



Hood and Duct Systems for Non-Residential Kitchens

Submittal Requirements

- Site plan
- Construction plans & elevations
- Structural calculations for units exceeding 400 pounds (weight to include duct, shaft and hood)

Minimum Requirements for Construction Drawings

Plans shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show that it will conform to the provisions of the adopted Codes and ordinances.

Acceptable drawings sizes are those that are larger than 11" x 17" and drawn to an appropriate scale as listed below. PDF Files must be unlocked or unprotected, so city staff can make comments, reduced, flattened and full-size, one-to-one format (layers must be merged or flattened).

Washington State law requires that any registered professional who prepares or supervises the preparation of drawings and construction documents stamp and sign such documents. Where multiple copies of stamped submittal documents are submitted, at least one set must bear an original wet seal.

One combination Building/Mechanical permit will be issued for the construction of a Hood & Duct system. Applications must include the following information that is necessary to verify compliance with the 2021 International Building Code and the 2021 International Mechanical Code (IMC), both as amended by the State of Washington.

Site Plan

1. Scale and north arrow. Max. scale $1" = 40'$ (Preferred scale is $1" = 20'$ or $1" = 40'$)
2. Dimensions of lot, distance to property lines, location(s) and square footage and use of existing or proposed structures, and street name.
3. Location of roof penetrations, other openings on the roof. Equipment on roof & distance to roof edge, height above roof.

Construction Plan

Submit complete details of the kitchen ventilation system to show compliance with the 2021 IMC. (Scale is $1/8" = 1' \ 1/4" = 1'$)

1. Show location of proposed hood and duct system(s).
2. For ducts exhausting at the roof, exhaust outlets shall have the discharge opening located not less than 40 inches (1016 mm) above the roof surface. Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from parts of the same or contiguous buildings, adjacent buildings, adjacent property lines and air intake openings into any building and shall be located not less than 10 feet (3048 mm) above the adjoining grade level. Exhaust outlets shall be located not less than 10 feet horizontally from or not less than 3 feet above air intake openings into any building. IMC 506.3.13.
3. Provide framing plans and calculations, for vertical and lateral loads, stamped by a Washington State registered professional engineer when equipment has a combined weight exceeding 400 pounds (including duct, shaft and hood).

4. Clearly identify the type and size of cooking equipment on the plans along with distances from the bottom of the hood to the top of the cooking surface. The vertical distance between canopy-type hood and cooking surface shall not exceed 4 feet. IMC Sec. 507.4.1.
5. Kitchen exhaust canopy-type hood must extend a minimum 6 inches beyond the cooking surface on all open sides in compliance with IMC Sec. 507.4.1.
6. Grease ducts and plenums serving a Type I hood must be at least No. 16 gage steel or stainless steel .045 inch in thickness. Type I hood must be No. 18 gage steel or stainless steel .0335 inch in thickness. IMC Sec(s) 506.3.1.1 and 507.2.3.
7. Ducts serving a Type I hood shall slope not less than $\frac{1}{4}$ inch per lineal foot toward the hood where the duct length does not exceed 75 feet. When the horizontal portion of the kitchen exhaust duct exceeds 75 feet in length, the slope must be at least 1 inch per lineal foot toward the hood. IMC Sec. 506.3.7
8. Indicate grease duct locations and dimensions on the exhaust duct. IMC Sec. 506.3.8 and 506.3.9.
9. Listed grease filters must be installed with the lowest edge located at the height set forth in IMC Table 507.2.8 at an angle greater than 45 degrees from horizontal as required by IMC Sec. 507.2.8.2.
10. The kitchen exhaust duct must be enclosed per IMC 506.3.11 & IBC Sec. 713.
11. The duct enclosure must be sealed around the duct at the point of penetration and vented to the exterior at the point of termination. The duct must be separated from combustible construction by at least 18 inches and from non-combustible construction by at least 6 inches and should serve a single grease exhaust system. IMC Sec. 506.3.11.1
12. Where enclosures are not required, exposed grease duct systems serving a Type 1 hood shall have at least 18 inches clearance from unprotected combustible construction and at least 3 inches from noncombustible construction and gypsum wallboard attached to noncombustible structures. See exceptions under IMC Sec. 506.3.6
13. Type I hoods shall be designed and installed in a manner to provide an air velocity of not less than 500 feet per minute. IMC Sec. 506.3.4.
14. The following information must be provided to review air quantities and velocities in the duct to ensure compliance with IMC Sec 506.3.4: the horizontal surface area, in square feet, of the hood; the distance in feet between the lower lip of the hood and the cooking surface; that part of the perimeter hood that is open, in feet; and the fan's cubic-feet-per-minute rating.
15. Show how kitchen exhaust will be provided with makeup air equal to the amount exhausted. Make-up air system must be interlocked with the exhaust system. IMC Sec. 508.
16. Cooking appliances required to have a Type 1 hood must be provided with approved automatic fire suppression systems IMC Sec. 509.1.
17. Where a kitchen/dining facility having a total kitchen hood exhaust rate greater than 2000 CFM review section C403.7.7 of the Washington State Energy Code.