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INTRODUCTION / EXECUTIVE SUMMARY

This code shall apply to:

- Takeaway Food Premises
- Cafes
- Restaurants
- Hotels
- Boarding/Lodging Houses
- Club Premises
- And Any Other Premises To Which The Food Act 1984 And Regulations Relating To The Preparation And Sale Of Food Apply

Ventilation in commercial and trade premises are to fulfill the following minimal requirements. To provide for:

- Clearance of fumes and vapours from kitchens;
- The prevention of the escape of odour into other parts of the building and staining of ceilings;
- Comfortable working conditions for staff;
- Minimise fire risks; and
- Control of air pollutants including the prevention of nuisances caused by odour, noise etc.

There is no order of importance to the above requirements as they are, or should be, complimentary to each other.

Plans and specifications for mechanical exhaust systems must be submitted to the Environmental Health Department for approval prior to the system being installed.

1. APPLICATION

A mechanical ventilating exhaust system shall be required to be installed in any kitchen or cooking area with hoods serving such heating or cooking appliances as may be specified by the Council or its Environmental Health Officer pursuant to Food Act 1984 and associated regulations and national Code for Construction and Fitout of Food Premises.

2. PLANS AND SPECIFICATIONS

Every application to install a mechanical exhaust system must include the following:

- A plan of the premises to a metric scale of 1:100 (unless already submitted).
- Two copies of fully dimensional drawings showing end and side elevations of the proposed system to a metric scale of not less than 1:20. The drawings should include the following details:
 - The angle of the hood sides to the horizontal.
 - The height of the hood above the cooking appliances.
 - The number, size and type of filters (if required) and the angle of the filters to the horizontal.
 - A condensate gutter and drain plug.
 - All ducting, ie, size, length, bends, inspection openings, sump plugs and fire dampers.
 - Height of termination of duct above rook, position in relation to adjoining premises, and cowl type.
 - Exhaust fan type, capacity and mounting, and situation in the exhaust system.
 - Details of method of fixing canopy to walls, ceiling etc.
- 2.3 Details of makeup air to be provided
- 2.4 Details of any other mechanical ventilation servicing the premises in which the proposed system is to be installed.

3. EXHAUST HOODS - GENERAL

All exhaust hoods shall be:

- Constructed of galvanized sheet metal or other approved impervious and fire-proof material in a smooth permanent and tradesman like manner, with surfaces which are smooth and free from obstructions and capable of being easily cleansed, (painting of interior surfaces is not permitted). All joints to be joined, seamed and /or riveted so as to be grease tight.
- Reinforced and supported where necessary to provide stability and freedom from vibration.

4. CANOPY TYPE HOODS

Canopy type hoods shall be:

- Designed to extend not less than 150mm beyond the perimeter of all appliances to be ventilated.
- Provided with capture velocities sufficient for the conveying of all heat, fumes and other aerosols to the hood exhaust opening, but, in any case, the capture velocity is to be not less than 30m/minute measured parallel to and at the face of the hood.
- Provided that a capture velocity as per the following table may be permitted to hoods over:
 - Boiling pans, steamers etc. 18m/min
 - Dishwashers 18m/min
 - Ranges, pastry ovens, roasting ovens, rotisseries 15m/min
 - Hot cupboards, bain-maries, pizza ovens 8m/min
- Provided with a condensate gutter around the base of the hood, not less than 50mm wide, and 25mm in depth and drained to a suitable outlet. The section of gutter under any filters must be of sufficient width to collect any condensate drip from the lowest edge of the filters.
- Constructed to provide no horizontal flat surface within the open section of the hood. Provided that special consideration may be given to a minimal area of horizontal flat surface within the hood where the hood design is restricted by the room structural conditions.
- Constructed to provide a vertical flat surface with abutting walls or partitions and securely fixed and sealed.
- Where lights are installed in the hood, they shall be recessed and enclosed in a vapour proof housing with a shatter proof lens or guard.
- Fire sprinklers may be placed in approved positions in canopies and ducts in accordance with AS 2118-1978.

5. SIDE DRAFT HOODS

Lateral or side draft hoods shall be provided with an exhaust velocity equivalent to at least 85m/min. This type of hood is not considered to be as efficient as a canopy type hood where high volumes of deep frying occur.

6. MAKE UP AIR

Make up air shall be supplied to the areas where mechanical ventilation is installed by means of an approved induct ventilating system where mechanical induct ventilation is required it shall be connected electrically with the mechanical exhaust system, operated by a common switch. Where the make up air is continuously drawn from an external source it shall be free from contamination or impurity. Make up air drawn from an external source may cause discomfort to staff and customers if the ambient temperature of the make up air is higher or lower than the air in the kitchen. In such cases it may be desirable to control the temperature of the make up air.

7. FILTRATION

- Hoods shall be provided with approved metal washable dry type grease filters fitted at not less than 60° to the horizontal (or not more than 30° from the vertical) and provided with a condensate gutter drained to a suitable outlet.
- Filters shall be installed at a ratio of not less than 30% of the hood base area.
- Filters shall be evenly spaced along the length of the canopy. Filters may be omitted where the hood is exhausting fumes consisting only of heat and/or water vapour.
- Filters shall be of an approved noncombustible construction and shall be easily accessible and detachable, by hand without tools, for maintenance and cleaning.
- The distance between the lowest edge of the grease filters, and the cooking surface shall be in accordance with the Gas Fitting Regulations 1992 i.e. not less than –
 - 1.35m for exposed charcoal and charcoal type fires
 - 1.05m for exposed flame type
 - 0.6m for hot plates and deep fryer
- In every case where any one of the above does not apply, the filters shall be installed in such a position that their efficiency will not be impaired nor a fire hazard created by exposure of the filters, hood or duct to high temperature.

8. EXHAUST OPENINGS IN HOODS

Connections of exhaust ductwork to hoods or canopies shall be located in approved positions in accordance with the following conditions.

- Access is available to all internal sections of the hood for cleaning
- A uniform capture velocity is maintained within the hood or canopy
- Right angled entries to the duct from the hood are not permitted, a tapered transition is required.
- Outlets are evenly spaced in relation to the length of the canopy and in accordance with the following ratios:

Where the hood length is:

- less than 3.5 metres – 1 outlet: or
- between 3.5 and 7.5 metres – 2 outlets.

9. HOOD ENCLOSURES

The enclosures of canopy type hoods may be permitted provided that:

- The enclosure and method of fixing is of approved design.
- The enclosure is constructed of smooth impervious fire resistant material.
- Where approved, the material forming the enclosure may be made easily removable for cleaning and maintenance.

10. DUCTS

- Ducts shall be constructed of galvanized sheet iron or other approved non combustible material in a permanent and tradesman like manner, smooth and free from obstructions on internal surfaces.
- Duct joints shall be sealed and grooved or lap riveted and air tight. Alternate methods of jointing having similar mechanical strength and air tightness are permitted.
- The girth joints of vertical risers shall be flanged and bolted where needed.
- Fire dampers shall be installed in ducts where passing through sections of a building other than the room containing the hood or canopy. Fire damper design is to be in accordance with Australian Standard As 1682-1974.
- Vertical sections of ducting should only be installed outside the building but if it is essential they be located inside and the building is in excess of one storey in height, it will be necessary for the ducting to be enclosed in material complying with Clause 2812 of the Uniform Building Regulations.
- Grease tight inspection openings shall be provided in ducts at intervals of not more than 3m and also to the duct for cleaning purposes. Grease sumps are to be provided at the bottom of every vertical length of duct, other than a section connecting with a hood or canopy.
- Horizontal ducts shall be fixed with a minimum fall of 1:100 towards the hood or canopy.
- Where the fan motor is located inside the duct, it must be of flameproof construction or be installed within a flameproof enclosure.
- Flexible connections in ducts and between ducts and motors shall be provided so as to prevent noise and vibration in the system.
- The maximum air velocity through any duct shall be 500m/minute.
- Duct work must terminate above the roof at a height and position which will ensure dispersion of exhausted fumes without fouling of any roof or building structure, by providing a vertical upward discharge of fumes, and be fitted with an approved cowl. Cowls will be approved on the basis of being birdproof, weatherproof and allowing ready dispersion of discharged vapours.
- All openings in walls, floors, ceilings, or roofs, through which the duct passes shall be made proof against the access of vermin.
- The junction between the roof and the duct is to be made waterproof by means of a collar sealed to the roof. The collar up stand shall be of such dimensions as to leave an annular space between the collar upstand and duct of no less than 10mm and be made waterproof by means of a conical shaped weathering collar sealed to the duct.

NB In no case shall the duct be attached to the roof covering (*see drawing*).

11. NOISE EMISSION

- Mechanical exhaust system shall not emit noise nor cause undue vibration which may cause a nuisance.
- Mechanical exhaust systems shall be designed to keep noise emissions inside the premises to a minimum. In every case the A weighted sound pressure level measured midway along the length of the canopy at a point located 0.5m horizontally from the centre of the filters and 0.5m vertically down shall not exceed 70dB(A).

11.1. Notes on Noise Measurement

- The microphone shall be pointed at the centre of the filters
- A factor of 5dB(A) shall be added for a noise with a tonal component
- Background sound pressure levels shall be taken at the same location in order to calculate the actual sound pressure level of the mechanical exhaust system.

12. SAFETY

- The thorough cleaning of filters must be carried out regularly. A second set of clean filters will allow continuation of operations during cleaning.
- The cleaning of ductwork and ancillary plant with flammable solvents is not permitted.
- At least one BCF of 20BC rating type fire extinguisher should be hung in the cooking area conveniently located in relation to the cooking appliances.
- Fat fryers should be installed a minimum of 400mm away from surface flame cooking equipment.
- Fat fryers should be thermostatically temperature controlled.
- Salamanders should not be installed above burners, fryers or other cooking equipment which may interfere with its safe operation, or in a position which may impair the efficiency of the canopy.
- Cooking fats and oils should not be stored adjacent to or under cooking equipment.

13. 13. GENERAL

All mechanical exhaust ventilation systems shall be installed to current engineering and building practices so as not to inhibit the safety of the occupants of any buildings.

Any system not covered by this Code will be subject to approval of the Local Supervising Authority.

14. SCHEDULES TO THE CODE OF PRACTICE

- Schedule "A" – *Cowl Types*
- Schedule "AA" – *Roof Penetration Detail*
- Schedule "B" – *Side Draft Canopy*
- Schedule "C" – *Usual canopy type hood*
- Schedule "D" – *Detail of usual hood*
- Schedule "E" – *Application Form*

Mechanical Exhaust Ventilation Code for Heating Appliances

SCHEDULE E

Address of Installation: _____

Name of Owner of Business: _____

Telephone: _____

Name of Installation Supervisor: _____

Telephone: _____

<i>Please Supply the Following Details</i>	Quantity	Units
Distance from top of cooking appliance to base of the hood		mm
Hood overhand beyond cooking appliances		mm
Total length of all cooking appliances combined		mm
Width of widest appliance		mm
Calculate size of hood on the basis of length and width of appliance/s plus calculated overhang on each clear side	Length	mm
	Width	mm
Calculate net face area of hood i.e. length of hood minus width of condensate gutters x width of hood minus of condensate gutters		m ²
Calculate required fan capacity i.e. area of hood multiplied by: (for non cooking appliances 505 less in either case) 45 if 4 sides of hood open 30 if one or more side is enclosed		m ³ /min
		m ³ /min
Size of grease filter/s	Length	mm
	Width	mm
Manufacturer's specified optimum capacity of each filter		M ³ /min
Manufacturer's specified fan rating		M ³ /min
Brand and Model		No
Calculate required number of filters i.e. fan capacity required divided by optimum capacity of each filter.		m ³ /min
Specify make-up air fan capacity and/or fixed ventilation – (calculate 1 square metre for each 80 cubic metres exhausted)		m ²