



Building Department

Douglas County Building Department
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COMMERCIAL KITCHEN HOOD WORKSHEET/CHECKLIST

Two copies of this worksheet/checklist must accompany plan sets submitted with commercial kitchen range hood permit applications. It explains and organizes information needed by the *Douglas County Building Department (DC)* to efficiently review plans and issue permits. DC will keep this document as part of the permanent project file and will use it to verify code compliance. The applicant is responsible for assuring the accuracy and consistency of the information. **Plans for the hood and grease duct must be submitted together.**

A. Project Address: _____

B. Established use and history of building
 Is it an existing restaurant, food processing area or food service area: Yes No

If no, provide Tenant Improvement permit number: _____

C. Location of exterior ductwork and mechanical equipment

- Is ductwork or mechanical equipment located outside of building other than roof top? Yes No
- Applicant shall provide plan and elevation views showing ductwork, duct enclosure, hood, cooking surface air supply, exhaust system, and equipment support including structural detail (See attached examples 1,2 and 3).

D. Type of Hood

- For grease and smoke removal: Type I _____ Quantity
 (Example: deep fryer, char broilers, grill, ovens and all solid-fuel appliances)
- For steam, vapor, heat or odor removal: Type II _____ Quantity
 (Example: steamer, soup kettle and dishwashers)
 Hood shall have a permanent, visible label identifying it as a Type II hood.
- Is hood for solid-fuel cooking equipment? Yes No
 If yes, a separate exhaust system is required.

E. Type of material and gage (506.3.1.1, 507.4, 507.5)

	TYPE I HOOD			TYPE II HOOD		
	Type of Material	Min. Req.	Gage Proposed	Minimum Req.	Gage Proposed	
Duct and Plenum	Stainless Steel	18 Ga.	_____ Ga.	26 Ga. Up to 12" Diameter	_____ Ga.	
	Galvanized Steel	16 Ga.	_____ Ga.	22 Ga. Up to 30" Diameter	_____ Ga.	
Hood	Stainless Steel	20 Ga.	_____ Ga.	Stainless Steel 24 Ga.	_____ Ga.	
	Galvanized Steel	18 Ga.	_____ Ga.	Galvanized Steel 22 Ga.	_____ Ga.	
Flashing	Stainless Steel	22 Ga.	_____ Ga.	NOT REQUIRED		
	Galvanized Steel	22 Ga.	_____ Ga.			

F. Quantity of air exhausted through the hood (507.12, 507.14)

1. Canopy hoods shall extend a minimum of 6" beyond cooking surface.

Type of hood proposed:

Canopy

Non-canopy

Distance between lip of hood and cooking surface: Proposed:

Canopy _____ ft.
4 ft. maximum allowed

Non-canopy _____ ft.
3 ft. maximum allowed

2. Complete part "i" for listed hood or part "ii" for unlisted hood.

i) Listed hood. Make and model No.: _____

Listed CFM _____

Provide manufacturer's installation instructions and listing documents for listed hoods and grease ducts.

ii) Unlisted hood: Quantity of air = Lineal ft. of hood front X CFM from Table below

= _____ ft. X _____ $\frac{\text{CFM}}{\text{ft.}}$ = _____ CFM

Minimum net airflow for different types of unlisted hood. (507.13)

For island hood see IMC Sec 507.13.

Identify the cooking appliances and circle the CFM applied. Where any combination of cooking appliances are utilized under a single hood, the highest exhaust rate required by this table shall be used for the entire hood.

Hood Exhaust CFM Table

***CFM / lineal ft. of hood front**

1) Extra heavy-duty cooking appliances (non-canopy hood not allowed) Type I hood e.g. All solid-fuel including solid-fuel pizza oven.	550
2. Heavy-duty cooking appliances Type I hood e.g. wok, broiler (gas or electric), gas burner range.	400
3. Medium-duty cooking appliances Type I hood e.g. deep fryer, Top range (electric or gas), skillet.	300
4. Light-duty cooking appliances (e.g. pizza oven, pastry oven, etc. and Type II hoods)	200

G. Exhaust duct system (506.3.4)

1. Applicant shall provide the specified air velocity in exhaust duct.

2. Duct size _____ in. X _____ in., duct area = _____ $\frac{\text{in.} \times \text{in.}}{144}$ = _____ ft²

Type of Hood	Air Velocity (FPM)	CFM/Duct Area (ft ²)	Proposed Air Velocity
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1. I Req. 500 to recom. 2500 _____ / _____ = _____ FPM

II Req. min 500 cfm _____ / _____ = _____ FPM

2. Static pressure loss

duct _____ in. + grease filters/extractor _____ in. + other _____ in. = Total _____ In. of H₂O

3. Fan and Motor shall be of sufficient capacity to provide the required air movement. Fan motor shall not be installed within ducts or under hood.

Fan make and model _____ HP _____

Static pressure _____ in. at _____ cfm.

If using a listed duct wrap, provide manufacturer's installation instructions and listing documents.

H. Exhaust outlet location (506.3.12)

	Min. required	Proposed
1. Exhaust outlet shall terminate above roof	Type I 40 in. Type II 24 in.	_____ in.
Distance from same or adjacent building	10 ft.	_____ ft.
Distance above adjoining grade	10 ft.	_____ ft.
Distance from property line	10 ft.	_____ ft.
Distance from windows and doors	10 ft.	_____ ft.
Distance from mechanical air intake	10 ft.	_____ ft.
Distance of duct above adjoining grade at alley	16 ft.	_____ ft.
2. If exhaust outlet terminates at exterior wall, provide cleaning equipment per DR 14-98.		<input type="checkbox"/> Yes <input type="checkbox"/> No

I. Makeup air (508.1)

- Applicant shall provide makeup air not less than 90% of the exhaust. _____ Cfm.
- Makeup air system shall be electrically interlocked with the exhaust system, such that the makeup air system will operate when the exhaust system is in operation. Provide note on plan sheet no. _____.
- Makeup air shall be provided by a mechanical or gravity means of sufficient capacity. _____
Windows and door openings shall not be used for the purpose of providing makeup air.

FAN		MOTORIZED DAMPER	
Make and model _____	H.P. _____	Recommended air velocity, 500 fpm	
Static pressure _____	in. at cfm _____	Duct area req. = cfm/500 fpm	/500= _____ ft. ²
Duct Dimension _____	, area _____ ft. ²	Duct Dimension req. = _____	
Air velocity = cfm/area _____	/ _____ fpm	Eff. Damper opening _____ X _____ = _____ ft. ²	

J. Slope of duct and cleanout access (506.3.7, 506.3.8)

- Horizontal duct up to 75' long _____
More than 75' long _____
Min slope ¼ in/ft _____
Min slope 1 in/ft _____
proposed _____ in/ft
Proposed _____ in/ft
- Tight-fitting cleanout doors shall be provided at every change in ductwork direction _____
Total number proposed _____

K. Duct enclosure (506.3.10, 506.3.11)

- Ducts penetrating a ceiling, wall or floor shall be enclosed in a duct enclosure having fire rating per IBC 707.4 from the point of penetration to the outside air. A duct may only penetrate exterior walls at locations where unprotected openings are permitted by Table 704.8 of 2006 International Building Code.
- For code compliance purposes, it is acceptable to assume that ducts penetrating concrete, brick or steel ceilings, walls or floors shall require a 2-hour fire-resistive duct enclosure, and for others, it shall be 1 hour.

Type of Construction	Min. Fire-Resistive Const. Of Enclosure	Proposed	Proposed Material and Construction
I F.R., II F.R.	2 hour	_____ hr.	_____
II, III, IV, V	1 hour	_____ hr.	_____

- Duct enclosures shall be separated from the duct by at least 6". (506.3.10) Proposed _____ in.
- Duct enclosures shall be sealed around the duct at the point of penetration and vented to the exterior through a weather-protected opening.

5. Duct enclosures shall serve only one kitchen exhaust duct. (See multiple hood venting for exception)
6. Tight-fitting hinged access door shall be provided at each cleanout. Access enclosure doors shall have a fire-resistance rating equal to the enclosure. An approved sign shall be placed on access door. **"ACCESS PANEL. DO NOT OBSTRUCT."**

L. Multiple hood venting (506.3.5)

1. Number of hoods vented by a single duct system: Proposed: _____
A single duct system may serve more than one hood located in the same story of the building, provided that the interconnecting ducts do not penetrate any fire resistance rated construction and the grease duct system does not serve a solid fuel-fired appliance.
2. A hood outlet shall serve not more than a 12-foot section of hood.

M. Provide seismic restraint vertical support and attachment details. Shall be prepared by a structural engineer. (IMC 301.15, IBC 1613, ASCE7-05)

N. Additional information for Type 1 hood only (507):

1. Grease filters shall be installed at minimum 45 degree angle and Equipped with drip tray and gutter beneath lower edge of filters. (507.11.2) Proposed _____ Degrees
2. Distance between lowest edge of grease filters and cooking surface of Grill, fryer, exposed flame shall be not less than 2 ft. Proposed _____ ft.
Exposed charcoal, charbroil shall be not less than 3 1/2 ft. (507.11) Proposed _____ ft.
3. Type I hood and duct shall have clearances from construction of: Proposed _____ in.
GWB on **metal stud** (minimum 3" clearance required) (506.3.6, 507.9)
GWB on **wood stud** (minimum 18" clearance required)

UNPROTECTED (Combustible Construction)		PROTECTED (With 1-hour Fire-Rated Material and Metal Stud Construction)	
Hood Min. Req. 18 in. Proposed _____ in.	Min. req. 3 in.	Proposed _____ in.	
Duct Min. Req. 18 in. Proposed _____ in.	Min. Req. 3 in.	Proposed _____ in.	

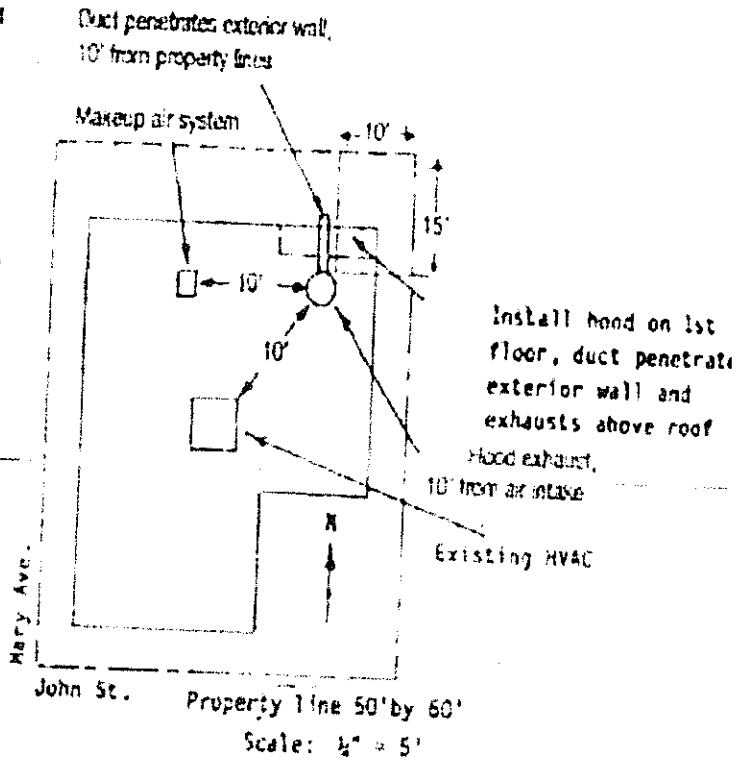
4. Hoods less than 12 inches from ceilings or walls shall be flashed solidly.
Flashing provided Yes No Distance from ceiling _____ in., wall _____ in.
5. All joints and seams shall be made with continuous liquid-tight weld or braze made on the external surface of the duct system. Vibration insulation connector may be used provided it consists of noncombustible packing in a metal sleeve joint. (506.3.2, 506.3.2.4) Joints shall be smooth & accessible for inspection. (506.3.2)
6. Exhaust fans used for discharging grease exhaust shall be positioned so that the discharge will not impinge on the roof. The fan shall be provided with an adequate drain opening at the lowest point to permit drainage of grease to a suitable collection device. (506.5.2)
7. Fire Suppression System. Fire Suppression System shall be per Fire Code. Portable fire extinguisher shall also be provided per Fire Code. Provide automatic shutoff for make-up air, exhaust system and appliances when suppression system is activated. Dependant on suppression agent & manufacturer's requirements.
8. Performance test certificate of the hood system shall be provided to owner before final approval. Test shall verify proper operation, the rate of exhaust, makeup air, capture and containment performance of the exhaust at normal operating conditions. (507.16)

References:

- 1) International Mechanical Code 2006
- 2) International Building Code 2006
- 3) International Fire Code 2006
- 4) International Fuel Gas Code 2006

DRAWING EXAMPLE #1

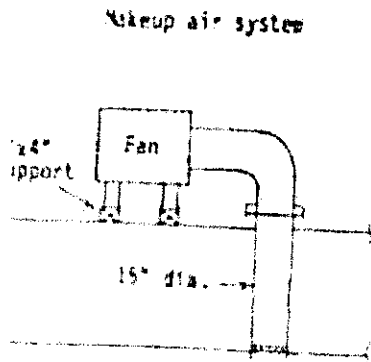
Identification of adjacent streets, property and alleys.
 Any easements that cross the property or other pertinent legal features.
 Property line and property dimension.
 Location, size and shape of any structure present on site and proposed for construction.
 A North arrow and scale.
 Locate and describe the job. Show location of hood, hood exhaust and supply, existing HVAC and HVAC exhaust and supply.



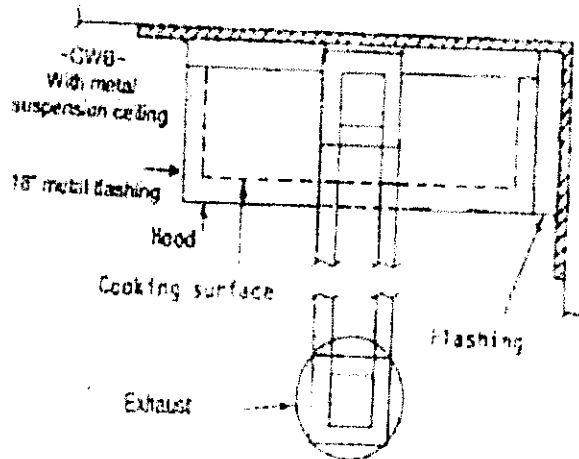
DRAWING EXAMPLE #2

Example 2

Elevation View of Makeup Air System



Plan View of Hood System



DRAWING EXAMPLE # 3

Section 506.5.3 2006 IMC Exhaust fan mounting. An upblast fan shall be hinged and supplied with a flexible weatherproof electrical cable to permit inspection and cleaning. The ductwork shall extend a minimum of 18 inches above the roof surface.

Elevation Views of Hood System

Duct enclosure, 1-Hour when connecting less than 4 stories
2-Hour when connecting 4 or more stories

