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 of 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: ____________________________ Suite/Unit # ____________________________
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: ____________

3
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: _______________________

<table>
<thead>
<tr>
<th>Day(s) of operation:</th>
<th>☐ Sun</th>
<th>☐ Mon</th>
<th>☐ Tues</th>
<th>☐ Wed</th>
<th>☐ Thurs</th>
<th>☐ Fri</th>
<th>☐ Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours of operation:</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

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
V. Equipment Specifications

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

<table>
<thead>
<tr>
<th>Equipment Installation List</th>
<th>Installation Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At Floor</td>
</tr>
<tr>
<td>ID # or code on plans</td>
<td></td>
</tr>
<tr>
<td>New (N) or Used (U)</td>
<td></td>
</tr>
<tr>
<td>Plumbing Required?</td>
<td></td>
</tr>
<tr>
<td>Masonry Island</td>
<td></td>
</tr>
<tr>
<td>Approved Legs</td>
<td></td>
</tr>
<tr>
<td>Casters</td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td></td>
</tr>
<tr>
<td>Separation (inches)</td>
<td></td>
</tr>
</tbody>
</table>

Equipment / Make & Model
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:

<table>
<thead>
<tr>
<th>TYPE OF UNIT</th>
<th>NUMBER OF UNITS PROVIDED</th>
<th>TOTAL CUBIC FEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk-in Refrigeration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach-in Refrigeration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk-in Freezer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach-in Freezer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blast Chiller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail Display</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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

Identify the locations of all floor drains, if provided.
VIII. Interior Finishes
Submit room finish specifications. Indicate the page in the plans with the finish schedule or use the following chart. Include additional pages if necessary.

<table>
<thead>
<tr>
<th>Room name and mark</th>
<th>Floors</th>
<th>Walls (material and finish)</th>
<th>Ceilings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: Kitchen 101</td>
<td>Quarry tile Smooth, sealed 6&quot; quarry tile</td>
<td>FRP smooth FRP smooth Painted smooth Painted smooth</td>
<td>Vinyl acoustical tile smooth</td>
</tr>
</tbody>
</table>
Appendix A

EXAMPLE

FACILITY FLOOR PLAN

Equipment (make & model #)
1-Cheese Melter (ABC #123)
2-Microwaves (XYZ #34)
3-Steamtable (HOT #A1)
4-Stove (AOK #22)
5-Griddle (AOK #Q17)
6-Fryer (ABC #55)
7-Fryer (ABC #55)
8-Charbroiler (HOT #A7)
9-Handsink
10-Hood, type I (EZAiir #99)
11-Refrigerator/freezer maketable unit with pass-thru & shelf (Cold #10)
12-Stainless steel table
13-Sliding 3 door refrigeration unit (Cold #12)
14-Shelving unit
15-Mixer (XYZ #Q23)
16-Shelving unit
17-Bread shelving racks
18-Dining area
19-Coffee maker (ABC #16)
20-Tea maker (ABC #87)
21-Soda machine (PDQ #2A)
22-Espresso machine (ABC #5)
23-Undercounter refrig unit (Cold #A3)
24-Bakers' table
25-Baker's table
26-Shelving unit
27-Bake Oven (JAM #33)
28-Hood, type II (EZAiir #35)
29-Proof Cabinet (ABC #T2)
30-Proof Cabinet (ABC #T2)
31-Veg. prep. sink & 18" drainboard
32- Stainless prep table
33-Walk-in cooler (COLD #AZ1)
34-Walk-in cooler (COLD #AZ3)
35-Drying Shelf
36-Clean drainboard
37-Dishmachine (Magic #15)
38-Hood, type II (EZAiir #17)
39-Dirty drainboard w/spray hose & garbage disposal
40-Dirty dish rack
41-Drying shelf
42-3 comp sink w/36" drainboards
43 Mop sink
44-Chemical storage shelf
45-Shelving

Floor sink
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.

<table>
<thead>
<tr>
<th>Source</th>
<th>Length</th>
<th>Width</th>
<th>CFM Exhaust</th>
<th>CFM Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: RTU-1</td>
<td></td>
<td></td>
<td></td>
<td>1600</td>
</tr>
<tr>
<td>Example: hood #1</td>
<td>6'-6&quot;</td>
<td>5'-0&quot;</td>
<td>1500</td>
<td>500</td>
</tr>
</tbody>
</table>
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: Total seating capacity / 2 = 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:

   \[
   \frac{\text{Length} \times \text{Width} \times \text{Depth} \times 0.375}{231} = \text{GPH water usage}
   \]

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:

   \[
   \frac{\text{Length} \times \text{Width} \times \text{Depth} \times 0.375}{231} = \text{GPH}
   \]

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.

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

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

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

\[
\frac{\text{adjustment factor}}{\text{total water (GPH) required}} \times \frac{\text{max hourly hot water usage}}{\text{GPH}}
\]

*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.

\[
\frac{(\text{max hourly hot water usage} \times 100 \times 8.33)}{\text{efficiency rating}} = \frac{\text{minimum BTU rating}}{\text{BTU}}
\]

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:

\[
\frac{\text{total water (gph)} \times 100 \times 8.33}{3412} = \text{minimum Kilowatt rating}
\]

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:

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

**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:

\[
\frac{0.04 \times \frac{\text{elevation of facility}}{1000}}{\text{adjustment factor}} + 1 = \text{adjustment factor}
\]

\[
\frac{\text{adjustment factor} \times \text{total water demand for all fixtures calculated in Step 2}}{\text{hot water usage}} = \frac{\text{maximum GPM}}{\text{hot water usage}} \text{ GPH}
\]

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.

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

*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.