



Zionsville Fire Department

Commercial Kitchen Exhaust Hood, Duct & Exhaust Fan

This worksheet must accompany plans submitted to the Zionsville Fire Department for application to receive a local fire protection permit. This worksheet is required and needs to be completed in its entirety. This worksheet is intended to assist the plan reviewer in efficiently reviewing plans and issuing permits in a timely fashion. ZFD will keep this document as a part of the permanent project file and will use it to verify code compliance. The applicant needs (**Owner/Occupant or System Designer**) to sign and date the document and is responsible for assuring the accuracy and consistency of the information provided herein. **Plans for the Commercial Cooking Equipment Suppression System (and associated worksheet) must be submitted prior to obtaining the kitchen hood fire protection permit.**

PROPERTY INFORMATION

Project Name:

Project Address:

Owner's Name:

Owner's Address:

Phone #:

Fax #:

Email:

SYSTEM DESIGNER/CONTRACTOR

Company Name:

Company Address:

Contact Name (Designer):

Phone #:

Fax #:

Email:

System Designed by Registered Engineer? Yes No

Name of System Designed by Registered Engineer (*stamp included*):

KITCHEN EXHAUST SYSTEM INSTALLER

Company Name:

Company Address:

Contact Name (Include Title):

Phone #:

Fax #:

Email:

1. DESIGN REQUIREMENTS

Yes No Is this project **Exempt** from Kitchen Exhaust Hood & Suppression Requirements? (IFC 507.2)

Yes No Is this a "Church" or "Day Care" facility? (If "No," proceed to Section 2.)

(If "Yes," complete the remainder of Section 1.)

Check **all** that apply:

a) How frequently will the kitchen appliances be used?

- Once a week or less,
 More than once a week

b) Are the appliances Residential or Commercial grade? (provide appliance cut sheets)

- Residential grade cooking appliances,
 Commercial grade cooking appliances,
 Both Residential and commercial grade appliances.

c) What type of cooking process will you be utilizing? (Check **all** that apply)

- "Warming" of food?
 "Cooking" of food?
 "Frying" of food?

2. TYPE OF EXHAUST HOOD

“Type I” or “Type II” Hood(s)?

Yes No N/A **Type I Hood** – Collecting and removing grease laden vapors and smoke (IMC 507.2.1)

Yes No N/A **Type I Hood (Solid Fuel)** – Collecting and removing grease laden vapors and smoke
(Separate or “Independent” Hood Provided?) (IMC 506.3.5.4)

Yes No N/A **Type II Hood** – Collecting and removing steam, vapor, heat or odors (IMC 507.2.2)

Note: Not required for UL Listed countertop electrically heated appliances such as: toasters, steam tables, popcorn poppers, hotdog cookers, coffee makers, rice cookers, egg cookers, and holding/warming ovens. Additional heat and moisture loads shall be accounted for and included in the HVAC system design. (IMC507.2.2)

MANUFACTURER OF HOOD

Manufacturer, Make &
Model of Kitchen Hood: _____

3. STYLE OF EXHAUST HOOD

Check **all** that apply:

Wall-mounted Canopy

Single Island Canopy

Double Island Canopy

Eyebrow

Back Shelf

Pass Over

4. LISTED & LABELED REQUIREMENTS

Yes No Designed per UL 710 Standard – Exhaust Hoods for Commercial Cooking Equipment?

Yes No Hood provided with a fixed label, symbol or other identifying mark of the “listed” organization in product evaluation?

Yes No Hood “Listing Card” provided with application?

Yes No Detailed information provided on Cooking Appliances provided (see section 8)

***** If hood is not listed per UL 710 standards, complete Section 5 below.**

5. UNLISTED OR “UNLABELED “ HOOD REQUIREMENTS

Yes No N/A Designed per IMC 507.13 requirements?

Yes No N/A Detailed information provided on cooking appliances “duty ratings”?
(Complete Section 9 below)

6. SIZE, LOCATION, AND OUTLET REQUIREMENTS OF HOOD

Yes No Detailed drawings provided with application?

Yes No Lineal feet of hood used in the design provided? _____

Yes No 6-inch hood overhang from cooking appliances provided? (IMC 507.12)

Yes No Does each exhaust outlet service no more than 12-feet of hood? (IMC 507.15)

Yes No Maximum distance from the cooking surface to the lip of the hood per manufacturer’s instructions provided with the application? _____-inches

Canopy hoods not to exceed 48-inches (IMC 507.12)

Non-canopy hoods not to exceed 36-inches (IMC 507.14)

7. DETAILED DIAGRAM OF COOKING EQUIPMENT UNDER HOOD & APPLIANCE TYPE INFORMATION

Yes No N/A Are there detailed drawings showing the dimensions of the equipment locations under the hood included with the application?

Yes No N/A Are detailed appliance specification sheets provided with the application?

Check all that apply:

- High-heat appliance(s) (flue temp more than 2,000' F)
- Low-heat appliance(s) (flue temp less than 1,000' F)
- Medium-heat appliance(s) (flue temp more than 1,000' F but less than 2,000' F)

- Yes No
- Yes No N/A
- Yes No N/A
- Yes No N/A

Is the length of the front face of the hood provided in the details as noted in Section 6?

Are the electric appliances designed to UL 197 Standards?

Are the gas appliances designed to UL 795 or ANSI Z83 standards?

Are the wood fired appliances designed to UL 2162 standards?

8. APPLIANCE DUTY RATING CLASSIFICATION ("LISTED" PROVIDED BY MANUFACTURER PER IMC 507.13)

- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A

Extra Heavy Duty (Must have "separate" exhaust hood per IMC 506.2.3)

Heavy Duty

Medium Duty

Light Duty

9. APPLIANCE DUTY RATING CLASSIFICATION(S) (ASHRAE STANDARD 154)

- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A

Extra Heavy Duty (Solid Fuel – Charcoal briquettes or wood)

(Must have "separate" exhaust hood per IMC 506.2.3)

Heavy Duty

- Electric & gas: broilers, conveyor broiler, gas open-burner ranges (with or without oven), wok ranges, salamanders

Medium Duty

- Electric & gas: ranges (with or without oven), griddles, fryers (including doughnut fryers), pasta cookers, conveyor pizza ovens, and rotisseries

Light Duty

- Electric & gas: ovens, steam jacketed kettles, steamers, cheese-melters

10. DUCTLESS HOODS (ONLY IF APPLICABLE)

- Yes No N/A
- Yes No N/A
- Yes No N/A

Designed in accordance with UL 710B Standards?

Listed information provided with application?

Manufacturer's information provided with application?

11. HOOD MATERIAL & GAGE

TYPE I HOODS:

- Yes No N/A
- Yes No N/A
- Yes No N/A

Is the material specified a minimum 20 gauge stainless steel? (IMC 507.4)

Are external hood joints, seams and penetrations welded & sealed grease-tight? (IMC 507.7.1)?

Are internal hood joints, seams, penetrations and filter support frames and other appendages attached inside the hood sealed grease-tight? (IMC 507.7.1)

TYPE II HOODS:

- Yes No N/A
- Yes No N/A

Is the material specified a minimum 24 gauge stainless steel? (IMC 507.5)

Are joints, seams and penetrations water-tight? (IMC 507.7.2)

12. HOOD SUPPORTS (IMC 507.6)

- Yes No
- Yes No

Are Type I hoods in place with non-combustible supports? (IMC 507.6)

Are the supports adequate for the combined weight inherent to the hood, the unsupported ductwork and the weight of personnel servicing the hood? (IMC 507.6)

DESIGN REQUIREMENTS FOR DUCTS

1. DUCT SIZE & REQUIREMENTS

- Yes No Duct dimensions and locations are shown on submitted plans?
- Yes No Duct is not interconnected with any other building ventilation or exhaust system? (IMC 506.3.5)
- Yes No Electrical wiring or wiring systems are not located within the duct? (IMC 301.7)
- Yes No Designed per UL 1978 Standards? (IMC 304.1 & 506.3.1.1, Exception 1)
- Yes No Designed per manufacturer's instructions? (IMC 304.1)
- Yes No A copy of the manufacturer's installation instructions was included with the application? (IMC 304.1)
- Yes No A copy of the manufacturer's installation instructions was provided to the owner or representative and available at the time of the inspection? (IMC 304.1)

2. EXHAUST DUCT VELOCITY (NEED EXHAUST FAN SPECIFICATIONS TO CALCULATE)

- Yes No Sized to meet 500-feet per minute (fpm) minimum requirement? (IMC 506.3.4)

3. CONSTRUCTION OF TYPE I DUCTS (NOT APPLICABLE TO TYPE II DUCTS)

Is the duct designed with:

- Yes No .055-inch steel (#16 manufacturer's standard gauge)? (IMC 506.3.1.1)
- Yes No .044-inch thick stainless steel (#18 manufacturer's standard gauge)? (IMC 506.3.1.1)
- Yes No Listed and labeled per UL 1978? (IMC 506.3.1.1)
- Yes No Labeled grease ducts installed according to manufacturer's recommendation? (IMC 304.1)
- Yes No All portions of the duct "Leak tight"? (IMC 506.3.3.1)
- Yes No "Grease Duct Leakage Test" to be performed in the presence of the code official? (IMC 506.3.3.1)
- Yes No Ducts exposed to outside atmosphere protected against corrosion? (IMC 506.8.3)
- Yes No The duct-to-hood joint designed per code? (IMC 506.3.2.2)
- Yes No Duct bracing & supports not penetrating duct walls? (IMC 506.9.1)

4. DUCT(S) PENETRATING FIRE-RESISTIVE CONSTRUCTION (IMC 506.3.10)

- Yes No N/A Interior rated floors greater than 2 stories shall be in fire-rated shaft enclosures with access openings on every floor?
- Yes No N/A Exterior wall penetrations allowed only in locations allowed to be "un-protected openings" per the *Indiana Building Code*?
- Yes No N/A Ducts shall not pass through vertical fire barriers or fire walls, unless:
- Protected by a shaft enclosure protected with a through-penetration fire stop system (TPFS) in accordance with ASTM E 814 & having an "F" and "T" rating equal to fire rating of the assembly? (IMC 506.3.10)
 - Having a pre-fabricated grease duct enclosure in accordance with UL 2221, and being protected with a TPFS system in accordance with ASTM E 814 & having an "F" and "T" rating? (IMC 506.3.10) Will provide a copy of the manufacturer's installation instructions and listing (cut-sheet) with application (IMC 304.1)

DESIGN REQUIREMENTS FOR EXHAUST FAN(S)

Fan Specifications:

Manufacturer: _____

Make & Model of Fan: _____

1. LISTED AND LABELED FAN

- Yes No Designed per UL 762 Standard – Restaurant Exhaust Appliance? (IMC 506.5.1)
- Yes No Equipment or materials have been attached a label, symbol, or other identifying mark of the organization engaged in the product evaluation? (IMC 506.5)

2. HOOD CONTROLS (ELECTRICAL)

- Yes No Make-up air (MUA) fans are electrically interlocked to operate whenever cooking operations occur and automatically controlled to start and operate simultaneously with exhaust system? (Including Kitchen HVAC air supplied at no more than 20%) (IMC 507.2.1.1 & 508.1)
- Yes No MUA fan is interlocked with fire suppression system to shut down when suppression system activates? (IMC 508.1)
- Yes No Exhaust fans continue to operate after the fire extinguishment system activates & supply fans serving exhaust hood assemblies with integrated supply air plenums shall be shut off with fire extinguishing equipment activation?
- Yes No Fire alarm (where required) is activated upon automatic or manual activation of suppression system? (IFC 907.14)
- Yes No Gas and/or electric cooking equipment located under the hood shall shut down upon activation of suppression system (**and** shall require a manual reset prior to fuel or power restoration)? (IFC 904.11.2)

3. FAN SELECTION

Minimum exhaust flow requirements (documentation required for each independent hood system.

- Yes No _____ CFM/lineal foot required (per manufacturer, or IMC 507.13)
- Yes No Minimum exhaust duct velocity requirements (500 fpm)
- Yes No Actual exhaust duct velocity per design _____ fpm.
- Yes No Listed information, "cut-sheet" was provided with the application?
- Yes No Manufacturer's installation instructions provided with the application?

Minimum MUA flow requirements (IMC 508.1)

- Yes No _____ CFM required (per manufacturer's listing)?
- Yes No Maximum of 20 %of required CFM delivered through kitchen HVAC (interlocked to automatically operate during cooking operations. (IMC 505.2)
- Yes No Amount of MUA supplied shall be approximately equal to the amount of exhaust air?
- Yes No Tempered MUA provided? (Temperature differential of make-up air shall not exceed 10° of conditioned space air IMC 508.1.1)

Exception: Short-circuit MUA delivered within the hood cavity, need not be tempered, except as required by manufacturer's specifications.

4. TERMINATION OF FAN

Yes No

Roof-top termination? (If "Yes," complete Section 5 below)

Yes No

Wall termination? (If "Yes," complete Section 6 below)

5. ROOF-TOP TERMINATION(S)

Yes No N/A

Exhaust outlets terminate 40-inches or more above the roof? (IMC 506.3.12.1)

Yes No N/A

Exhaust outlet terminations shall not be directed toward nor impinge on any structure? (IMC 506.3.12.3)

Yes No N/A

Provided with grease drain system to a rainproof collection container or remote grease trap? (IMC 506.5.2)

Yes No N/A

Hinged kit provided to permit proper inspection and cleaning? (IMC 506.5.3)

Yes No N/A

Flexible weatherproof electrical cable to permit proper inspection and cleaning? (IMC 506.5.3)

Clearance(s)

Yes No N/A

Minimum 10 feet horizontal clearance to: (IMC 506.3.12.3, 508.1 & 401.4).

- Contiguous and/or adjacent buildings, property lines and above adjoining grade.
- Air intake openings: minimum of 10-foot horizontal and 3-feet above

Minimum of 5-feet of clearance from: (IMC 506.3.12.3)

Yes No N/A

- Contiguous and/or adjacent buildings, air intakes, property lines and above adjoining grade **when exhaust outlet discharges away from such locations.**

Safe Access (IMC 306.5)

Yes No N/A

Equipment located on structures 16-feet in height or greater require permanent ladders?

Yes No N/A

Equipment located on roofs sloped greater than 25% (3:12) at any height are required to have a platform not less than 30-inches in any dimension and provided with guardrails not less than 42-inches above the platform? Access to equipment platforms shall not require walking on roofs with a slope greater than 33% (4:12)?

Yes No N/A

Equipment located outside of the roofline shall be provided with safe access and work platform for service, repair and maintenance.

Yes No N/A

A receptacle outlet shall be provided at or near the equipment (IMC 306.5.2)

6. WALL TERMINATION(S) (IMC 506.3.12.2)

Yes No N/A

Exhaust outlet terminations shall not be directed towards nor impinge on any structure? (IMC 506.3.12.3)

Yes No N/A

Provided with a grease drain system to a rainproof collection container or remote grease trap? (IMC 506.5.2)

Yes No N/A

Hinged kit provided to permit proper inspection and cleaning? (IMC 506.5.3)

Yes No N/A

Flexible weatherproof electrical cable to permit proper inspection and cleaning? (IMC 506.5.3)

Clearance(s)

Yes No N/A

Permitted where it does not create a public nuisance or fire hazard?

Yes No N/A

Shall not be located where "protected openings" are required per IBC?

Yes No N/A

Shall not be located within 3-feet of exterior openings (windows, doors, HVAC)?

DISCLAIMER: *The information contained herein includes basic requirements for commercial construction of commercial kitchen exhaust hoods and ducts and is not to be relied upon as all-inclusive or complete requirements. It is to your advantage to consult and use a qualified design professional and or a qualified professional contractor to assist you with those areas of construction with which may be unfamiliar to you in order to avoid untimely delays and expenses to your project. This list may not be all-encompassing and should not be considered a comprehensive list due to the extensive list of adopted codes. The inspector shall document ALL fire and Life Safety violations and require corrections when any are discovered during an inspection.*

Owner or General Contractor

I certify that the information provided in this document is true and accurate.

(Printed Name)

(Signature)

(Date)

(Company Name)

(Email and Phone Contact)