

Information Bulletin

Commercial Listed Ecology Units

This Bulletin is in regards to the criteria for installation and maintenance of Ecology Units and similar types of equipment used in conjunction with Commercial Cooking Equipment.

“Ecology Unit” means a device used for the cleaning of exhaust air and is listed in conformance with ULC-S647-05, “Standard for Exhaust Cleaning and Recirculation Assemblies for Commercial and Institutional Kitchen Exhaust Systems.”

Other terms used for an ecology unit in the industry are ecologizer, Air Purification Unit (“APU”), Pollution Control Unit (“PCU”), “air pollution control device” [NFPA 963, 3.3.3] and proprietary names such as Halton’s (previously known as Vent Master), Ecolair, Spring Air’s Enviro Unit, Carroll’s EnvironAir, and Quiet-Aire’s Ecology APU.

An ecology unit typically has a large metal box in the exhaust path. Generally, the metal box includes 3 large filters plus an exhaust fan, with the fan and sensors controlled by a panel typically mounted in the kitchen area (refer to the diagram on Page 5).

“NFPA 96” is the “Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.” The 2001 edition is the applicable version under the Manitoba Building Code.

The City of Winnipeg will accept proposals to install, operate and maintain Ecology Units associated with commercial cooking operations (in addition to the requirements of The MB Building Code, The MB Fire Code and NFPA 96) as indicated below:

Ecology Units

A. General Requirements

1. The Ecology Unit is listed by a recognized listing agency/organization;
2. Engineered plans, specifications, details, listing and manufacturers installation criteria are submitted at time of permit application;
3. All components and installation of the cooking equipment exhaust system and fire suppression system comply with the requirements of NFPA 96 (National Fire Protection Association).
4. In addition to the requirements of NFPA 96, wall termination shall be located such that

- a) a concentrated stream of air will not discharge directly onto pedestrians,
 - b) discharged exhaust will not accumulate in an area with outdoor seating, and
 - c) the sound pressure level generated must be attenuated to be in compliance with the Neighbourhood Liveability By-law.
5. The termination shall be designed to the satisfaction, review and approval of the Authority Having Jurisdiction.
 6. Where there is a canopy, the discharge should be located above the canopy.
 7. The exhaust and make-up air locations should be determined respectful of existing discharge, make-up air, operable window, and door locations of neighbouring properties.
 8. In some cases, the Authority Having Jurisdiction may not approve exhaust or make-up air wall terminations on street frontages.
 9. Wall terminations should be located where they have the least impact on nearby properties, suites, amenity areas, the public realm, windows, and building design.
 - a) Roof terminations are preferred and wall terminations should be located towards the lane.
 - b) Where an ecology unit is provided, a wall termination is permitted right up to the lane property line or street property line.
 - c) The preferred location for horizontal discharge is to a lane.

B. No Downgraded Ductwork

Downgrading of the ductwork after an ecology unit is not allowed per the following NFPA 96 excerpt:

96. NFPA 96, 9.3:

“...air pollution control devices [i.e., ecology units], or other devices shall be permitted to be installed in ducts... Downgrading other parts of the exhaust system due to the installation of these approved devices, whether listed or not, shall not be allowed.”

All ductwork to, from point or origin (cooking equipment) to Ecology Unit and from the Ecology Unit to the outside point of discharge shall comply with the requirements of NFPA 96

(duct construction, materials and installation).

Kitchen systems complying with the NFPA 96 standard typically have components of welded steel liquid tight seamless ductwork, a heavy duty stainless steel exhaust hood, a fire suppression system underneath the hood and a make-up air system.

C. Access Panels after Ecology Unit

All required access panels shall comply with the requirements of NFPA 96 and in addition:

- a. Any buildup of grease in the ductwork downstream of an ecology unit is required to be cleaned by a qualified kitchen exhaust cleaner and access panels necessary for this cleaning are required to be installed on all systems.
- b. Access panels necessary for servicing the fire suppression nozzles downstream of an ecology unit are required to be installed on all systems.

D. Fan Continues Running

If the hood exhaust fan is running when the fire suppression underneath the hood activates, the exhaust fan is required to continue running. [NFPA 96 8.2.3, NFPA 17A]

An *ecology unit* fan is similarly required to continue running so that the fire suppression discharge in the ductwork is drawn up the ductwork to suppress the fire. The motor overload protection device in an ecology unit may automatically stop the fan if the absolute filter becomes plugged.

E. No Enzyme Odour Control

Odour control by means of enzymes is not permitted.

F. Maintenance of Ecology Units

Regular inspection, cleaning, filter changes (i.e., “grease removal devices”) and maintenance shall be required for all cooking exhaust systems and systems where Ecology Units have been installed.

A regular maintenance and inspection program is to be established and accurate maintenance and inspection records shall be maintained and available to the Authority Having Jurisdiction (e.g. Provincial Health Inspector, City of Winnipeg Fire Prevention Officer).

Hoods, ducts and filters subject to accumulations of combustible deposits shall be inspected at intervals not greater than **thirty (30) days**, and shall be cleaned if the accumulation of such deposits creates a health and/or fire hazard.

Only qualified personnel are permitted to test or inspect a cooking equipment fire protection system on the intake and discharge sides of an Ecology Unit.

Filter shall be listed, for both original and replacement, and shall be properly installed, clean and free of damage.

Filters in an Ecology Unit are required to be changed on a regular basis in order to maintain minimum airflows and proper air-cleaning operation of the Ecology Unit.

Filters are to be changed at frequencies as required by the Ecology Unit manufacturer and the City By-laws.

Filter changes may be done by the owner, or the owner's staff, in accordance with the manufacturer's recommendations, or by a maintenance company certified by the manufacturer.

Cleaning of 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.

- It is recommended that 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**.

Maintenance and repairs shall be performed on all components at intervals necessary to maintain these conditions such as, but not limited to, minimum airflows and good working condition of all components. [NFPA 96, 4.1.5]

Maintenance Log Records shall be kept up-to-date and be available for review at times of inspection conducted by government inspectors.

