



# CITY OF BLACK DIAMOND

24301 Roberts Drive ~ PO Box 599  
Black Diamond, WA 98010

Phone: (360) 886-5700  
Fax: (360) 886-2592

## COMMERCIAL KITCHEN HOOD WORKSHEET

**A. Project Address:** \_\_\_\_\_ **Project Number** \_\_\_\_\_

**B. Established use and history of building**

Is it an existing restaurant, food processing area or food service area:  Yes  No

If no, provide construction or change of use permit number: \_\_\_\_\_

**C. Location of exterior ductwork and mechanical equipment**

1. Is ductwork or mechanical equipment located outside of building other than roof top?  Yes  No

2. 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**

1. For grease and smoke removal: Type I \_\_\_\_\_ Quantity  
(Example: deep fryer, charbroilers, grill, roasting ovens larger than 6 KW and all solid-fuel appliances)

2. For steam, vapor, heat or odor removal: Type II \_\_\_\_\_ Quantity  
(Example: steamer, pastry and pizza oven)  
Hood shall have a permanent, visible label identifying it as a Type II hood.

3. Is hood for solid-fuel cooking equipment?  Yes  No  
If yes, a separate exhaust system is required.

**E. Type of material and gauge (IMC 506.3.11, 507.4, 507.5)**

Component	Type of Material	Type I HOOD		Type II HOOD	
		Gauge		Gauge	
		<u>Min. Req.</u>	<i>Proposed</i>	<u>Minimum Req.</u>	<i>Proposed</i>
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.	24 Ga.	_____ Ga.
	Galvanized Steel	18 Ga.	_____ Ga.	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 are hoods that extend a minimum 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 \_\_\_\_\_

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

= \_\_\_\_\_ ft. X \_\_\_\_\_ CFM/ft = \_\_\_\_\_ CFM

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

Identify the cooking appliances and circle the CFM applied. Where any combinations 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**  
**Canopy or Non-Canopy Hood**

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 Type II hood e.g. pizza oven (electric or gas), solid fuel (see #1).	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 =  $\frac{\text{in.} \times \text{in.}}{144}$  in. = \_\_\_\_\_ ft<sup>2</sup>

Type of Hood	Air Velocity (FPM)	CFM/Duct Area (ft <sup>2</sup> )	Proposed Air Velocity
--------------	--------------------	----------------------------------	-----------------------

1. I Req. 500 to recom. 2500 \_\_\_\_\_ / \_\_\_\_\_ = \_\_\_\_\_ FPM

II Recom. 500 to 2500 \_\_\_\_\_ / \_\_\_\_\_ = \_\_\_\_\_ FPM

2. Static pressure loss

duct \_\_\_\_\_ in. + grease filters/extractor \_\_\_\_\_ in. + other \_\_\_\_\_ in. = Total \_\_\_\_\_ In. of H<sub>2</sub>O

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.

4. Exhaust fan shall be interlocked with Type I cooking appliances and makeup air system. (507.2.1.1, 508.1)

**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 6-2005.  Yes  No

**I. Makeup air (508.1, E 1412.4.1)**

- 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.
- 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. Motorized damper required at openings.
- If more than 2500 CFM supplied to the space other than the hood, provide heater capable of heating makeup air supplied to the space to 65 degrees F.

Heater model # \_\_\_\_\_ Input BTU \_\_\_\_\_ Output BTU \_\_\_\_\_  
 Heater CFM \_\_\_\_\_ AFUE \_\_\_\_\_

FAN	MOTORIZED DAMPER
Make and model _____ H.P. _____	Recommended air velocity, 500 fpm
Static pressure _____ in. at CFM	Duct area req. = $\frac{\text{cfm}}{500 \text{ fpm}} = \frac{\text{_____}}{500\text{fpm}} = \text{_____} \text{ ft.}^2$
Duct Dimension _____, area _____ ft. <sup>2</sup>	Duct Dimension req. = _____
Air velocity = $\frac{\text{cfm}}{\text{area}} = \frac{\text{ft}^3/\text{M}}{\text{ft}^2} = \text{_____} \text{ fpm}$	Eff. Damper opening _____ X _____ = _____ ft. <sup>2</sup>

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

- Horizontal duct up to 75' long **Min slope ¼ in/ft** Proposed \_\_\_\_\_ in/ft  
 More than 75' long **Min slope 1 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 Table 601 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 the 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
IA, IB, IIIA, IIIB	2 hour	_____ hr.	_____
IIA, IIB, IV, VA	1 hour	_____ hr.	_____

- Duct penetrates Type VB roof/ceiling assembly ONLY, may omit the enclosure per 506.3.10 Ex. #3.
- Duct enclosures shall be separated from the duct by **at least 3 in.** Proposed \_\_\_\_\_ In.
- Duct enclosure shall be of **METAL STUD** construction and shall be sealed around the duct at the point of penetration and vented to the exterior through a weather-protected opening.
- Duct enclosures shall serve only one kitchen exhaust duct.
- 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 (507.15)**

- 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.
- A hood outlet shall serve not more than a 12-foot section of hood.

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

- 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
- 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 ½ ft.** (507.11) Proposed \_\_\_\_\_ ft.
- Type I hood and duct shall have clearances from combustible 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		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.	

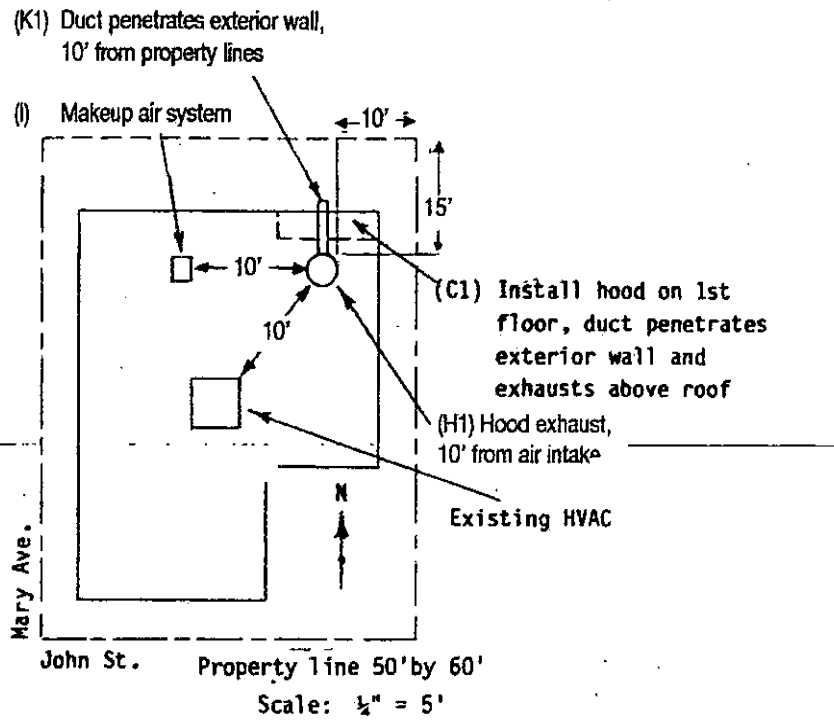
- Hoods less than 12 inches from ceilings or walls shall be flashed solidly.  
Flashing provided  Yes  No Distance from ceiling \_\_\_\_\_ in., wall \_\_\_\_\_ in.
- All joints and seams shall be made with continuous liquid-tight weld or braze made on the external surface of the duct system. Vibration insulation connector may be used provided it consists of noncombustible packing in a metal sleeve joint. (506.3.2, 507.7)
- 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 International Fire Code
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). All grease dust shall be tested to ensure welding and brazed joints are liquid tight. (506.3.2.5)

**Example 1**

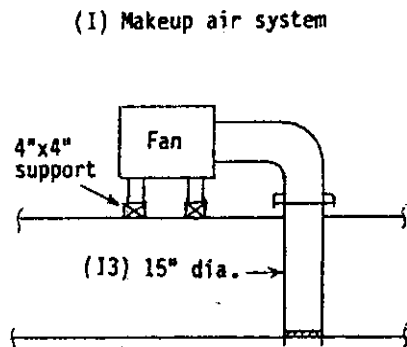
**Mechanical Plot Plan**

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

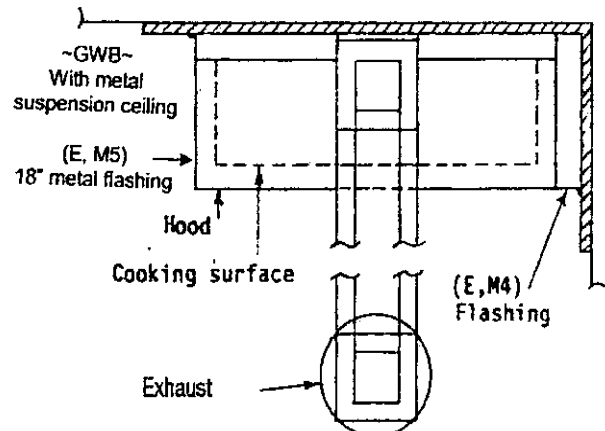


**Example 2**

**Elevation View of Makeup Air System**



**Plan View of Hood System**



**Example 3**

**Elevation Views of Hood System**

