



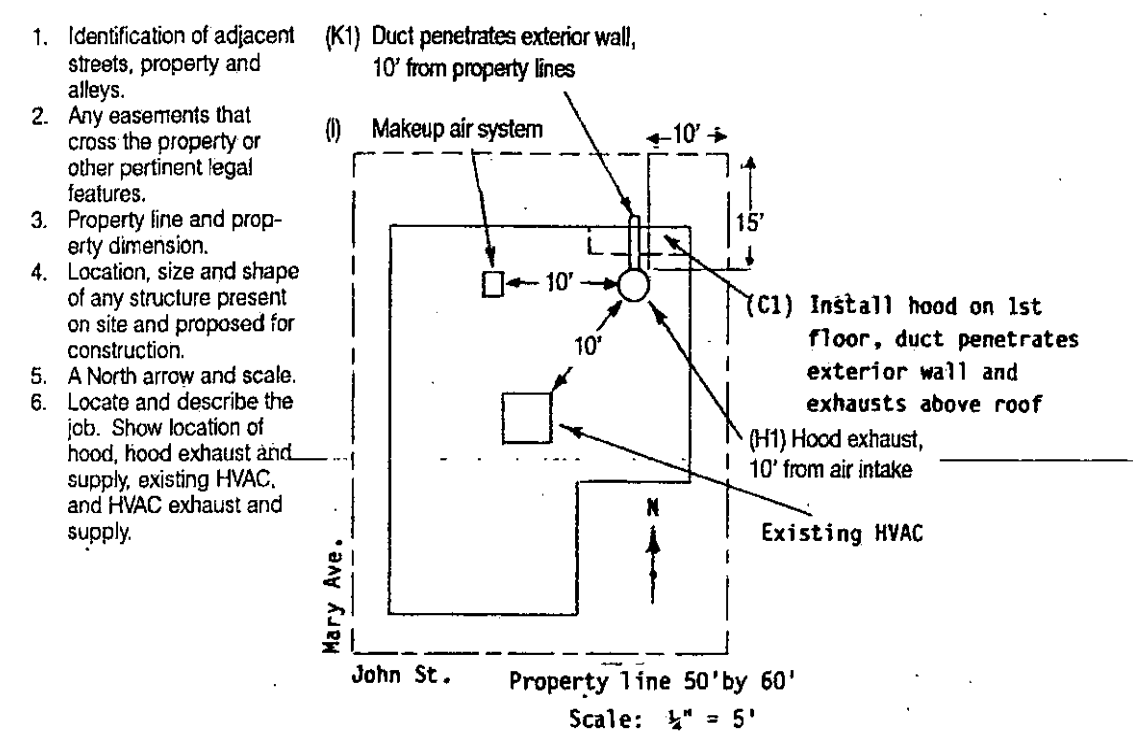
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 Department of Planning and Development (DPD)
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Project Number: _____
 Address: _____

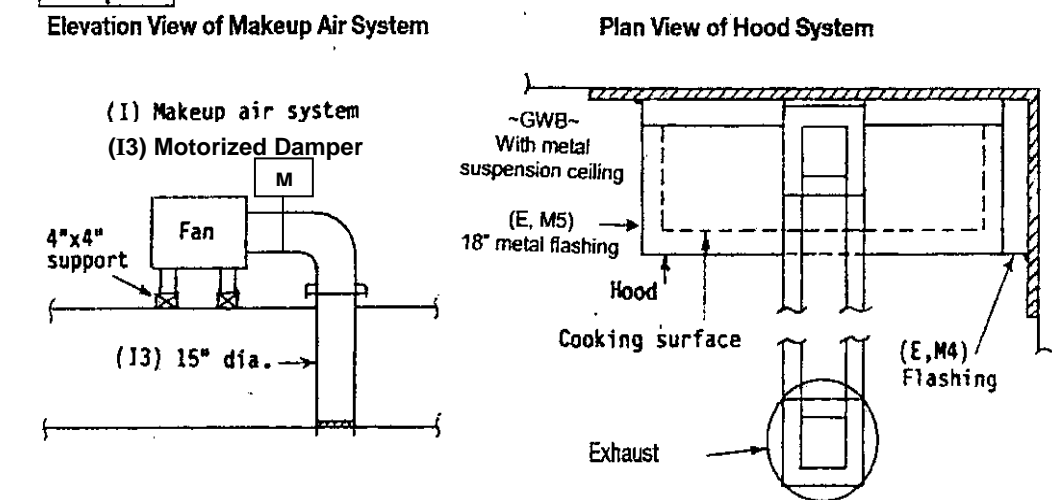
COMMERCIAL KITCHEN HOOD WORKSHEET 2009 SMC

Commercial Kitchen Hood application shall include exhaust fan, duct, hood, and make-up air system in one permit application. This worksheet must be submitted with commercial kitchen range hood permit applications. It explains and organizes information needed by the Department of Planning and Development (DPD) to efficiently review plans and issue permits. DPD will keep this document as part of the permanent project file and will use it to verify code compliance.

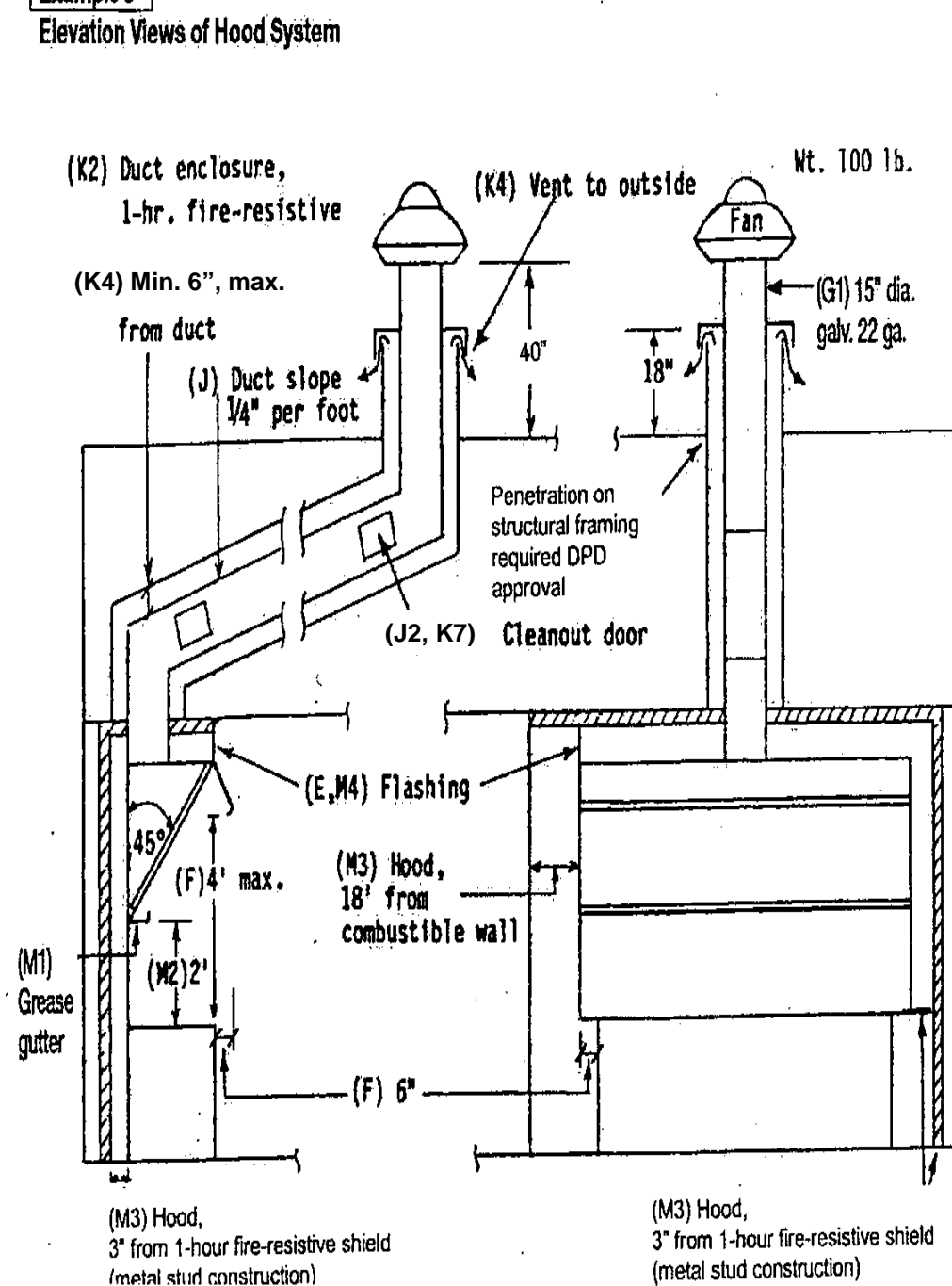
**Example 1
 Mechanical Plot Plan**



**Example 2
 Elevation View of Makeup Air System**



**Example 3
 Elevation Views of Hood System**



	Type I		Type II	
	Min. Req.	Proposed	Min. Req.	Proposed
Distance from same or adjacent building	10 ft.	_____ ft.	10 ft.	_____ ft.
Distance above adjoining grade	10 ft.	_____ ft.	10 ft.	_____ ft.
Distance from property line	10 ft.	_____ ft.	10 ft.	_____ ft.
Distance from windows and doors	10 ft.	_____ ft.	3 ft.	_____ ft.
Distance from mechanical air intake	10 ft.	_____ ft.	10 ft.	_____ ft.
Distance of duct above adjoining grade at alley	16 ft.	_____ ft.	16 ft.	_____ ft.
Exhaust outlet shall terminate above roof	40in.	_____ in.	30 in	_____ in.
Exhaust outlet terminate at exterior wall	Cleaning equip. per DR 6-2005	<input type="checkbox"/>	30 in.	_____ in.

- 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. = $\frac{\text{cfm}}{500 \text{ fpm}} = \frac{500 \text{ fpm}}{500 \text{ fpm}} = \text{_____ ft.}^2$	
Duct Dimension _____, area _____ ft. ²		Duct Dimension req. = _____	
Air velocity = $\frac{\text{cfm}}{\text{area}} = \frac{\text{ft}^3/\text{M}}{\text{ft}^2} = \text{_____ fpm}$		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 1/4 in/ft
 Proposed _____ in/ft
 Proposed _____ in/ft
 Number proposed _____
 - Tight-fitting cleanout doors shall be provided at every change in ductwork direction and within 3 ft. of the in-line fan

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 SBC 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 Seattle 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 6 in. per 506.3.10.1 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 I 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. Exposed charcoal, charbroil shall be not less than 3 1/2 ft. (507.11) Proposed _____ ft. 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	
	Min. Req.	Proposed	Min. req.	Proposed
Hood	18 in.	_____ in.	3 in.	_____ in.
Duct	18 in.	_____ in.	3 in.	_____ in.

- Hoods less than 12 inches from ceilings or walls shall be flashed solidly.
 Flashing provided Yes No _____ 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)
- Fire Suppression System. Fire Suppression System shall be per Seattle Fire Code. Portable fire extinguisher shall also be provided per Seattle Fire Code. Fire Department phone number (206) 386-1450. (509.1)
- 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)

References:
 1) Seattle Mechanical Code 2009
 2) Director's Rule 6-2005
 3) Seattle Building Code 2009
 4) Seattle Fire Code

- A. All new cooking appliance and new dishwasher shall be energy Star labeled per SEC 1475** Yes No
- 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**
- 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, charbroilers, grill, roasting ovens larger than 6 KW and all solid-fuel appliances)
 - 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.
 - Is hood for solid-fuel cooking equipment? Yes No
 If yes, a separate exhaust system is required.

E. Type of material and gauge (SMC 506.3.1.1, 507.4, 507.5, 507.9)

Component	Type of Material	Type I HOOD Gauge		Type II HOOD Gauge	
		Min. Req.	Proposed	Minimum Req.	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.	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)**
- 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. Non-canopy _____ ft.
 4 ft. maximum allowed 3 ft. maximum allowed
 - 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) For island hood see SMC Sec 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)**
- Applicant shall provide the specified air velocity in exhaust duct.
 - Duct size _____ in. X _____ in., duct area = $\frac{\text{in.} \times \text{in.}}{144} = \text{_____ ft.}^2$

Type of Hood	Air Velocity (FPM)	CFM/Duct Area (ft ²)	Proposed Air Velocity
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 ₂ 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)			