FIRE/BUILDING CODE INTERPRETATION

STANDATA

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FIXED FIRE SUPPRESSION AND EXHAUST SYSTEMS – COOKING, CLEANING, AND MAINTENANCE

PURPOSE

This interpretation is to clarify the National Building Code - 2019 Alberta Edition (NBC(AE)) and National Fire Code - 2019 Alberta Edition (NFC(AE)) requirements for fixed fire suppression and exhaust systems for commercial cooking.

This interpretation also clarifies the training requirements for kitchen exhaust cleaning personnel within the Province of Alberta.

DISCUSSION

Owners, designers, and safety code officers (SCO) have asked Municipal Affairs for guidance regarding fire suppression and exhaust systems of non-residential cooking installations and the cleaning thereof. The following responses are intended to address the most commonly raised questions in applying both the NBC(AE) and NFC(AE) for fixed fire suppression and exhaust systems for cooking as well as the requirements for cleaning.

APPLICATION

What standards apply to fire suppression and exhaust systems in commercial kitchens?

The **installation** of fire suppression systems and exhaust systems is under the jurisdiction of the NBC(AE). The *authority having jurisdiction* (AHJ) in the building discipline must be consulted for building permit and professional involvement requirements.

The **use, inspection, testing,** and **maintenance** of suppression systems and exhaust systems are under the jurisdiction of the NFC(AE). As such, the AHJ in the fire discipline should be consulted with regards to the use, inspection, testing and maintenance of these systems.

The NBC(AE) and the NFC(AE) sets out the minimum requirements for fire suppression and exhaust systems. Through these two codes, standards in the National Fire Protection Association documents are referenced, including:

1. NFPA 96 – 2017 “Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
2. NFPA 10 – 2013 “Standard for Portable Fire Extinguishers

Issue of this STANDATA is authorized by
the Provincial Fire and Building Administrators

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NBC(AE) Sentence 3.3.1.2.(2) and Appendix note of Division B states:

3.3.1.2.(2) Hazardous Substances, Equipment and Processes

1) Systems for the ventilation of cooking equipment that is not within a *dwelling unit* and is used in processes producing grease-laden vapours shall be designed and installed in conformance with Articles 3.6.3.5., 6.3.1.7. and 6.9.1.3. (See Note A-3.3.1.2.(2).)

A-3.3.1.2.(2) Cooking Equipment Ventilation

Cooking equipment manufactured for use in dwelling units and other residential suites is often installed in buildings used for assembly and care, treatment or detention purposes. It is not obvious from the Code requirements or those of NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," whether a ventilation and grease removal system is required in all assembly and care, treatment or detention uses. If the equipment is to be used in a manner that will produce grease-laden vapours that are substantially more than would be produced in a normal household environment, then it would be appropriate to apply the requirements of NFPA 96. If the equipment is used primarily for reheating food prepared elsewhere or is used occasionally for demonstration or educational purposes, there would be no expectation of applying the requirements of NFPA 96. In all cases the circumstances should be reviewed with the authority having jurisdiction.

NBC(AE) Sentence 9.10.1.4.(1) and Appendix note of Division B states:

9.10.1.4.(1) Items under Part 6 Jurisdiction

1) In kitchens containing commercial cooking equipment used in processes producing grease-laden vapours, the equipment shall be designed and installed in conformance with Article Article 6.3.1.7. (See Note A-9.10.1.4.(1).)

A-9.10.1.4.(1) Commercial Cooking Equipment. Part 6 refers to NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," which in turn references "Commercial Cooking Equipment." However, the deciding factor as to whether or not NFPA 96 applies is the potential for production of grease-laden vapours and smoke, rather than the type of equipment used. While NFPA 96 does not apply to domestic equipment for normal residential family use, it should apply to domestic equipment used in commercial, industrial, institutional and similar cooking applications where the potential for the production of smoke and grease-laden vapours exceeds that for normal residential family use.

NFC(AE) Article 2.6.1.9. of Division B states:

2.6.1.9 Commercial Cooking Equipment

1) Commercial cooking equipment exhaust and fire protection systems shall be designed and installed in conformance with the NBC(AE).
2) Except as required in Sentences (3) to (5), the use, inspection and maintenance of commercial cooking equipment exhaust and fire protection systems shall be in conformance with NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."

NFPA 96 – 2017 4.1.1.1 & 4.1.1.2 states:

4.1.1.1* Cooking equipment that has been listed in accordance with ANSI/UL 197 or an equivalent standard for reduced emissions shall not be required to be provided with an exhaust system.

A.4.1.1.1 As referenced in ANSI/UL 197, some products evaluated using the emission test procedure EPA 202, as described in ANSI/UL 710B, are listed in the UL directory under the category KNLZ, Commercial, with Integral Systems for Limiting the Emission of Grease-laden Air.

4.1.1.2 The listing evaluation of cooking equipment covered by 4.1.1.1 shall demonstrate that the grease discharge at the exhaust duct of a test hood placed over the appliance shall not exceed 5 mg/m3 (0.00018 oz/ft3) when operated with a total airflow of 0.236 m3/s (500 cfm).

NFPA 96 – 2017 13.1 states:

13.1 General Requirements.
Recirculating systems containing or for use with appliances used in processes producing smoke or grease-laden vapors shall be equipped with components complying with the following:
(1) The clearance requirements of Section 4.2
(2) A hood complying with the requirements of Chapter 5
(3) Grease removal devices complying with Chapter 6
(4) The air movement requirements of 8.2.1.2 and 8.2.2.3
(5) Auxiliary equipment (such as particulate and odor removal devices) complying with Chapter 9
(6) Fire-extinguishing equipment complying with the requirements of Chapter 10 with the exception of 10.1.1 and 10.5.1, which shall not apply
(7) The use and maintenance requirements of Chapter 11
(8) The minimum safety requirements of Chapter 12
(9) All the requirements of Chapter 13

When is a kitchen exhaust system required for commercial equipment?
As noted in NBC(AE) Sentence 3.3.1.2.(2), systems for the ventilation of cooking equipment that is used in processes that produce grease-laden vapours shall be designed and installed in conformance with Sentences 3.6.3.5, 6.3.1.7 and 6.9.1.3.

NBC(AE) Sentences 6.3.1.7. (1) to (5) specifies any *food establishment* where food is intended for the consumption by the public is served, offered for sale, displayed, processed, packaged, stored or handled **and** the process generates odours, smoke, steam or heat shall require a mechanical ventilation system that will vent to the exterior of the *building*.

Where grease-laden vapours and/or smoke is generated outside an enclosed appliance, the exhaust system must meet the requirements of the NBC(AE) and NFPA 96. Examples of appliances (see Appendix “A”) and/or processes that is deemed to create grease-laden vapours are provided in the appendix of NFPA 96.

The hood must meet the requirements of the referenced standards, have welded seamless ductwork and the required labelled access panels. In addition, these systems will require a fire suppression system that complies to the requirements of the NBC(AE), NFC(AE) and NFPA 17A - 2017.

NFPA 96 provides an exhaust system exemption for cooking equipment that produces limited grease emissions. An example of this type of cooking equipment is recirculating systems which are known as ventless-type cooking equipment (ventless fryers). Ventless fryers are fully

enclosed and have a built in hood, grease filter and an air filtering system that captures the air from the cooking process and limits the grease emissions. The fryers either use air or oil as the cooking medium.

As per NFPA 96 (Part 4 and 13), ventless fryers are required to be listed by a testing agency. Refer to the manufacturers product manual and the product itself to verify that the product is listed and labelled by either UL/ULC or Intertek. The manufacturers manual will also provide guidance on the safe installation, use and cleaning of the ventless fryer. In the event the ventless fryer is not being used or cleaned according to manufacturers specifications, does not have a listing or is not labelled, or it has been proven the equipment is exceeding the 5 mg/m3 (0.00018 oz/ft3) when operated with a total airflow of 0.236 m3/s (500 cfm) , the SCO may instruct the owner of the ventless fryer to place the fryer under an air filtering system or remove it out of service entirely.

NBC(AE) Article 3.6.3.5. of Division B states:

3.6.3.5. Grease Duct Enclosures

1) Except as provided in Sentence (2), *fire separations* enclosing grease ducts for commercial cooking operations shall conform to NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."
2) The *fire-resistance rating* of field-applied and factory-built grease duct enclosure assemblies shall be determined in conformance with CAN/ULC-S144, "Fire Resistance Test – Grease Duct Assemblies."

NBC(AE) Article 6.3.1.7. of Division B states:

6.3.1.7. Commercial Cooking Equipment

1) Except as provided in Article 3.6.3.5., systems for the ventilation of commercial cooking equipment shall be designed, constructed and installed to conform to NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."
2) A ventilation system for a *food establishment* shall not have components that allow drips to fall onto surfaces where food is prepared or into food.
3) A ventilation system for a *food establishment* shall have all openings to the exterior of the *building* located and protected to prevent the entry of vermin, dust, dirt and other contaminating material into the *food establishment*.
4) Canopies, hoods and ductwork for a ventilation system exposed within the kitchen or cooking area of a *food establishment* shall be constructed of stainless steel.
5) A *food establishment* in which food is prepared and the process generates odours, smoke, steam or heat shall have a mechanical ventilation system that includes canopies, ductwork and fans to remove odours, smoke, steam or heat to the exterior of the *building*.

What type of commercial cooking appliance requires a fixed fire suppression system? (See Appendix "A")

While all appliances used in Alberta must be certified for use under the *Safety Codes Act, some* commercial cooking appliances may also be tested to certain standards of fire suppression system protection.

The deciding factor for whether a fixed fire suppression system is required depends on the potential for the cooking appliance to produce grease-laden vapours that exceed normal residential family use. (NFPA 96 Sentence 4.1.1.2 specifies the amount of grease discharge that would fall within this scope.)

Tested appliances and devices (hoods and ducts) that require a fixed fire suppression system include:

- Fryers
- Pressure Fryers (with lids)
- Ranges (including residential ranges if they are used in a commercial/ institutional cooking operation, when used to sauté or fry foods)
- Griddles (flat top cast iron cooking surface)
- Open and closed top chain broilers
- Char Broilers (includes gas radiant, electric, lava rock, charcoal, mesquite and wood).
- Woks
- Tilting Skillets
- Braising Pans
- Ventless Deep Fryers (internal fire suppression system)

Appliances that have not been tested and/or listed but require fixed fire suppression protection based on the volume of grease-laden vapours produced include:

- Induction Cookers when used to sauté or fry
- Horizontal Rotisserie (with no enclosing doors)
- Vertical Rotisserie with the exception for:
    - Equipment that have two or less pre-existing vertical rotisseries used for heating pre-cooked/processed donair/gyro meat. (If any additional vertical rotisseries are added, then a protection system is required for all the rotisseries).
- All new restaurants built to NBC(AE) that have new donair/gyro cookers, and both new and existing shawarma cookers require fire suppression.

If a fixed fire suppression system is required, what standards are applicable?

According to NBC(AE) – 2019, Article 6.9.1.3, fixed fire suppression systems shall conform to one of two standards:

1) ANSI/UL 300, “Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment”
   Or
2) ULC/ORD - C1254.6, “Fire Testing of Restaurant Cooking Area Fire Extinguishing Units”

Notes:

1) Solid fuel fired or supplemented appliances are required to be under a separate exhaust/hood system. This operation is also required to have spark arresters. Refer to NFPA 96 - 2017 Sentence 14.1.6.
2) Water Wash Canopies with a fire cycle have not been tested to ULC/ORD 1254.6 - 1995, and requires a fire suppression system in addition to the water wash system.
3) Carbon dioxide (CO_2) systems have not been tested to ULC ORD 1254.6 - 1995 and do not meet the requirements of the NBC(AE) or NFC(AE).
4) Sprinkler Systems that have not been tested to ULC ORD 1254.6-1995 do not meet the requirements of the NBC(AE) or NFC(AE) - 2019 for fire suppression under an exhaust hood.
5) Exhaust Ducts: where there is a damper at the duct interface with the hood, the first duct nozzle must be installed immediately above the damper and an access door for installation and servicing the nozzle(s) SHALL be provided within 18 inches of the damper. The nozzle must not interfere with the operation of the damper – on many

occasions the connection between the duct collar and the duct is distorted (during installation) of the duct and the damper will not close.

6) Since the adoption of the Alberta Building Code 1997 (ABC 1997), where there is a kitchen fire suppression system installed in a building with a fire alarm system, the suppression system SHALL be tied into the building fire alarm system so that, if there is a system discharge, the building fire alarm SHALL activate. This includes countertop Ventless Deep Fryers.

NBC(AE) Article 6.9.1.3. of Division B states:

6.9.1.3. Commercial Cooking Equipment

1) Fire protection systems for commercial cooking equipment referred to in Sentence 6.3.1.7.(1) using vegetable oil or animal fat shall conform to
   a) ANSI/UL 300, "Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment," or
   b) ULC/ORD-C1254.6, "Fire Testing of Restaurant Cooking Area Fire Extinguishing System Units."

NFPA 96 - 2017 Article 14.1.6. states:

14.1.6 Solid fuel cooking operations shall have spark arresters to minimize the passage of airborne sparks and embers into plenums and ducts.

Is a portable fire extinguisher required in commercial kitchens?

Yes. As required by NFPA 96 - 2017 and NFPA 10 - 2013, a K Class portable extinguisher is required for the protection of cooking appliances that use combustible cooking media (vegetable or animal oils and fats). These need to be installed within 9.1m of the appliances. If the cooking appliances are protected by an automatic fire suppression system, the portable extinguishers act as a secondary backup source only. This needs to be identified by a placard that is placed near the fire extinguisher.

Notes:

1) A portable fire extinguisher is required in a commercial kitchen regardless if there is a fixed fire suppression system installed for the cooking appliance.
2) Type B gas type extinguishers are <u>not</u> permitted in a kitchen.
3) A K Class portable extinguisher is required for countertop Ventless Deep Fryers.

NFPA 96 - 2017 Article 10.9. states:

10.9.1 Portable fire extinguishers shall be selected and installed in kitchen cooking areas in accordance with NFPA 10 and shall be specifically listed for such use.

10.9.2 Class K fire extinguishers shall be provided for cooking appliance hazards that involve combustible cooking media (vegetable oils and animal oils and fats).

10.9.3 Portable fire extinguishers shall be provided for other hazards in kitchen areas and shall be selected and installed in accordance with NFPA 10.

NFPA 10 - 2013 Article 5.5.5. states:

5.5.5.	Fire extinguishers provided for the protection of cooking appliance that use combustible cooking media (vegetable or animal oils and fats) shall be listed and labeled for Class K fires.
5.5.5.3	Where a hazard is protected by an automatic fire protection system, a placard shall be conspicuously placed near the extinguisher that states that the fire protection system shall be actuated prior to using the fire extinguisher.

What cooking appliances/processes do NOT require the coverage of a fixed fire suppression system? (See Appendix "B")

Cooking appliances that have been tested in accordance with ANSI/UL 197 "Standard for Commercial Electric Cooking Appliances" or equivalent for reduced emissions **and** the volume of grease discharge does not exceed that of normal residential family use do not require the coverage of a fixed fire suppression system. (NFPA 96 – 2017 Sentence 4.1.1.2 specifies the amount of grease discharge that would fall within this scope.)

Specifically, cooking appliances that meet the above criteria include (but is not limited to):

- Steamers
- Rice cookers
- Soup kettles
- Proofers
- Popcorn machines (Note: Kettle corn poppers come in various shapes/sizes and are gas, propane or electrically powered. The authority having jurisdiction (AHJ) has the authority to determine whether these appliances require suppression and ventilation based on the application of the popper).
- Enclosed appliances such as:
    - Ovens, including cook and hold ovens, warming ovens and steam ovens
    - Pizza Ovens (pizza decks)
    - Chicken Rotisseries with doors
    - Ventless Air Fryers
    - Tandoori Ovens, Masonry or Cement Pizza Ovens, (see note below)

Note:

1) Tandoori Ovens, Masonry or Cement Pizza Ovens have not been tested for fire suppression systems. These appliances are generally constructed of clay or Bakelite material and operate at very high temperatures. Protecting these ovens with a nozzle directly aimed at the oven opening is not recommended due to the explosion hazard this may cause. These ovens must be installed as per the manufacturer's instructions and the NBC(AE). While these cooking appliances do not require the coverage of a fixed fire suppression system, an approved ventilation system is required.

Are kitchen fire suppressions systems required to be engineered or have professional involvement by a registered professional member of the Association of Professional Engineers and Geoscientists of Alberta (APEGA)?

Yes. Manufacturers may provide documentation to indicate their fire suppression systems consists of pre-engineered and listed components that are suitable for a specific size, type and location of hazard. Where the manufacturer does not provide engineered documents for the

installer's use, documentation that indicates the verification process has been reviewed and stamped by a registered engineering professional shall be provided.

If a fire suppression system has not been fire tested by a Listing Agency, (protection specified in the Manufacturer's Listed Manual), the system is considered a non-engineered system. In such cases, site-specific drawings and the stamp of a registered professional engineer is required.

The owner, fire and building AHJs are required to evaluate the proposed activities, plans and procedures to determine the requirements for exhaust and suppression systems.

What are the requirements for the installation and maintenance of fixed fire suppression systems and kitchen exhaust systems?

The only acceptable training for the installation of a fixed fire suppression system is the specific training provided by the manufacturer of that system. Companies provide specific training for the installation and maintenance of the systems they manufacture. Manufacturer training for a specific type of equipment is only acceptable for that type of system made by that manufacturer. Training from other manufacturers on similar systems, or even training from the same manufacturer for a different type of system, is not acceptable training. For example, a person having only suppression system training from manufacturer "x" shall not work on any other type of system made by that manufacturer and shall not perform maintenance on any systems from another manufacturer.

The same premise applies to the maintenance of fixed fire suppression systems. Fixed fire suppression systems must be inspected and maintained semi-annually by a qualified person. This requirement is independent from the cleaning frequency of the exhaust/hood. Maintenance includes work such as repair, replacement, or servicing of equipment to ensure it works properly. Cleaning is to remove grease, oil deposits, and other residue.
A manufacturer may endorse training or courses at a public post-secondary institution for special fire suppression systems. Interested parties should contact the post-secondary institution or the manufacturer to ensure the courses are appropriate for the specific system.

A person qualified to install and/or maintain systems will provide written training certificates to owners, designers and the AHJ as required.

Article 2.6.1.9. states:

2.6.1.9 Commercial Cooking Equipment

6) Commercial cooking equipment that is certified shall be installed and maintained in conformance with its certification.
7) Uncertified commercial cooking equipment shall be installed and maintained so as not to create a fire hazard.

Article 2.2.4.1. of Division C states:

2.2.4.1. Special Fire Suppression Systems

(See Note A-2.2.4.1.)

1) Only qualified persons shall install special fire suppression systems when they have acquired a certificate of training from a manufacturer.
2) Only qualified persons shall test or perform maintenance on a special fire suppression system when

a) they have acquired an *approved* certificate of training from a public post-secondary educational institution, or
b) they have acquired a certificate of training from a manufacturer.

Who is qualified to clean commercial cooking equipment (ventilation hoods, fans, ducts and filters)?

Cleaning contractors for kitchen exhaust systems must have recognized training and knowledge in cleaning procedures. This training is based on NFC(AE) and NFPA 96 and may include a detailed in-shop training program, policies and procedures for the operation of a business, as well as training obtained from outside sources.

A qualified cleaning contractor will provide owners with a maintenance certificate that must either be attached to the kitchen hood or posted in the kitchen area where it is clearly visible to the fire AHJ. The maintenance certificate shall detail the following information:

- Name, address and phone number of cleaning company,
- Printed name and signature of the qualified on-site person supervising the cleaning (see Note 1),
- Date of cleaning and/or inspection,
- Next cleaning due date and recommended cleaning frequency,
- Indication of what areas were cleaned
- Notes on why any areas were omitted, and
- Name of the recognized training organization from which the supervisor and/or the cleaning crewmembers have received their qualification (see Note 1).

Notes:

1) A person can clean a commercial cooking exhaust system while under the supervision of a person who has obtained an *approved* certificate of training with the following stipulations:
    a. a certified person must be onsite the whole time
    b. a certified person can have up to 2 “in training” people working under them
    c. the “in training” person is in the process of completing their practicum hours and is a registered student with a recognized training facility.
2) Any organization that would like to be considered as an approved training provider for kitchen exhaust and hood cleaning must submit their entire curriculum to the Provincial Fire Administrator for review.

Currently, there are only two organizations recognized and approved by the Provincial Fire Administrator for Alberta to provide training for the cleaning of commercial cooking equipment exhaust systems. These organizations are:

1) Phil Ackland Kitchen Exhaust Certification and Training; and
2) MFS Exhaust Hood Cleaning School

Article 2.6.1.9. states:

2.6.1.9 Commercial Cooking Equipment

3) Hoods, grease removal devices, fans, ducts, and other appurtenances shall be cleaned at frequent intervals to prevent surfaces from becoming heavily contaminated with grease or other residues. (See Note A-2.6.1.9.(3).)

A-2.6.1.9.(3)

Depending on the amount of cooking equipment usage, the entire exhaust system, including grease extractors, should be inspected at intervals not greater than 7 days to determine if grease or other residues have been deposited within. When grease or other residues are in evidence as deposits within the hood, grease removal devices, or ducts, the system should be cleaned. In general, exhaust systems should be cleaned at intervals not greater than 12 months, but in the case of deep fat cooking, char broiling or similar cooking operations, the systems should be cleaned at intervals not greater than 3 months.

Sentence 2.2.4.5.(1) of Division C states:

2.2.4.5. Commercial Cooking Equipment Exhaust Systems

1) Only qualified persons shall perform maintenance on commercial cooking equipment exhaust systems when they have obtained a certificate verifying they have completed an *approved* course of training in duct-cleaning procedures.

How often does an exhaust and hood system need to be cleaned?

The minimum requirement that a qualified person shall do exhaust and hood cleaning is annually. However, the AHJ may require an owner to conduct more frequent cleaning based on the accumulation of grease, dust or other residue collected in the hood and duct system.

Does changing or moving commercial cooking appliances require re-engineered documents to be submitted to the AHJ?

Movement of appliances under the same hood, and the movement or switching of nozzles by a qualified technician, would not require additional engineering, provided there is no addition of new appliances in both number and type.

If this involves changes to energy supplies (new wiring, new piping) a gas and/or electrical permit is required. If the fire alarm connection is new or added, contact the local AHJ and inquire as to whether or not they require a registered professional member's review of the fire alarm system.

Note: If wheeled appliances are moved during cleaning operations, the cleaning contractor must ensure all wheeled appliances are placed back in the original designed location once the cleaning has been completed. Appliances, such as wheeled deep fat fryers, are required to be covered by a fixed fire suppression system which is designed and engineered specifically for that cooking appliance in that specific location. Relocating any cooking appliance from the original designed location will require re-engineering to ensure the new location of those wheeled appliances are protected.

Do records of cleaning and maintenance need to be kept at the business?

Yes. Both these records must be kept on the premise for the AHJ's review. This requirement is based on NFC(AE) – 2019 Sentence 2.2.1.2 and NFPA 96 – 2017 Sentence 11.2.8.1 .

NFC(AE) Sentence 2.2.1.2.(4) of Division C states:

2.2.1.2 Records

1) Records of tests, inspections, maintenance or operational procedures undertaken after the initial tests referred to in Sentence (3) shall be retained so that at least the current and the immediately preceding records are available.

NFPA 96 - 2017 Sentence 11.2.8.1 states:

> **11.2.8.1** Records, including certificates of inspection and maintenance, shall be permitted to be forwarded to or shared with the authority having jurisdiction either by hard copy or electronically.

What is required when used exhaust hoods or cooking appliances are placed into a facility?

Permits for building, electrical and gas will be required. AHJs have the discretion to accept used equipment if it continues to meet the requirements of codes and standards under the *Safety Codes Act*. As such, fire suppression systems that have not been certified to ANSI/UL 300 and/or ULC/ORD 1254.6) are not acceptable.

Are there requirements for the interconnection of exhaust, suppression, fuel/energy and fire alarm systems?

The forced draft from hood exhaust fans helps move the fire suppression agent through the ventilation system, thus aiding fire suppression within the duct system. These fans also remove smoke and provide a cooling effect in the plenum and duct after the fire suppressant has been discharged. The system is ULC listed with or without fan operation.

NFPA 96 - 2017 - 8.2.3.1 states:

> **8.2.3 Exhaust Fan Operation.**
> **8.2.3.1** A hood exhaust fan(s) shall continue to operate after the extinguishing system has been activated unless fan shutdown is required by a listed component of the ventilation system or by the design of the extinguishing system.

Where can I find information required for commercial kitchens in relocatable industrial accommodations?

The requirements for kitchen ventilation for relocatable industrial accommodations are specifically addressed in Subsection 10.6.4 of NBC(AE) – 2019.

NBC(AE) Sentence 10.6.4.1.(1) of Division B states:

> **10.6.4.1. Cooking Equipment Ventilation System**
> 1) Except as provided in Article 10.6.4.2., every kitchen containing commercial cooking equipment used in processes producing smoke or grease-laden vapours shall be equipped with a mechanical exhaust system conforming to NFPA 96, “Ventilation Control and Fire Protection of Commercial Cooking Operations.”

NBC(AE) Article 10.6.4.2. of Division B states:

> **10.6.4.2. Kitchen Hoods, Canopies and Exposed Exhaust Ducts**
> 1) Ducts for a kitchen exhaust system shall be constructed of 0.84 mm minimum thickness stainless steel.
> 2) A demountable exhaust extension may be used if the connection is exposed and is grease-tight.
> 3) The airflow in and around a canopy or hood shall be in accordance with good engineering practice and each design shall be submitted to the *authority having jurisdiction* for review.
> 4) The required clearance from the *exhaust duct* to *combustible* material may be waived if a 25 mm air space, having no materials in it, separates the *exhaust duct* from a

noncombustible material backed by not less than 25 mm of mineral wool insulation which protects the *combustible* material.

5) The required clearance from the hood or canopy to *combustible* material may be waived if a 50 mm air space, having no materials in it, separates the hood from a *noncombustible* material backed by not less than 25 mm of mineral wool insulation which protects the *combustible* material.
6) A sidewall fan may be used.
7) A fan shall be rated for continuous use as a commercial exhaust fan.

What is the requirement for simultaneous operation of multiple hoods in food courts, new teaching and/or multi-use kitchens in new or recently renovated Alberta schools?

The requirement for simultaneous operation of the fire suppression system is to define the hazard area. A single hazard area can be defined as multiple hoods installed end to end, back to back, or both that is less than 75ft (22.9m) in length and shares an interconnected (common) duct and have a grease-producing appliance located under one or more of the hoods. All the systems are required to activate upon the actuation of any one of these systems.
If the installation of hoods exceed 75ft (22.9m) in length, then the ductwork that is beyond the 75ft must be protected by an independent fire-extinguishing system with its own detection system or by a fire-extinguishing system that activates simultaneously with the fire-extinguishing systems protecting the hoods.

Notes:

- Both NFPA 17A and 96 provide information on the Simultaneous Operation and the use of interconnecting of exhaust ducts. Please refer to these documents for further information.
- Significant changes on simultaneous operation has changed from previous referenced editions of NFPA 96. NFPA 96-2017 is the referenced edition in both NBC(AE) – 2019 and NFC(AE) -2019/

NFPA 96 – 2017 Sentence 10.3 states:

10.3 Simultaneous Operation.

10.3.1 Fixed pipe extinguishing systems in a single hazard area *(see 3.3.44 for the definition of single hazard area)* shall be arranged for simultaneous automatic operation upon actuation of any one of the systems.

10.3.1.1 Hoods installed end to end, back to back, or both, or sharing a common ductwork, not exceeding 22.9 m (75 ft) in distance from the farthest hood, and having a grease-producing appliance(s) located under one or more of the hoods, shall be considered a single hazard area requiring simultaneous automatic fire protection in all hoods and ducts.

10.3.1.1.1 In hoods that are installed end to end, back to back, or both, and that share a common ductwork, the ductwork beyond 22.9 m (75 ft) from the farthest hood shall be protected by an independent fire-extinguishing system with its own detection system or by a fire-extinguishing system that activates simultaneously with the fire-extinguishing system(s) protecting the hoods.

10.3.1.2 Hoods installed end to end, back to back, or both that do not share a common exhaust duct and are separated by a wall(s) or other means to ensure that grease-laden vapors exhausted under one hood cannot propagate to the other

	hoods, the hoods' fire-extinguishing system(s) shall be independent and shall not be required to simultaneously discharge.

Referenced Documents:
NFPA 10 - 2013, Portable Fire Extinguishers
NFPA 17A - 2017, Dry Chemical Extinguishing Systems
NFPA 96 - 2017, Ventilation Control and Fire Protection of Commercial Cooking Operations
ANSI/UL 300 - 2005, Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment
ULC/ORD - C1254.6-1995, Fire Testing of Restaurant Cooking Area Fire Extinguishing System Units

This INTERPRETATION replaces the following documents:
FCI-09-04 Maintenance of Commercial Cooking equipment
FCI-14-02 Fixed Fire Suppression & Exhaust Systems – Cooking
97 FCB 023 Cleaning Commercial Cooking Equipment
14-FCI-005 Fixed Fire Suppression and Exhaust Systems – Cooking and Cleaning

This INTERPRETATION is applicable throughout the province of Alberta.

APPENDIX "A"

Examples of appliances that **REQUIRE** the coverage of a fixed fire suppression system.

Open and closed top chain broilers

Mini Donut Fryer

Pressure Fryer

Griddle

Charbroiler

Wok cooker

Tilting Skillet

Vertical Rotisserie

APPENDIX "B"

Examples of appliances that **DO NOT** require the coverage of a fixed fire suppression system.

Steamer

Proofer

Enclosed Pizza Oven (Pizza Deck)

Tandoori Oven

Brick Pizza Oven