GENERAL REQUIREMENTS

R30.8-1 General Requirements - Fume Hoods (Ventilation Systems)

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BACKGROUND

1. Explanatory Notes
Section 30.8 sets out the general requirements relating to fume hoods in laboratories.

2. The OHSR
Section 30.8:

(1) A laboratory fume hood and its related ductwork must be designed, installed and maintained in accordance with the *Industrial Ventilation, A Manual of Recommended Practice*, published by the American Conference of Governmental Industrial Hygienists, as amended from time to time.

(2) A laboratory fume hood must

(a) be connected to a local exhaust ventilation system,

(b) provide average face velocities of 0.4 m/s (80 fpm) to 0.6 m/s (120 fpm) across the operational face opening,

(c) not have face velocities of less than 80% of the average face velocity required in paragraph (b) at any point across its operational face opening, and

(d) not have face velocities of more than 120% of the average face velocity required in paragraph (b) at any point across its operational face opening.

(2.1) A laboratory fume hood must have a sash that is positioned to protect the upper body and face of a worker working in the laboratory fume hood from accidental releases of the contents of the hood while allowing hand and arm access to equipment inside the hood.

(2.2) A laboratory fume hood with a movable sash must be clearly marked to identify the maximum size of the operational face opening that will maintain the average face velocities required in subsection (2)(b).

(2.3) The employer must ensure

(a) that before it is used, a commercially manufactured laboratory fume hood has been certified as being tested by the manufacturer, and

(b) following installation and before it is used, a custom built laboratory fume hood is tested on site by a qualified person.

(2.4) A laboratory fume hood tested under subsection (2.3) must demonstrate containment not greater than the control level of 0.05 ppm when tested under "as manufactured " test conditions in accordance with the methods described in *ANSI/ASHRAE Standard 110-1995, Method of Testing Performance of Laboratory Fume Hoods*.

(2.5) The installation of a laboratory fume hood must be certified by a professional engineer.

(3) A laboratory fume hood must be located to prevent cross drafts or other disruptive forces from lowering the air flow across the operational face opening to unacceptable levels.

(4) A laboratory fume hood and its ductwork must be constructed from materials compatible with its use.

(5) A laboratory fume hood that will be or is being used for working with

(a) radioactive material in amounts that exceed the exemption quantity specified by the Canadian Nuclear Safety Commission, or

(b) perchloric acid

must be clearly labelled with applicable restrictions on its use.

(6) A laboratory fume hood must not be used for storage of chemicals unless it is used exclusively for this purpose and is labelled with this limitation.

(7) Controls for the operation of a laboratory fume hood and its service fixtures must be

(a) located on the outside of the laboratory fume hood, and

(b) immediately accessible to the worker conducting work in the laboratory fume hood.

(8) Despite subsection (7), water taps may be located inside a laboratory fume hood if the main shutoff valve for the water is located outside the laboratory fume hood.

(9) Equipment being used in a laboratory fume hood must

(a) be kept at least 15 cm (6 in.) from the operational face opening of the laboratory fume hood, and

(b) not adversely affect airflow into the laboratory fume hood.

(10) Written procedures must be developed and implemented to ensure safe use and operation of a laboratory fume hood.

Section 30.9:

(1) Face velocities over the operational face opening of a laboratory fume hood must be quantitatively measured and recorded.

(2) The ability of a laboratory fume hood to

(a) maintain an inward flow of air across the operational face opening, and

(b) contain contaminants

must be assessed and recorded using a smoke tube or other suitable qualitative method.

(3) The actions described in subsections (1) and (2) must be performed

(a) after the laboratory fume hood is installed and before it is used,

(b) at least once in each 12 month period after installation, and

(c) after any repair or maintenance that could affect the air flow of the hood.

(4) If a laboratory fume hood is found to be operating with an average face velocity of less than 90% of the average face velocity required in section 30.8 (2), the employer must immediately take corrective action to bring the average face velocity within the required range of velocities.

(5) Airflow in a laboratory fume hood must be monitored continuously if loss of airflow will result in risk to a worker.

(6) A laboratory fume hood that is being installed must have an alarm capable of indicating when the average face velocity falls below the minimum average face velocity level required in section 30.8 (2) when the hood is in use.

POLICY

Section 30.8(2) specifies fume hood exhaust ventilation rates in terms of air velocities measured over the operational face area of the hood. The operational face area is determined by the height of the sash and will vary with the work carried out in the fume hood.

The air velocity is the average of measurements made over 6 points at the operational face of the hood with the sash raised to its highest position. A calibrated anemometer must be used.

If the measured average velocity is less than specified in section 30.8(2), repeated measurements must be made with the sash lowered successively until the specified average air velocity is attained. The sash height where this is determined must be marked in accordance with section 30.8(2.2). The minimum sash height is 12 inches.

If the fume hood cannot be used at the height determined above, modification is required to improve the ventilation so the specified air velocities are maintained at the sash height required for the work performed in the fume hood.

Smoke tube tests must be done to determine whether conditions of air turbulence exist at the face of the hood. If conditions of severe turbulence exist so that air spills out past the hood face, the condition must be corrected.

When a sash height adjustment is necessary on a fume hood that is part of a manifolded system (several hoods serviced by a single exhaust fan), *all* fume hoods in the system must be rechecked at the completion of the adjustments to ensure face velocity compliance (this operation may have to be repeated several times before compliance is achieved).

EFFECTIVE DATE:	April 1, 2001
AUTHORITY:	Sections 30.8 and 30.9 of the *OHSR*.
CROSS REFERENCES:	

HISTORY:	April 6, 2020 - Housekeeping changes. October 14, 2011 - Housekeeping changes to reflect a change in the *OHSR* to make alarms mandatory. September 15, 2010 - Housekeeping changes to update *OHSR* provisions and consequential changes to text, delete practice reference and make formatting changes. March 30, 2004 - A cross-reference correction to reflect regulatory amendments relating to occupational exposure limits, effective October 29, 2003. December 14, 2001- A housekeeping change. October 1, 2000 - This Item resulted from an editorial consolidation of prevention policies into the *Prevention Manual*. The Policy in this Item continued the substantive requirements that existed before the consolidation, with any wording changes necessary to reflect legislative and other changes that have occurred. Policy No. 76.05 in the former Prevention Division *Policy and Procedure Manual*.
APPLICATION:	The application of this policy remains unchanged from its previous authority under Policy No. 76.05 of the former Prevention Division *Policy and Procedure Manual.*