

Restaurant & Commercial Kitchen Guide



The information enclosed is minimal guideline requirements.
Additional information may be requested.



DENVER
THE MILE HIGH CITY

Development Services

Building Department

201 W Colfax Ave

Denver, CO 80202

Phone: 720-865-2705

www.denvergov.org

Table of Contents

Overview	1
Before You Begin	1
Building Permitting Process	1
Submittal Package.....	2
Permits	2
Inspections	2
Restaurant Plan Review Worksheet.....	3
Hot Water Requirements Worksheet	14
Total Water Requirements Worksheet.....	17

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Overview

This guide contains the guidelines and process for constructing or remodeling a food service establishment or commercial kitchen in the City and County of Denver. This guide is only intended as a general overview of Health Department requirement and must be used in conjunction with the Commercial Permitting Handbook for a complete picture of the permitting process. The Commercial Permitting Handbook outlines the processes and procedures for a construction permit in any commercial building. The Restaurant Guide provides requirements specific to restaurants. Some of the information will overlap with requirements contained in the Commercial Permitting Handbook. More information may be found of the City and County of Denver's web site, under Development Services.

Before You Begin

All food service establishments in the City and County of Denver require a business license from Excise and License. If your project includes the opening of a new restaurant, the purchase of an existing restaurant or change of status to the license for an existing restaurant (for example: change of ownership, adding space, adding or changing alcohol or entertainment services, some changes to the menu), begin this process at Excise and License. A restaurant and/or liquor license application requires information about the restaurant owner, the type of restaurant and the type of license(s) being applied for.

In addition to obtaining a license from Excise and License restaurant projects require:

- Zoning review, resulting in a Zoning Use Permit, and
- Wastewater review, resulting in a Sewer Use and Drainage Permit (SUDP).

The Zoning Use Permit can be obtained by submitting a simple Use Permit application with the Zoning Administration. The SUDP can be obtained by submitting an application for SUDP with Development Services. Building Permits cannot be issued without first obtaining a Zoning Use Permit and SUDP.

Building Permitting Process

There is a three-phase approval process for constructing a new or renovating/remodeling/expanding an existing food service establishment:

1. Develop a complete set of **plans** for the work necessary to meet the current Building Code
2. Obtain building **permits**
3. Satisfactorily complete **inspections** on all work done.

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Submittal Package

See the Commercial Permitting Handbook for a check list of the general submittal requirements for an application for the construction permits.

There are several submissions requirements that are specific to food service establishments. These requirements include the information on the following worksheets contained in this guide:

- Restaurant Plan Review Worksheet
- Hot Water Requirements Worksheet
- Total Water Requirements Worksheet

In addition to the above worksheets an application for the construction permits involving food service establishments and commercial kitchens will require:

- Hazard Analysis Critical Control Point Plan (HAACCP) - Food Handling Procedure Manual
- Restaurant specific Facility Floor Plan displaying information as required in this guide - Section I of the Restaurant Plan Review Worksheet
- Restaurant specific Premises Plan displaying information as required in this guide- Section IV of the Restaurant Plan Review Worksheet
- Restaurant specific information on the mechanical & plumbing plans as required in this guide - Section IV of the Restaurant Plan Review Worksheet
- Proposed Menu, including a list of foods which will require cooling after cooking, and the method that will be used to cool these foods.
- Specification Sheets of all equipment, including make and model numbers.
- Shop Drawings of all *custom fabricated equipment and cabinetry*. Drawn to scale.
- A complete Interior Finish Schedule.
- Water Heater Specification, including make and model number.
- Grease Traps
- Range Hoods and Vent Systems
- Size and Location of Kitchen Equipment and Food Preparation Areas
- Approximately Sized and Location Cleaning/Sanitary Equipment

Permits

With a complete submittal package, you can submit an application for a building permit. The submission for permit is made to the Log-In Counter. The Log-In Counter is located at 201 W. Colfax Ave. on the 2nd floor (Dept 205) and log-in is open Monday- Friday from 8:00 a.m. – 3:30 p.m.

Inspections

Inspections are required during and after construction to ensure the work is in accordance with the approved plans. Further information on how to schedule an inspection can be found on the City and County of Denver's web site, under Development Services.



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Restaurant Plan Review Worksheet

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Date: _____

Name of Establishment: _____

Phone: _____

Address of Establishment: _____

Fax: _____

City: _____

State: _____ Zip: _____

Name of Operator (Owner): _____

Phone: _____

Address of Operator (Owner): _____

Fax: _____

City: _____

State: _____ Zip: _____

Name of Local Contact: _____

Phone: _____

Address of Local Contact: _____

Fax: _____

City: _____

State: _____ Zip: _____

Name of Contractor: _____

Phone: _____

Address of Contractor: _____

Fax: _____

City: _____

State: _____ Zip: _____

Name of Architect: _____

Phone: _____

Address of Architect: _____

Fax: _____

City: _____

State: _____ Zip: _____

Date Construction Will Begin: _____

Date of Planned Operating: _____

New Establishment

Remodel

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Type of establishment (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> Full Service | <input type="checkbox"/> Coffee Shop |
| <input type="checkbox"/> Bar | <input type="checkbox"/> Market (Grocery) |
| <input type="checkbox"/> Convenience Store | <input type="checkbox"/> Fish Market |
| <input type="checkbox"/> Deli | <input type="checkbox"/> Meat Market |
| <input type="checkbox"/> Caterer | <input type="checkbox"/> Concession |
| <input type="checkbox"/> School | <input type="checkbox"/> Specialty Shop |
| <input type="checkbox"/> Fast Food | <input type="checkbox"/> Mobile Unit |
| <input type="checkbox"/> Commercial Kitchen | |
| <input type="checkbox"/> Other (Please Specify): _____ | |

Intended Customer Capacity in Seating Areas (indoor and outdoor):

Total Square Feet in Establishment: _____ Total Square Feet in Kitchen Area: _____

Total Square Feet of Dining Area: _____

Have these plans been submitted, or do you intend to submit these plans to other counties in the State of Colorado? Yes No If yes, which counties?

If operation is seasonal, list the months of operation: _____

Days of operation: _____

Hours of operation: _____

Daily maximum number of meals to be served: _____ Breakfast: _____ Lunch: _____ Dinner: _____

Number of Staff (maximum per shift): _____

I. Menu and Food Handling Process

A. Submit Menu

B. Is there a Hazard Analysis Critical Control Point Plan (HAACCP)? (Food Handling Procedure Manual that describes the preparation, cooling, reheating, cooking of foods, and the handling of leftovers. Only needs to be included with the blueprints if the restraint or food service establishment has one in place.)

Yes No If yes, please submit with the plans.

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C. List the foods that will be prepared more than 12 hours in advance: _____

D. List the foods and describe the methods of how hot foods will be cooled to 41°F (5°C): _____

E. List the foods and describe the methods of how hot foods will be rapidly reheated to 165°F (74°C), or above: _____

F. List the foods and describe the methods of how hot foods will be held at 140°F (60°C), or above: _____

G. How will frozen foods be thawed? _____

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

I. Indicate the total of refrigeration and freezer units: _____

J. Will catering be conducted? Yes No

K. Will food be transported to another location? Yes No

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

L. Will the produce be washed in the establishment, or will all produce be received prewashed and packaged?

M. Will vacuum packaging be conducted in the establishment? Yes No

If yes, please provide the required HAACCP plan for each category of food to be vacuum packaged.



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II. Facility Floor Plan

- A. Submit floor plan drawn to scale.
- B. Floor plan must include the location and identification of all equipment and areas including:
 1. Sinks:
 - a. Lavatories
 - b. Vegetable/Food Preparation Sink(s)
 - c. Utility/Mop Sink(s)
 - d. Dump Sink(s)
 - e. 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 Location
 8. Bar Service Area(s)
 9. Indoor/Outdoor Seating
 10. Outdoor Cooking/Bar Area(s)
 11. Location of Laundry Facility
 12. Recycle/Damaged/Returned Goods Location
 13. Submit the location of all floor sinks and floor drains
 14. Grease Interceptor/Grease Trap
 15. Ice Bin(s)/Ice Machine(s)
 16. Dripper Wells
 17. Chemical Dispensing Unit(s)



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III. Equipment Specifications

- A. Submit equipment specification sheet, 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.
- B. Submit shop drawings of all ventilation hoods, drawn to scale.
- C. Submit shop drawings of all custom fabricated equipment and cabinetry, drawn to scale.
- D. Submit the following water heater information (see the “Calculating Hot Water Requirements Worksheet” for adequate amounts of hot water):
 - 1. Make: _____ Model Number: _____
 - 2. BTU/kilowatt Rating: _____
 - 3. Recovery rate, 100°F rise, at sea level: _____
- E. Submit installation specification. Use the following chart to indicate equipment spacing and elevation (which equipment will be placed on legs and/or casters, quick disconnects, etc.):



F. Submit the following warewashing information:

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

a. Size of each sink compartment:

Length: _____ Width: _____ Depth: _____

Length: _____ Width: _____ Depth: _____

Length: _____ Width: _____ Depth: _____

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

Length: _____ Width: _____

Length: _____ Width: _____

c. Pre-rinse/Spray hose provided? Yes No

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

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

b. Heat or chemical sanitization: _____

c. Booster Heater:

1. Make and model number: _____

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

3. Distance from warewashing machine: _____

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

e. Size of all drainboards/drying racks:

Length: _____ Width: _____

Length: _____ Width: _____

f. Pre-rinse/spray hose provided? Yes No

g. Soak sink provided? Yes No



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G. Garbage disposals: Yes No

If yes, indicate location(s): _____

H. Refrigeration Freezer Capacities – Complete the following table:

Type of Unit	# of Units Provided	Total Cubic Feet
Walk-In Refrigeration		
Reach-In Refrigeration		
Walk-In Freezer		
Reach-In Freezer		
Blast Chiller		
Retail Display		

I. Displayed Food Items:

1. Bulk Food Items: Yes No

If yes, submit equipment specifications for food bins. Include vendor provided equipment.

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

IV. Premises

Submit 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.



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VI. Mechanical, Heating, and Plumbing

A. Plumbing

1. Submit the location of all floor sinks and floor drains.
2. List the equipment that will be installed with an indirect waste pipe.
3. Submit the location of all hose bibs.
4. Submit the number and location of all toilet fixtures (including lavatories, urinals, and water closets).
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 supplies items:

Equipment	Internal Protection	External Protection
Warewashing machines		
Water Wash Hoods		
Chemical Injection Towers		
Soda Stations		
Coffee Urns		
Ice Makers		
Dipper Wells		
Commercial Disposal with Pre-Rinse		
Tea Dispenser		
Mop Sink		
Hose Bib(s)		
Reel Lines		
Steam Kettle Faucets		



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B. Mechanical

1. Submit a complete ventilation schedule including exhaust capacities (Cubic feet per minute ratings) for all hoods, and the location and capacity of all make-up air diffusers.
2. If the ventilation hoods are UL Listed for lower airflows, submit the information located on the manufacture's UL card.
3. Include ventilation systems in restrooms.

C. 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.



Hot Water Requirements Worksheet

The following worksheet is provided to assist operators in calculation hot water usage and sizing of the water heater required for the operation.

I. Calculate total water required by all fixtures:

A. Three compartment sinks calculation of water usage:

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

Length = _____ Width = _____ Depth = _____

Insert measurements into equation:

$$\left(\frac{\text{Length}}{\text{Length}} \times \frac{\text{Width}}{\text{Width}} \times \frac{\text{Depth}}{\text{Depth}} \times 3 \times 0.5 \right) / 2.31 = \frac{\text{Water Usage}}{\text{Water Usage}}$$

Note: If all the compartment sizes of the sink are not the same then 3 is taken out of the equation, and the above calculation is done for each compartment. The values are added to obtain the total gallons per hour of hot water used in the sink.

Enter numbers into the attached “Table to Calculate Total Water Required by All Fixtures.”

B. Utensils soak sink:

1. Measure dimensions, in inches, of the sink:

Length = _____ Width = _____ Depth = _____

Insert measurements into equation:

$$\left(\frac{\text{Length}}{\text{Length}} \times \frac{\text{Width}}{\text{Width}} \times \frac{\text{Depth}}{\text{Depth}} \times 3 \times 0.5 \right) / 2.31 = \frac{\text{Water Usage}}{\text{Water Usage}}$$

Enter numbers into the attached “Table to Calculate Total Water Required by All Fixtures.”



C. Dish machine and conveyor pre-rinse water usage:

Use manufacture’s rating in gallons per hour.

Enter numbers into the attached “Table to Calculate Total Water Required by All Fixtures.”

D. Clothes washer water usage:

Use manufacture’s rating, or 32 gph for 9-12 pound washer, or 42 gph for 16 pound washer.

Enter numbers into the attached “Table to Calculate Total Water Required by All Fixtures.”

E. Use the gallon per hour rating for each type of fixture found in the “Table to Calculate Total Water Required by All Fixtures,” and the number of fixtures in the operation to determine maximum hourly usage for each type of fixture in the operation.

Total water (gph) required by all fixtures: _____

II. Calculate maximum hourly hot water usage:

If a gas water heater is used: go to Step A if electric, go to Step B.

A. Gas hot water heater: If gas hot water heater is to be used, calculate the maximum hourly hot water usage for the facility by adjusting the total water required by all fixtures for altitude. The altitude adjustment is 4% per 1,000 feet of elevation, or 20% at 5,000 feet. **

Use the following equations to determine the maximum hourly hot water usage when a gas powered heater is to be used:

$$(0.04 \times \frac{\text{elevation of facility}}{1,000}) + 1 = \text{adjustment factor}$$

$$\left(\frac{\text{adjustment factor by all fixtures}}{\text{total water required}} \right) = \text{maximum hourly hot water usage}$$



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For example, if the total gallon per hour usage for an establishment at an elevation of 5,000 feet is 100 gph, the adjustment factor is 1.2. Therefore, a water heater with 120 gph recovery rate would be required.

Note: The altitude adjustment factor for Denver is 1.2.

Use this value in the equation to calculate the minimum BTU rating for the water heater.

- B. If an electric water heater is to be used, the maximum hourly usage for the operation is the same as the total water required by all fixtures. Use this value in the equation to calculate the minimum kilowatt rating of the water heater.
- C. Insert the value determined in Step A or B above, in Section III (D) of the “Restaurant Plan Review Form.” This value is the minimum recovery rate of the water heater which should be provided for the facility.

III. Calculate minimum BTU or kilowatt rating of water heater:

- A. For a gas water heater, calculate the minimum BTU rating:

$$\left(\frac{\text{_____}}{\text{maximum hourly usage}} \times 100 \times 8.33 \right) / 0.75 = \frac{\text{_____}}{\text{minimum BTU rating}}$$

- B. For electric water heater, calculate the minimum kilowatt rating:

$$\left(\frac{\text{_____}}{\text{maximum hourly usage}} \times 100 \times 8.33 \right) / 0.75 = \frac{\text{_____}}{\text{minimum kilowatt rating}}$$

- C. Select a water heater based upon BTU or kilowatt rating.

Make: _____ Model Number: _____

BTU or kilowatt rating: _____

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



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Total Water Requirements Worksheet

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Plumbing Fixture	Water Usage (gph)	Number of Fixtures	Maximum Hourly Water Usage per Type of Fixture (gph)
Example: Warewashing	50	1	50
Example: Lavatory	5	4	5 x 4 = 20
3-Compartment Sink			
3-Compartment Sink (Bar)			
Utilities Soak Sink			
Warewashing Machine			
Warewashing Machine Conveyor - Per-Rinse			
Clothes Washer			
Hand Operated Pre-Rinse Sprayer	32		
Lavatory Sink(s), Includes Rest Rooms	5		
Mop Sink	7		
Garbage Can Washer	35		
Showers	14		
Hose Bib for Cleaning	35		
Total Water Required by all Fixtures			



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