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Supplemental Application HOOD AND DUCT

STAFF USE ONLY	DATE STAMP
LABEL	
<p>PLEASE NOTE: ALL APPLICATIONS AND SITE PLANS MUST BE COMPLETED IN BLACK OR BLUE INK <u>ONLY</u></p>	Intake by: _____

This application cannot be submitted alone. In addition to this form, a complete package includes:

Applicant Use	SUBMITTAL CHECKLIST	Staff Use Only
<input type="checkbox"/>	Master Application.	<input type="checkbox"/>
<input type="checkbox"/>	Quantity and Supplemental Checklist (see attached).	<input type="checkbox"/>
<input type="checkbox"/>	A separate application is required for the hood fire suppression system. (Form No. SA009 & SA009f)	<input type="checkbox"/>
<input type="checkbox"/>	A plumbing permit may be required for new grease trap installations. (Form No. SA006)	<input type="checkbox"/>
<input type="checkbox"/>	Applicable processing fees. <i>Refer to current fee schedules. Depending on the adopted fee structure, additional fees may occur if base hours/fees at intake are exhausted.</i>	<input type="checkbox"/>

Name of Project: _____			
Owner: _____			
Mailing Address: _____	City: _____	State: _____	Zip: _____
Contractor: _____		Company Name: _____	
License #: _____		Expire Date: _____	
Mailing Address: _____	City: _____	State: _____	Zip: _____
Phone #: _____	Cell Phone # _____	Fax #: _____	
E-mail Address: _____			
Contact Person: _____		Phone #: _____	
Engineer Name: _____			
License #: _____		Expire Date: _____	
Mailing Address: _____	City: _____	State: _____	Zip: _____
E-mail Address: _____			
Phone #: _____	Cell Phone # _____	Fax #: _____	
Contact: _____			

PROJECTS ASSOCIATED WITH THIS APPLICATION:

Non-residential Hood and Duct Application Supplemental Requirement Checklists

Applicant Use	QUANTITY CHECKLIST	Staff Use Only
<input type="checkbox"/>	A completed application submitted for each hood and duct.	<input type="checkbox"/>
<input type="checkbox"/>	Three sets of 11 x 17 drawings max.	<input type="checkbox"/>
<input type="checkbox"/>	Three sets of equipment cut sheets.	<input type="checkbox"/>

This section provides the information needed for the applicant, the plans examiner, and the building inspector to verify code compliance. The information provided becomes part of the issued permit. Complete a separate sheet for each hood.

This does not cover all of the exceptions in the International Mechanical Code. Use of exceptions is the responsibility of the applicant. The applicant shall identify the code section and note where used on the plans.

Supplemental Information				
Is it an existing restaurant, food processing area or food service area: Yes No				
If no, provide construction or change of use permit number:				
Location of exterior ductwork and mechanical equipment:				
1. Is ductwork or mechanical equipment located outside of building other than roof top? Yes No				
2. Provide plan and elevation views showing ductwork, duct enclosure, hood, cooking surface air supply, exhaust system, and equipment support including structural detail. Supports for hoods over 400lbs must be designed by a licensed engineer. Trusses will need to be evaluated by an engineer to determine if they are adequate to support the imposed loads in accordance with ASCE 07-05.				
Type of hood: (IMC 507.2)				
1. For grease and smoke removal: Type I Yes No (Example: Deep fryer, char-broilers, grill, pizza ovens and all solid-fuel appliances)				
2. For steam, vapor, heat or odor removal : Type II Yes No (Example: steamer, pastry dishwashers): Type II hood shall have permanently identification label.				
3. Is hood for solid-fuel cooking equipment? Yes No If yes, a separate exhaust system is required.				
TYPE I HOOD			TYPE II HOOD	
	Type of Material	Gage		Gage
Duct and Plenum	Stainless Steel	18 Ga.	Stainless Steel	26 Ga. Up to 12" Diameter
	Galvanized Steel	16 Ga.	Galvanized Steel	22 Ga. Up to 30" Diameter
Hood	Stainless Steel	20 Ga.	Stainless Steel	22 Ga.
	Galvanized Steel	18 Ga.	Galvanized Steel	24 Ga.
Flashing	Stainless Steel	22 Ga.	Not Required	
	Galvanized Steel	22 Ga.		
Quantity of air exhausted through the hood (507.12, 507.14)				
<i>1. Canopy hoods are hoods that extend a minimum 6" beyond cooking surface</i>				
Type of hood proposed: Canopy Non-canopy				
Distance between lip of hood and cooking surface:				
Canopy - 4 ft. maximum allowed				
Non-canopy 3 ft. maximum allowed				
<i>2. Complete part 'i' for listed hood or part 'ii' for unlisted hood:</i>				
i) Listed hood. Make and model No.: _____ Listed CFM _____				

ii) Unlisted hood: Quantity of air = Lineal ft. of hood front X CFM from table below: = 10 ft. X 550 CFM/ft. = 5500 CFM

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

Hood Exhaust CFM Table - Minimum net airflow for different types of unlisted hoods. (507.13)

Type of Hood	Extra Heavy Duty	Heavy Duty	Medium Duty	Light Duty
Wall – mounted canopy	550	400	300	200
Single island canopy	700	600	500	400
Double island canopy	550	400	300	250
Back-shelf / pass-over	Not allowed	400	300	250
Eyebrow	Not allowed	Not allowed	250	250

Definitions:

Extra Heavy Duty cooking appliances: appliances utilizing solid fuel such as wood, charcoal, briquettes, and mesquite to provide all or part of the heat source for cooking.

Heavy Duty cooking appliances: electric under-fired broilers, electric chain (conveyor) broilers, gas under-fired broilers, gas chain (conveyor) broilers, gas open-burner ranges (with or without oven), Electric and gas wok ranges, and electric and gas over-fired (upright) broilers and salamanders.

Medium Duty Cooking appliances: electric discrete element ranges (with or without oven), electric and gas hot top ranges, electric and gas griddles, electric and gas double-sided griddles, electric and gas fryers, (including open deep fat fryers, donut fryers, kettle fryers, and pressure fryers), electric and gas pasta cookers, electric and gas conveyor pizza ovens, electric and gas tilting skillets (braising pans) and electric and gas rotisseries.

Light Duty Cooking appliances: gas and electric ovens (including standard, bake, roasting, revolving re-therm convection, combination convection / steamer, conveyor, deck or deck style pizza, and pastry), electric and gas steam-jacketed kettles, electric and gas compartment steamers (both pressure and atmospheric) and electric and gas cheese-melters.

Exhaust Duct System

Welding Certifications must be on site. Light test required

Applicant shall provide the specified air velocity in exhaust duct.

(Duct size 24 in X 36in.) / 144 = (dcfm) 6 ft²

Type of Hood Air Velocity (FPM)/CFM / Duct Area (ft²)= Proposed Air Velocity Type I hood = (1500 req. to 2500 recommended) 1500 / 6 (dcfm)ft² = 250 FPM

Type II hood = (500 to 2500 recommended) 500 / 6 (dcfm)ft² = 83.3 FPM

Static pressure loss:

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

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. The activation of the exhaust fan shall occur through an interlock with the cooking appliances.

Fan make and model _____ HP _____

Static pressure _____ in. at _____ CFM.

Exhaust outlet location (506.3.12) Min. required

Exhaust outlet shall terminate above roof minimum: Type I - 40 in Type II 30 in

Exhaust outlets shall be located 10 feet minimum from adjacent buildings, adjoining grade, property line, doors and windows and 10 feet from or 3 feet above any mechanical air intakes. Wall and roof terminations shall not be in areas where opening protection is required. Any termination shall not be within 3 feet of other building openings.

Makeup air (508.1)

Makeup air not less than 90% of the exhaust. (dcfm) 6 ft 2 X .9 = 8.1 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.

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	
Make and Model _____ HP _____	Recommended air velocity, 500 FPM
Static pressure _____ in. at CFM	Duct area req. = CFM / 500 FPM: _____ CFM / 500 FPM = _____ ft2
Duct Dimension _____ in X _____ in = _____ ft2	Duct dimension required = _____
Air velocity = CFM / Area: _____ CFM / _____ ft2 = _____ FPM	Eff. Damper opening _____ X _____ = _____ ft2

Slope of duct and cleanout access (506.3.7, 506.3.8) and Clearance (506.3.6)

Horizontal duct up to 75' long Min. Slope 1/4" in/ft. More that 75' long Min. Slope 1" in/ft.

Tight-fitting cleanout doors shall be provided at every change in ductwork direction.

GWB on Metal stud - minimum 3" clearance required

GWB on wood stud - minimum 18" clearance required

Duct enclosure (506.3.10.3, 506.3.)

Ducts penetrating a ceiling, wall, or floor shall be enclosed, from point of penetration to the outside air, in a duct enclosure having a fire rating not less than the floor or wall that is penetrated - not to exceed two hour rating. A duct may only penetrate exterior walls at locations where unprotected openings are permitted the International Building Code.

Rating of roof, wall or ceiling assembly: _____

Duct Enclosure clearances from duct to shaft:

GWB w/ wood stud wall	18 in.
GWB w/ steel stud wall	6 in.
ASTM 814 or UL 1479 Factory built or Field applied enclosures	Per manufacturers installation instructions.

Duct enclosures 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 clean-out. 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"**. These shall be identified on the plans. Additional code requirements may apply.

Additional Information

UL 710 and UL 710B hoods installed in accordance with the listing are exempt from material seam grease filter and capacity requirements of the IMC. UL 710B Type II hoods must use 100 square feet per appliance to determine ventilation rates.

Grease filters shall be installed at min 45 degree angle and equipped with a drip tray and gutter beneath lower edge of filters.

Distance between lowest edge of grease filters and cooking surface:

Grill, fryer, exposed flame shall be not less than 2 ft.

Exposed charcoal, charbroil shall be not less than 3 1/2 ft.

Type 1 hood shall have clearances from combustible construction of 18”.

No clearance is required where ½” minimum cementitious board is covered with a smooth, cleanable, nonabsorbent, surface and noncombustible material that is attached to a noncombustible structure. This protection must extend 18” in all directions from the hood.

Vibration insulation connector may be used provided it consists of non-combustible packing in a metal sleeve joint. (506.3.2.4)

All joints and seems shall be made with continuous liquid-tight weld or braze made on the external surface of the duct system. (506.3.2)

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)

Grease ducts shall be inspected prior to both, use or concealment by duct wrap or shafts. The permit holder is required to provide the equipment for the test. A light test with a 100 watt power rating shall be performed on the entire duct system including connectors to the fan and hood.

Duct supports and bracing shall be provided to carry gravity and seismic loads. Supporting materials shall not penetrate the duct walls.

Fire Suppression System

Fire Suppression System shall be per fire code. Portable fire extinguisher shall also

Be provided per Fire Code. Provide automatic shut off for make-up air, exhaust system, and appliances when suppression system is activated. Dependant on suppression agent and manufacturer’s requirements.

Testing

Performance test certificate of the hood system shall be provided to owner before final approval. Test shall verify proper operation, the rate of exhaust, make-up air, and capture and containment performance of the exhaust at normal operating conditions.