water usage** (GPH) into attached "Required Water Calculation Table" for "Utensil soak sink".

Step 3: Dish Machine and Conveyor Pre-Rinse Water Usage

Use manufacturer's rating in gallons per hour

Enter manufacturer's rating (GPH) into attached "Required Water Calculation Table" for "Dish machine".

Step 4: Laundry Machine Water Usage

Use manufacturer's rating: _____

or 32 GPH for 9-12 pound washer

or 42 GPH for 16-pound washer.

Enter manufacturer's rating (GPH) into attached "Required Water Calculation Table" for "Laundry machine".

Step 5: Enter water usage totals in the appropriate rows and columns in the table on the following page, Required Water Calculation Table.

Required Water Calculation Table

1. Enter the gallon per hour (gph) rating for each type of fixture and the number of fixtures in the operation in the table below. Multiply these two numbers to calculate “maximum hourly water usage per type of fixture.”

2. Add up the “maximum hourly water usage per type of fixture” amounts in the right column to calculate “total water required by all fixtures” in the operation.

3. Enter the “total water required by all fixtures” into the equations on the next page (for gas water heater or electric water heater) to determine the necessary hot water rating for your operation.

Plumbing Fixture	Water usage (gallons per hour)	Number of fixtures	Maximum hourly water usage per type of fixture (gallons per hour)
<i>Example: dish machine</i>	50	1	50
<i>Example: hand sinks</i>	5	4	$(5 \times 4) = 20$
3-compartment sink			
3-compartment sink (bar)			
Utensils soak sink			
Dish machine			
Dish machine conveyor pre-rinse			
Laundry machine			
Hand operated pre-rinse sprayer	32		
Hand sinks (including restrooms)	5		
Mop sink	7		
Garbage can washer	35		
Employee showers	14		
Hose bib used for cleaning	35		
Total water (GPH) required by all fixtures			

Water Heater Sizing Options

There are three sizing options for water heaters: 1. Option A: Gas Water Heater, 2. Option B: Electric Water Heater, 3. Option C: Instantaneous Hot Water Heater (i.e. tankless). Use the following equations to determine which size of tank your facility will require depending on which tank type you decide to use.

Option A: Gas Water Heater

Step 1: Adjust the total water required by all fixtures (from Required Water Calculation (Table Page 19)) for the altitude of the facility. The altitude adjustment is 4% per 1000 feet of elevation, or 20% for 5000 feet).

Use this formula to calculate elevation adjusted water demand.

$$(0.04 \times \frac{\text{elevation of facility}}{1000} + 1) = \text{adjustment factor}$$

Step 2: Using the adjustment factor from above, calculate the hourly hot water usage.

$$\frac{\text{adjustment factor}}{\text{total water (GPH) required}} = \text{max hourly hot water usage (GPH)}$$

**For example, if the elevation of a facility is 5000 feet, the adjustment factor would be 1.2. If the total water required by all fixtures (GPH from the previous table) is 100 gph, then the maximum hourly hot water usage would be 120. Therefore, a water heater with 120 gph recovery rate would be required for the facility.*

Step 3: Use the "maximum hourly hot water usage" value from the previous equation to calculate the minimum BTU rating of the water heater using the calculation below

Gas Water Heater Thermal Efficiency Rating (place in box below)

For commercial water heaters, you can find this rating on the spec sheet. If you don't know the rating, use a rating of 0.75. For all domestic water heaters, use a rating of 0.75.

$$\left(\frac{\text{max hourly hot water usage}}{\text{efficiency rating}} \times 100 \times 8.33 \right) \div \boxed{} = \text{minimum BTU rating}$$

Step 4: Proposed Gas Water Heater based on BTU

The BTU rating for the water heater in the facility must be equal to or greater than the minimum BTU rating calculated above. Complete the following based on your current or proposed water heater.

Make: _____ Model: _____

BTU Rating: _____

Recovery Rate: _____ gallons per hour at 100°F rise at sea level

Option B: Electric Water Heater

For electric water heaters, the maximum hourly hot water usage is the same number as the total water required (GPH) by all fixtures as calculated in the Required Water Calculation Table. Use this formula to calculate the minimum Kilowatt rating of the electric water heater:

$$\left(\frac{\text{total water (gph)}}{\text{total water (gph)}} \times 100 \times 8.33 \right) \div 3412 = \text{minimum Kilowatt rating} \text{ kW}$$

Proposed Electric Water Heater based on Kilowatt rating

The Kilowatt rating for the water heater in the facility must be equal to or greater than the minimum Kilowatt rating calculated above. Complete the following based on your current or proposed water heater.

Make: _____ Model: _____

Kilowatt Rating: _____

Recovery Rate: _____ gallons per hour at 100°F rise at sea level

Option C: Instantaneous Hot Water Heater (i.e. tankless)

Step 1:

Plumbing Fixture	Water usage (gallons per minute)	Number of fixtures	Maximum hourly water usage per type of fixture (gallons per minute)
<i>Example: dish machine</i>	8.0	1	$(8.0 \times 1) = 8.0$
<i>Example: hand sinks</i>	0.5	4	$(0.5 \times 4) = 2.0$
3-compartment sink*	2.0 for each faucet		
3-compartment sink (bar)*	2.0 for each faucet		
Utensils soak sink	1.0		
Dish machine†			
Dish machine conveyor pre-rinse			
Clothes washer	2.0		
Hand operated pre-rinse sprayer†	2.0		
Food preparation sink(s)	1.0		
Hand sinks (including restrooms)*	0.5		
Mop sink	2.0		
Garbage can washer	1.0		
Showers †	1.0		
Hose bib used for cleaning	5.0		
Total water (GPM) required by all fixtures			

*A flow rate reduction can be used for low flow water faucets installed on 3-compartment sinks, hand operated pre-rinse sprayers, food preparation sinks, hand washing sinks and showers by entering the manufacturer's flow rate listed for the faucet or faucet's aerator.

†Use manufacturer's flow rate in GPM for specific make and model of dishwashing machine.

(Option C continued)

Step 2:

Calculate the maximum flow rate for the establishment. The thermal efficiency of the water heating units must be adjusted for altitude. The altitude adjustment is 4% per 1000 feet of elevation, or 20% at 5000 feet.

Use the following equations to determine the establishment's maximum flow rate in GPM:

$$(0.04 \times \frac{\text{elevation of facility}}{1000} + 1) = \text{adjustment factor}$$
$$\frac{\text{adjustment factor}}{\text{adjustment factor}} \times \frac{\text{total water demand for all fixtures calculated in Step 2}}{\text{total water demand for all fixtures calculated in Step 2}} = \frac{\text{maximum GPM hot water usage}}{\text{maximum GPM hot water usage}} \text{ GPH}$$

Use calculated maximum GPM hot water usage value from this equation to determine the minimum number of heating units that will be required in Step 4 below.

Step 3:

Determine the number of heating units that will be needed to meet the required flow rate.

$$\frac{\text{Maximum demand (GPM) calculated in Step 3}}{\text{Maximum demand (GPM) calculated in Step 3}} \div \frac{\text{Manufacturer's flow rate in GPM @ 100°F in Step 1}}{\text{Manufacturer's flow rate in GPM @ 100°F in Step 1}} = \frac{\text{Number of heating units required*}}{\text{Number of heating units required*}}$$

*Multiple units must be installed and plumbed to operate in a parallel configuration.

Step 4:

If a dishwashing machine(s) is to be installed, the instantaneous water heating system must include a storage tank. The storage tank must be at least 25 gallons or at least 25% of the gallons per hour (GPH) demand of the dishwashing machine(s). The larger value of the two is the required storage tank size.

Dishwashing Machine*

Manufacturer: _____

Model Number: _____

Gallons Per Hour Water Consumption: _____ x 0.25 = _____
Storage tank capacity in gallons

Calculated Storage Tank Capacity: _____ vs. 25 Gallons Storage Tank

Enter the larger of the two: _____ Required Storage Tank Capacity**

*High temperature, heat sanitizing dishwashing machines must be provided with a separate booster heater. Use of an instantaneous unit is not allowed for use as a booster heater.

**The storage tank must be installed in the hot water supply line located between the heater unit(s) and the hot water distribution line. A recirculation line and aquastat (water thermostat) must be installed at the storage tank to assure the water in the tank remains at the appropriate temperature (120-140°F). The recirculation line must be connected between the storage tank and the cold water supply line at the heater unit(s).

(Option C continued)

Step 5:

Heater Specifications

Manufacturer*: _____ Model Number: _____

Flow Rate in Gallons Per Minute (GPM) at 100°F rise**: _____ GPM

BTU Rating: _____ BTU***

*Units must be designed for commercial use.

** If there are no high temperature dishwashing machine or other fixtures requiring input water temperature of 140°F (100°F rise) or more, then 80°F rise can be used.

***Electric units will only be approved as a dedicated hot water supply to hand washing sinks.



ITEMS THAT MUST BE MET BEFORE LICENSING OF YOUR FACILITY

- Refrigeration units shall be set to maintain food at 41° F or less in coolers, and at 0° F or less in freezers. All refrigeration units shall be in operation for the final inspection. All refrigeration units shall have a thermometer accurate within 3° F in an easily readable location.
- The minimum hot water temperature at all sinks shall be 100° F.
- Ice chests/bins, 3 compartment sinks, vegetable prep sinks, and dipper wells shall have air-gapped or air break drain lines into a properly vented trap or receptor.
- The basins of the 3 compartment sink shall be large enough to accommodate the largest piece of equipment or utensils.
- Grease traps shall be installed outside of food prep areas and easily accessible for clean out.
- Minimum lighting shall be as follows: (a) 50 foot candles of light on all food preparation surfaces and at warewashing work levels. (b) at a distance of 30 inches from floor: 20 foot candles of light in sales areas, utensil and equipment storage areas, and in lavatory and toilet areas (c) at least 10 foot candles of light throughout walk-in refrigeration units, dry food storage areas, dining area and in all other areas. Protective shields for lights are required in food preparation areas, warewashing areas, bars, walk-in units, utensil and equipment storage areas, and food storage areas.
- Mop sink faucets, hose bibs and other water fixtures with threads for a hose shall have a back-flow prevention device.
- Dishwashing machines shall have a pressure gauge to permit checking the flow pressure of the final rinse water, a thermometer accurate within 3° F, and a plate/placard of chemical agent, timing and temperature requirements, and minimum and maximum requirements for satisfactory operation.
- Wall surfaces around 3 compartment sinks, mop sinks, dishwashers, and exhaust hoods shall be smooth, durable, easily cleanable, and non-absorbent.

- Ceilings in food preparation, dishwashing, food items storage areas, rest rooms, bars, and customer service/beverage islands, and walk-in refrigeration units shall be smooth, durable, easily cleanable, and non-absorbent (no fissured acoustical ceiling tile). If concrete ceilings are proposed, joints must be flush, and the surface must be smooth. Gaps between exhaust hoods and ceiling shall be sealed.
- All cabinets, counters, bars, and restroom vanities shall be smooth, durable, and easily cleanable. All cracks will be caulked and bare wood sealed and/or painted.
- All shelving and platforms shall be at least 6" off the floor.
- Portable equipment (on tables and counters) shall be easily moveable, on 4" legs, or installed/sealed to facilitate cleaning of the equipment and adjacent areas.
- Wall mounted equipment such as shelves, sinks, counters, vanities, urinals, coat racks, mop racks, wall fan mounts, and hose reels shall be sealed in place. Gaps between door/window frames/molding and walls/floors shall be sealed.
- A sealed floor cove base shall be provided around wet areas, such as the 3 compartment sink, mop sinks, and dishwashers, and around exhaust hoods.
- Windows and exterior doorways, which will be propped open, will be provided with screening material 16 inch mesh or less. Screen doors will have self-closure devices.
- Trash containers shall be conveniently located near handsinks.
- All construction materials/equipment must be removed from the facility and equipment/surfaces cleaned of construction dust and debris.
- Provide a probe food thermometer that registers 0° F – 220° F for measuring the temperatures of potentially hazardous foods.
- Provide sanitizer test strips for testing the concentration of sanitizer water for 3 compartment sink warewashing, the dishmachine, and for sanitizer wipe cloth containers.
- Provide soap and paper towels at all handsinks.