

Kitchen Hood Plan Submittal Checklist

(September 11, 2019)

Note: Wisconsin Code allows for the submission of HVAC plans (inclusive of type I or II commercial kitchen hoods) at a time after the approval of the building plans. Such submission may involve a different designer, than that of the building plan submission. In all cases, it is extremely important that the HVAC designer coordinate their plan submission with the building plans. This checklist will help provide that coordination. Failure to address the topics below may result in delay of the plan approval and possibly additional plan review fees.

If possible, the SBD-118 HVAC plan approval application form or materials issued after arranging a review via the Dept. should include the transaction I.D. number of the building plans, or HVAC plans (if appropriate) under the heading: “*Previous Related Transaction I.D.*”

The items listed below serve as part of a general submittal checklist and are not to be addressed as being all inclusive of requirements associated with such installations since each installation is unique, with specific requirements to be addressed on a site-by-site basis.

Commercial Kitchen Hoods Type I (Grease or Smoke)

A Type I commercial kitchen hood, associated duct system as well as suppression system shall be installed where cooking appliances produce grease or smoke. In operations where there are low durations of use, low frequencies of use, non-grease foods, unique occupancy, unique building layout, unique equipment listing, etc. such that the Dept. determines that a Type I commercial kitchen hood is not required, only then may a different system, as found acceptable by the Dept., be used.

Commercial Kitchen Hoods Type II (Fumes, Steam, Odors, or Heat)

A Type II commercial kitchen hood and associated duct system shall be installed where cooking appliances produce fumes, steam, odors or heat. In operations where there are low durations of use, low frequencies of use, unique occupancy, unique building layout, unique equipment listing, etc. such that the Dept. determines that a Type II commercial kitchen hood is not required, only then may a different system, as found acceptable by the Dept., be used.

A. Location Requirements

1. Air removed by a mechanical exhaust system to be discharged outdoors
2. **Type I exhaust outlets** on roof to be a minimum 40” above roof, 10 ft horizontally from bldgs, property lines & air intakes - unless air discharge is away from such locations, then only 5 ft is req’d; min. distance between vertical discharge fans and parapet type building structures shall be 2 ft provided that such structures are not higher than the top of the fan discharge openings; and exhaust discharge to be 10 ft above adjoining grade level. Outlets to be located not less than 10 ft horizontally from part of the same or contiguous building.
3. **Type II exhaust outlets** on roof to be minimum 30” above the roof or from exterior vertical walls, 10 ft horizontally from bldgs, property lines, and 3 ft in all directions from openings into the building. Outlets to be not less than 10 ft above adjoining grade level. Outlets shall not be directed onto walkways. Outlets shall meet the provision for exterior wall openings protectives per IBC.
4. Room or space served by hood to be under neutral or negative pressure

B. Ventilation System Ducts and Exhaust Equipment

1. Type I & II exhaust ducts shall be independent of all other exhaust systems except as allowed
2. Type I duct fan motor to properly connected

3. Type I duct to be 16 ga. (0.055") steel or stainless steel 18 ga. (0.044")
4. Type I duct joints, seams & penetrations to be liquid tight, with weld or braze or other acceptable means providing a liquid tight seal at 1,500°F, per code requirements for metal overlap & connection
5. Type I duct systems for Type I hoods has a duct velocity of ≥ 500 ft/min unless exception met
6. Separate Type I duct systems required unless exception met
7. Type I duct system to be ≥ 18 " from combustible materials (Note: gypsum board is considered **combustible** in the IMC)
8. Type I duct to have $\frac{1}{4}$ " per 12" slope if $\leq 75'$; 1 per 12 if $>75'$ toward the hood or approved grease reservoir
9. Type I duct cleanouts to have door operable without tools
10. Type I duct cleanouts (min. 12" x 12" each) located a minimum of every 20 ft horizontally and not more than 10 ft from changes in direction greater than 45 degrees is indicated and size of cleanout provides adequate edge distances to be maintained
11. Personnel entry into Type I duct cleanouts to have minimum openings of 22" x 20"
12. Type I duct cleanout to be provided on inlet & outlet side of inline fan used for kitchen hood. Cleanouts to be within 3 ft of fan duct connections
13. Duct enclosure required around Type I ducts enclosure can be built from bldg materials, or a listed grease wrap [Per Exception 1---ASTM E2336-- Grease wraps may **NOT** be used if the duct is sealed using liquid tight seal (caulk)--review the grease duct wrap listings]
14. Type I ducts to have cleanout openings with approved sign to be placed on access openings, "**ACCESS PANEL. DO NOT OBSTRUCT.**"
15. Upblast fans to be hinged, supplied with a flexible weather proof electrical cable to permit inspection and cleaning. Ductwork to extend a minimum of 18" above the roof surface. A means of restraint to limit the swing of the fan on its hinge shall be provided.
16. Underground grease duct installation shall have steel min. 16 ga (0.0575") which is coated to provided protection from corrosion or shall be constructed of stainless steel min. 18 ga (0.0450"), properly tested, encased with a min. of 4" concrete, sloped toward grease reservoirs, with access for cleaning of the reservoir and the base of each vertical duct riser, with cleanouts identified.

C. Commercial Kitchen Hood

1. Minimum hood metal thickness 18 ga. (0.046") for steel; 20 ga. (0.033") for stainless steel for Type I, Minimum hood metal thickness 22 ga. (0.029") for steel; 24 ga. (0.022") for stainless steel, or other approved material for Type II
2. Hood joints, seams and penetrations meet criteria
3. Type I hood to be ≥ 18 " from combustible materials (including gypsum board), unless exception is met
4. Hood to overhang ≥ 6 " beyond the edge of the cooking surface, on all open sides. Minimum height from lower lip of hood and cooking surface is 4 ft unless exception met
5. Minimum hood capacity met per listed equations or engineering analysis used
6. Fire suppression system to be installed for Type I

D. Calculations, Testing and Operations

1. Heat loss calculations justifying make-up air equipment sizing
2. Air balance calculations demonstrating that the amount of air supplied is approximately the same as exhaust/return air
3. Air balancing to be performed with supply air approximately the same as exhaust, return air amounts
4. Operation sequencing, and need for maintenance manuals to be on-site
5. Type I hood **systems to operate automatically** whenever cooking operations occur
6. Makeup air systems shall be automatically controlled to start and operate simultaneously with exhaust system
7. Set back controls are installed
8. Performance Test and Capture/Containment Test to be performed by permit holder

E. Miscellaneous

1. Suppression system indicated with controls as required for Type I
2. Portable Class K rated fire extinguisher within a 30 ft travel distance of commercial type cooking equipment for Type I
3. Dampers of any sort are not allowed to be installed in the exhaust system of commercial cooking appliances which are vented by exhaust hoods
4. Guards to be placed around equipment and appliances on the roof if located within 10 ft of roof over 30" above roof or grade below
5. Permanent access required where equipment requires access and appliances on roofs, etc at a height > 16 ft.
6. Platform indicated for appliances, equipment, etc. located on roofs with slope of 3:12 or greater with 30" drop unless a code exception met
7. Minimum exhaust of 1.5 CFM/ft² from kitchen required if the hood is listed recirculating type or exhaust from hood does not exceed value minimum value determined by 1.5 CFM/ft²
8. Accessible controls located a minimum of 15" above and 48" or below the finished floor

Note: Every fuel burning appliance shall discharge the products of combustion to a vent, factory-built chimney or masonry chimney, except for appliances vented in accordance with IMC 804. The chimney or vent shall be designed for the type of appliance being vented. ie. A wood appliance would require a kitchen hood to be capable of exhausting heat and venting combustion by products from wood. Similarly, an atmospheric combustion gas appliance such an oven, stove, etc. would have a similar requirement if the hood were used as a "vent". A double "listing" involving hood criteria and venting would be required.