



NFPA 96 – Ecology Units

Guide for the Use and Installation of Ecology Units

This document is intended as a general guideline for the use and installation of ecology units in lieu of the required exhaust termination clearances prescribed by NFPA 96 “Ventilation Control and Fire Protection of Commercial Cooking Operations”.

The NFPA 96 standard contains provisions for when an Air Pollution Control Device (aka Ecology Unit or Ecologizer) is used within the system. However, NFPA 96 does not stipulate any reduction or waiver from the clearances for the termination of exhaust under 7.8.2. or 7.8.3.

NFPA 96, section 1.5, allows for the Design Mechanical Engineer to propose an equivalency to the exhaust clearance requirements. The City of Kitchener will consider a proposed equivalency to the exhaust clearances stipulated in the NFPA 96 standard where the system is venting through an ecology unit. The proposal shall be in the form of a letter or report from a Mechanical Engineer and shall include the following;

1. Rationale, including any supporting documentation, demonstrating why exhausting through the proposed ecology unit with reduced exhaust clearances should be considered equivalent. e.g. Exhaust air meets Class 2 air per ASHRAE 62.1, compare to Chapter 13 of NFPA 96, submit spec confirming exhaust air would contain less than 5mg/m³ of grease, etc.
2. The proposed equivalency letter/report and the mechanical drawings shall clearly specify the specific criteria for the proposed ecology unit, including but not limited to:
 - a) make and model of the proposed ecology unit,
 - b) number of filter banks for the ecology unit,
 - c) number of filters in each bank,
 - d) MERV rating of filters in each filter bank, and
 - e) must contain provisions for odour control.
3. A partial elevation drawing showing the location of the proposed exhaust grill with dimensions to all adjacent operable window(s), door(s), and air intake(s).

This approach will only be considered where compliance with the required exhaust termination clearances of 7.8.2. or 7.8.3. of NFPA 96 is not possible or practical due to site conditions or construction difficulties.

In addition, every installation shall provide/ensure the following:

1. Ecology unit shall be installed in accordance with 9.3. of NFPA 96 and all ductwork from point of origin (cooking equipment) to Ecology Unit and from the Ecology Unit to the outside point of discharge shall comply with the requirements, clearances, and access of NFPA 96 as per 9.3.2. of NFPA 96.
2. The ecology unit shall contain an odour control filter bank or other suitable provisions for odour control.
3. The proposed MERV ratings for each filter bank shall be permanently labelled on the ecology unit on site to assist Fire Prevention Staff with maintenance inspections.
4. A minimum 3m (10 foot) clearance from the exhaust termination grill to all;
 - a) operable window(s) or door(s) serving a different suite, fire compartment, or building, and
 - b) air intake(s), including those serving the same suite.

(As required in accordance with ASHRAE requirements for Class 2 exhaust air).

See Figures 1, 2 and 3 for sample required clearance measurements.

5. The design Engineer proposing the equivalency shall locate the exhaust terminations with consideration relating to noise and odour where they will have the least impact on nearby buildings, properties, suites, amenity areas, and the public realm. Additionally, they 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 or amenity, and
 - c) the sound pressure level generated must be attenuated to be in compliance with the City of Kitchener Noise By-law.
6. Exhaust termination grills are to be flush with the façade on the exterior of the building and are to be designed to integrate with the building design and match the colour and finish of the existing/proposed façade in which they will be located.
7. Where there is a fabric canopy/awning, the discharge shall be located above the canopy/awning.
8. The termination shall be designed and located to the satisfaction, review, and approval of the authority having jurisdiction.
9. Prior to final inspection the owner/tenant/contractor shall post a permanent sign adjacent to the exhaust hood(s) that states:

ECOLOGY UNIT NOTICE

THIS NFPA 96 EXHAUST CONTAINS AN ECOLOGY UNIT (AIR POLLUTION CONTROL DEVICE) BETWEEN THE EXHAUST HOOD AND THE EXTERIOR EXHAUST TERMINATION. THE ECOLOGY UNIT SHALL BE REGULARLY CLEANED AND MAINTAINED, AND THE FILTER MERV RATINGS ARE TO MAINTAIN IN ACCORDANCE WITH THE APPROVED BUILDING PERMIT DRAWINGS AND DOCUMENTATION. THIS SIGN CANNOT BE REMOVED UNLESS NOTICE IS GIVEN TO CHIEF FIRE PREVENTION OFFICER.

Figure 1: Required Clearance Measurements

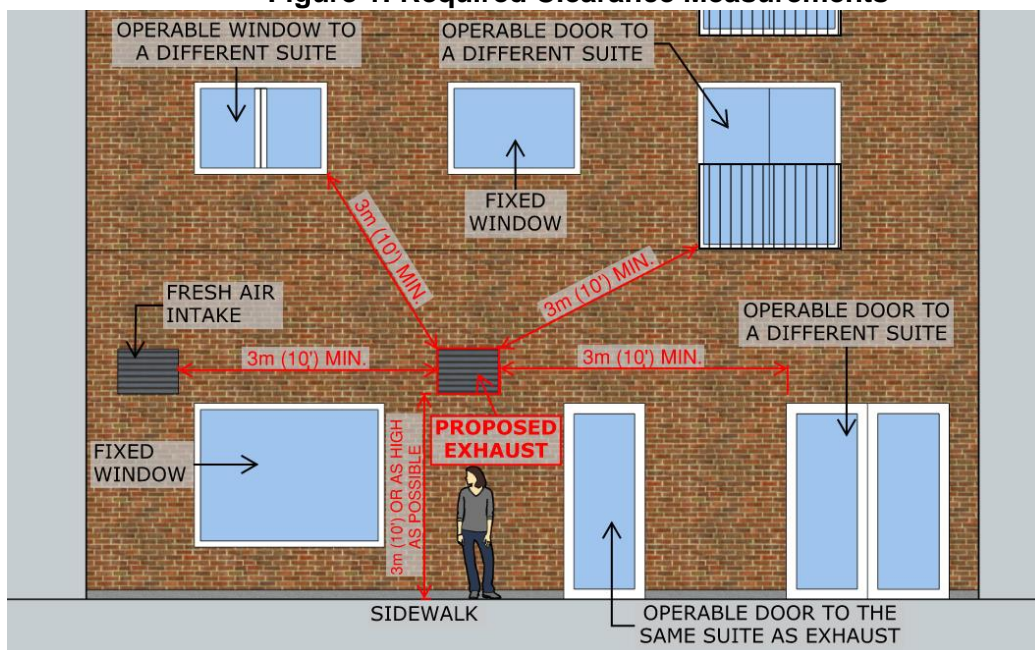


Figure 2: Balcony measurement (front view)



Figure 3: Balcony measurement (side view)

