



REQUIREMENTS FOR HOOD PLANS

Submit a digital set of plans drawn to scale of at least ¼-inch per foot.

Plans shall conform to applicable California Mechanical Code requirements.

Plans shall include:

Name and address of food facility, name, address and telephone number of the hood manufacturer, hood designer and food facility owner(s).

An overhead view of the equipment covered by the outline of the hood (if hood has gutters, the inside edge or inner rim of the hood gutters must be clearly shown on the plans), each make-up air diffuser location in relation to hood location(s), the exhaust and make-up air ducts, and the exhaust and make-up air fans on the roof. Specify all make and model numbers of equipment and fans on the plans. Show all dimensions of hoods, equipment and ducts, and clearances around pieces of equipment and to nearby walls on the plans.

Front and side elevations of hood(s), all cooking equipment and any high-temperature dishwasher(s). The side elevation drawing of Type I hoods must show baffle grease filters (where used) installed at an angle greater than 45 degrees from the horizontal and a drip tray below the filters. See example hood plan on page 2.

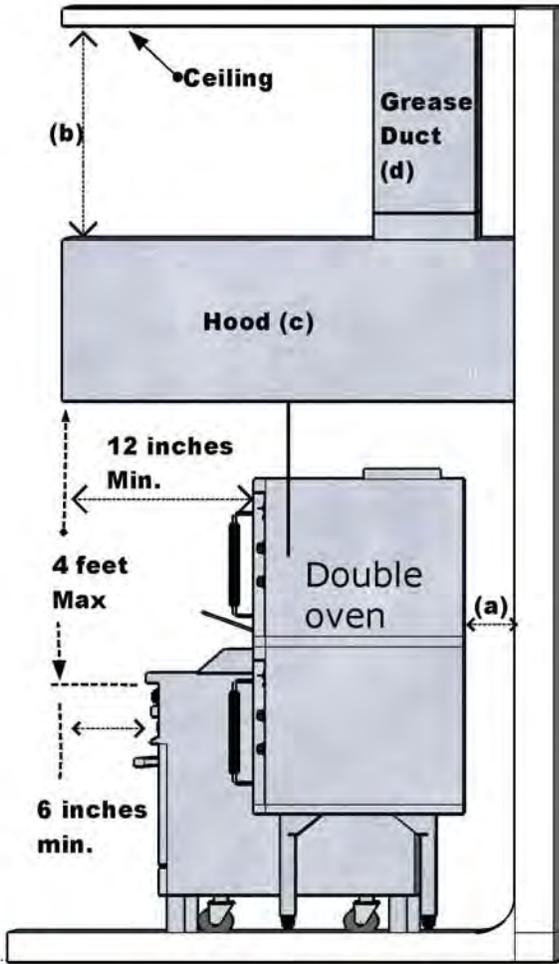
Type and gauge of metal used in each hood (galvanized or painted hoods are not acceptable) and ducts. Hoods must be built to meet applicable NSF standards. Submit make (and model number, if applicable) for each hood.

For each hood specify if it is Type I (for grease or smoke) or Type II (for steam, vapor, heat or odors), UL listed, built to comply with applicable NSF standards, canopy or non-canopy, compensating, or other (describe).

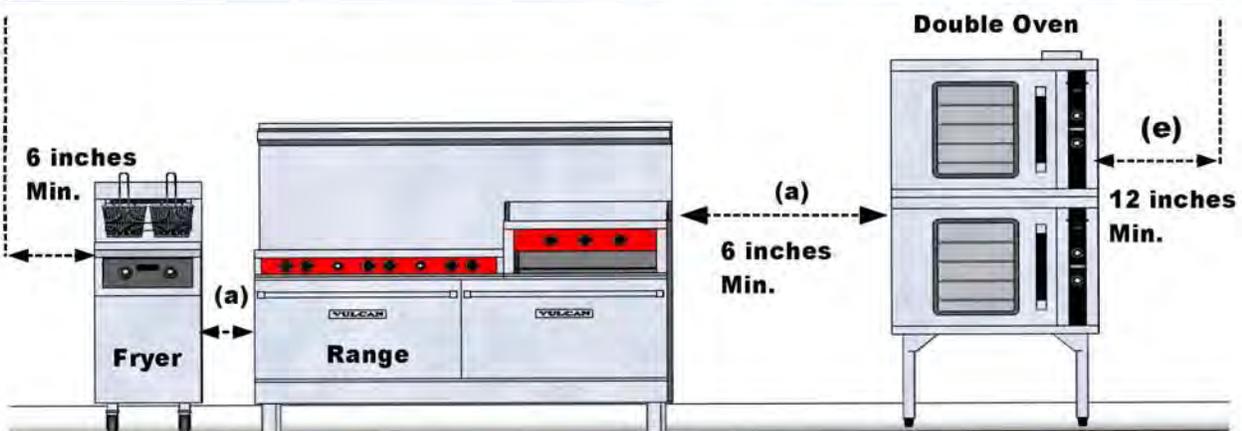
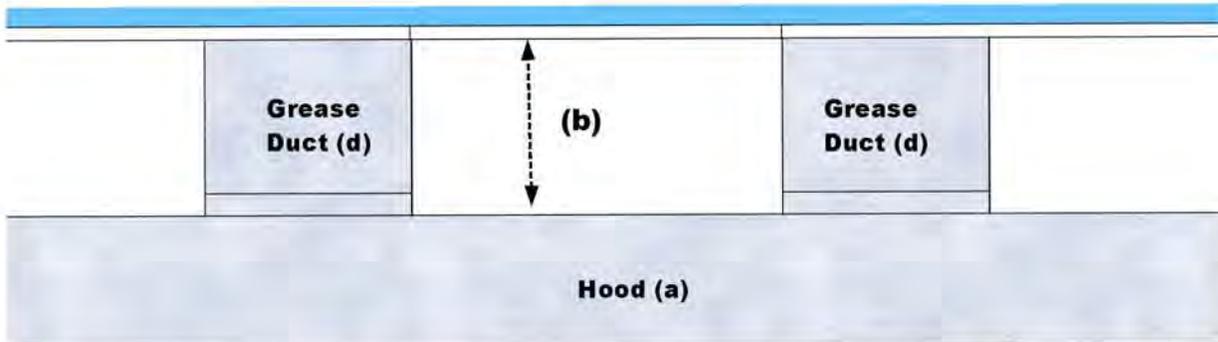
Submit manufacturer specifications sheets for the following: each hood, UL or equal listing card for each UL or equal listed hood (if applicable), hood grease filters, exhaust fan(s), make-up air fan(s), make-up air diffusers, all cooking equipment, any high temperature dishwashers.

Completely fill out and submit a HOOD WORKSHEET **for each hood**.

Example of elevations (Type I Hood)



- (a) Cooking Equipment must be spaced at least 6 inches apart and from adjacent walls if on legs, or properly flashed together and to the walls if on legs, or the cooking equipment must be equipped with approved commercial casters (if casters are allowed by the fire protection district or fire department) and approved heavy duty quick disconnect flexible gas lines with approved restraining cables or chains.
- (b) Hoods less than 12 inches from the ceiling or walls shall be flashed solidly with approved materials to the ceilings or walls.
- (c) Stainless steel hoods must be constructed of at least No. 22 gauge (0.030 inch, 0.76 millimeter) stainless steel.
- (d) Grease ducts serving a Type I hood shall be constructed of at least 0.055 inch thick (1.40 millimeter) in thickness.
- (e) Twelve or more inch overhangs for some cooking equipment.



ADDITIONAL VENTILATION REQUIREMENTS FOR FOOD FACILITIES

Extra-Large Bakery Ovens

- A. Ovens with full doors that allow racks to be rolled directly into them (figure 1) or with smaller door openings that do not allow racks to be rolled in (figure 2) shall be ventilated by one of the following methods:

1. A canopy hood over the entire oven; the inside edge of the hood shall overhang the oven by at least 6-inches on open sides; except that the inside edge of the hood shall overhang the oven door opening(s) by at least 36-inches. Use the formula $Q=50A$ to calculate minimum hood exhaust volume.

Q = quantity of air, in cubic feet per minute

A = the horizontal surface area of the hood, in square feet

Figure 1



Figure 2



2. An eyebrow hood that will extend the full length of the oven with the inside edge of the hood overhang of the oven door opening(s) by at least 36-inches. Use the formula $Q=50A$ to calculate minimum hood exhaust volume.

Charbroilers and Tandoor Ovens

- A. Solid-fuel and nonsolid-fuel grease burning charbroilers and Tandoor ovens shall be ventilated by Type I canopy hoods. The inside edge of the hood shall overhang cooking surfaces by at least 12-inches on all open sides.

1. If there is no UL or equal listed Q formula, use Q formulas from the California Mechanical Code for solid-fuel cooking equipment, which is usually double the normal requirement (e.g. 3 or less exposed sides is $Q=200$, instead of 100).

Conveyor Ovens

- A. Conveyors ovens with grease vapor generation, such as conveyor pizza ovens, shall be ventilated as follows:
1. Single conveyor ovens.
 - a. Shall be ventilated by Type I canopy hoods. The inside edge of the hood shall overhang the body of the oven (does not have to overhang conveyor belts) by at least 6-inches on all open sides, except that the inside edge of the hood shall overhang the oven openings and any side door opening(s) by at least 12-inches.
 2. Multiple stacked conveyor ovens.
 - a. Shall be ventilated by Type I hoods. The inside edge of the hood shall overhang the body of the oven by at least 6-inches on all open sides and the conveyor belts on both sides, except that the inside edge of the hood shall overhang the oven openings and any side door opening(s) by at least 12-inches.
- B. If there is no UL or equal listed Q formula, use one of the following formulas to calculate minimum exhaust volume.
1. If 4 exposed hood sides: $Q=100A$
 2. If 3 or less exposed hood sides: $Q=75A$
 3. Alternate formula: $Q=50PD$
P = that part of the perimeter of the hood that is open in feet
D = distance in feet between the lower lip of the hood and the cooking surface

Large or Tall Ovens

- A. Examples include, but are not limited to, double stacked ovens, BBQ ovens, rotisserie ovens, deck pizza ovens or any large oven. These ovens shall be ventilated by one of the following methods:
1. A canopy hood over the entire oven; the inside edge of the hood shall overhang the oven by at least 6-inches on all open sides, except that the inside edge of the hood shall overhang the oven door opening(s) by at least 12-inches.
 - a. If there is no UL or equal listed Q formula, use Q formulas from the California Mechanical Code.
 2. Eyebrow hood

- a. An eyebrow hood that will extend the full length of the oven with the inside edge of the hood overhanging the oven door opening(s) by at least 36-inches.
- b. If an oven has a properly designed and installed self-evacuating system (exhaust fan that exhausts air directly from the interior of the oven so that when the oven door is open air flows into the oven interior), an eyebrow hood with a 30-inch overhang of the oven door opening(s) may be used.
- c. Use the formula $Q=50A$ to calculate minimum hood exhaust volume.

Top Hinged Oven Doors

- A. For canopy hoods over single or multiple stacked ovens with top hinged oven doors the required hood overhang of the oven door opening(s) shall be increased by the width of the door(s). For example, if a 12-inch hood overhang is required, and if the top hinged door(s) are 12-inches wide, a hood overhang of 24-inches past the oven door opening(s), (12-inches past the outer edge of the oven door or doors when it or they are in the open position) would be required.

Obstructions over Cooking Equipment

- A. If a solid object is installed above cooking equipment, such as wall mounted salamander broilers, cheesemelters or shelves, the inside edge of the canopy hood shall overhang the cooking equipment below the object(s) by at least 12-inches on open sides.

Solid-Fuel Cooking Equipment

- A. Examples include wood and charcoal fired charbroilers and ovens.
- B. Type I hoods are required.
- C. The inside edge of canopy hoods shall overhang solid-fuel charbroiler cooking surfaces by at least 12-inches on all open sides.
- D. The inside edge of canopy hoods shall overhang solid-fuel oven door opening(s) by at least 18-inches.
- E. If there is no UL or equal listed Q formula, use Q formulas from the California Mechanical Code.
- F. Hoods over solid-fuel cooking equipment shall be provided with separate exhaust systems.
 1. A single hood may be used for more than one solid-fuel cooking equipment unit, such as two or more wood fired charbroilers.
 2. Cooking equipment that does not use solid-fuel cannot be under a hood that has solid-fuel cooking equipment under it.

Non-Undercounter High-Temperature Dishwashing Machines

- A. High temperature dishwashing machines are those that use a minimum final rinse temperature of 180°F.
- B. Non-conveyor dishwashers and conveyor dishwashers that do not utilize pantleg hoods shall have a canopy hood that will overhang the machine by at least 12-inches on all open sides.
- C. Conveyor-type dishwashers with pantleg hoods shall have a hood overhang at the dirty dish end of at least 6-inches with at least 300cfm exhaust and a hood overhang at the clean dish end of at least 10-inches with at least 500cfm exhaust.

Backshelf Ventilator Hoods (Non-Canopy Hoods)

- A. These types of hoods are closer to the cooking surface than canopy hoods and do not overhang surfaces (figure 3).
- B. Backshelf ventilator hoods are acceptable for use over fryers, griddles and wok ranges.
- C. Backshelf ventilator hoods are not acceptable for use over ranges, charbroilers and ovens (including Tandoor ovens).

Figure 3



Hood Make-Up Air

- A. Mechanical make-up air shall be provided that is equal to that amount which is mechanically exhausted. Windows and doors are not approved for make-up air.
- B. Hood exhaust and make-up air systems shall be connected by an electric interlocking switch.
- C. Make-up air and HVAC diffusers or registers should be located at least 10 feet or more from hoods. Show on the plans the proposed locations of all make-up air and HVAC diffusers or registers in relation to the hood(s).
- D. Perforated type make-up air diffuser or register openings are recommended.
- E. Submit manufacturer specification sheets for all supply air diffusers or registers (including all HVAC diffusers or registers). Perforated type make-up air diffuser or register openings are recommended. If any supply air (hood make-up air or HVAC) diffusers or registers are located less than 10 feet from hoods, the diffusers or registers must be the perforated type or be of a type where airflow direction directly toward a hood does not occur or can be blocked.
- F. Make-up air must be filtered.
- G. Short-circuit hoods are prohibited.
 - 1. A short-circuit hood is a hood that has make-up air introduced directly into the hood cavity.
 - 2. Make-up air diffusers shall be located to prevent a short-circuiting of air supplied to a hood.

Air Balance Test

- A. For final inspections of exhaust hood systems in food facilities, provide a copy of an approved hood make-up air and exhaust air balance test report for Merced County Environmental Health.

Hood Side Panels or End Walls and Walls at Cooking Equipment

- A. Hood capture of fumes, heat, steam, grease vapors, etc. has been shown to be more effective with use of side or end stainless steel panels or walls at the ends of hoods. Side or end panels or end walls are especially recommended for existing hoods that are found to be performing poorly and no reason for poor performance can be identified.

- B. Provide acceptable smooth, durable, cleanable, non-corrodible, non-flammable and light colored wall coverings (such as stainless steel or ceramic tile) behind cooking equipment and at any sidewalls that are adjacent or in close proximity to cooking equipment from the bottom edge of hoods down to the top of the floor covering.

Island Hoods

- A. The inside edge of island hoods shall overhang cooking surfaces or dishwashers by at least 12-inches on all 4 sides (some equipment items may require more than a 12-inch overhang).

Hood Construction

- A. Hoods must be constructed of approved materials (such as stainless steel or copper). New galvanized steel hoods are not acceptable. Existing galvanized steel hoods may remain in place if they are in good condition, properly designed and functioning properly, as determined by Merced County Environmental Health.
- B. Hoods must be constructed to meet NSF International or equivalent standards.
 - 1. The interior surfaces of hoods shall be hard, smooth and easily cleanable. Paint is not acceptable.
 - 2. All joints and seams of exhaust hoods shall be constructed to be tight, sealed and easily cleanable. Riveted joints and seams are not acceptable.
- C. Hoods less than 12-inches from ceilings or walls shall be flashed solidly with approved materials (e.g., stainless steel) to the ceilings or walls.

Grease Filters and Grease Extractors

- A. Grease Filters
 - 1. Grease filters must be approved, baffle filters (mesh filters are not permitted).
 - 2. Grease filters in hoods shall be installed at an angle greater than 45 degrees from the horizontal.
 - 3. Grease filters in hoods shall be equipped with a drip tray beneath the lower edge of the filters.

B. Plans Submittal

1. When submitting Type I hood plans, include the following information:
 - a. Submit the number, type and size of hood grease filters or grease extractors proposed.
 - b. Submit manufacturer specification sheets for the hood grease filters or grease extractors (include the filter or extractor face velocity range in feet per minute).
 - c. Submit a hood grease filter or grease extractor air flow chart (cubic feet per minute and static pressure).

Hood Exhaust Ducts

- A. Exhaust duct(s) shall be connected to Type I hoods (hoods for collecting and removing grease and smoke) and Type II hoods (hoods for collecting and removing steam, vapor, heat or odors). Exhaust ducts for Type I and II hoods shall terminate outside of the building in which the hood(s) are located in an approved manner.
- B. Grease duct systems serving Type I hoods shall be designed and installed in a manner to provide an air velocity within the duct system of not less than 1,500 feet per minute and not to exceed 2,500 feet per minute.

Additional Information

- A. See the current edition of the California Mechanical Code (and local codes, if applicable) for additional information and requirements relating to exhaust hood systems in food facilities.