



Laboratory Hood Evaluation Procedure

1. PURPOSE AND SCOPE

- 1.1. This procedure describes methods for the evaluation, notification and repair of laboratory hoods (fume hoods) at the University of Notre Dame.

2. RESPONSIBILITIES

- 2.1. Principal Investigators (PI) develop a process to ensure that Lab personnel reporting to the PI:
 - 2.1.1. Use only the laboratory hoods that have been approved for use by Risk Management and Safety (RMS).
 - 2.1.2. Notify RMS or Notre Dame Maintenance when a situation arises affecting the proper functioning of a hood.
- 2.2. Risk Management and Safety (RMS):
 - 2.2.1. Maintain an inventory of laboratory hoods requiring inspection.
 - 2.2.2. Evaluate all laboratory hoods at least annually.
 - 2.2.3. Evaluate hoods approved to use volatile radioactive material semi-annually. The RSO can provide guidance on what qualifies as volatile radioactive material.
 - 2.2.4. Communicate to affected lab personnel if a hood is not functioning within the parameters described in Section 3.
 - 2.2.5. Provide the appropriate Maintenance personnel information on the results of the annual tests so corrective action can be taken.
- 2.3. Maintenance:
 - 2.3.1. Correct malfunctioning hoods as soon as practical following report from RMS or contact for lab personnel.
 - 2.3.2. Contact RMS after corrective action is taken.

3. LABORATORY HOOD EVALUATION PROCESS

3.1 Vertical Sash Hoods

- 3.1.1 After assembling the Shortridge Velgrid velometer, open the fume hood to the standard operating height of 18 inches (previous year's sticker should be set at 18 inches to guide sash height. If not, use a measuring tape to confirm proper sash height). Press the button on the handle of the Shortridge Velgrid to begin the measurement. Take readings at six equidistant points across hood face. A number indicating face velocity will appear on the read-out of the instrument.
- 3.1.2 Record readings in Fume Hood Database. Information in the database should include date, time, name of individual conducting the test, any hood

- obstructions, results for each data point, and average hood face velocity.
- 3.1.3 If the average face velocity is between 72-132 feet per minute (fpm) affix a Test Result Sticker (Appendix A) on the left side of the hood and enter appropriate information. This range includes a +/- 10% margin of error.
- If any one of the six sections measures below 60 fpm due to an obstruction, inform lab personnel that the obstruction must be moved if possible.
 - If there is not an obstruction and any of the sections measures less than 60 fpm, RMS submits a work order to Maintenance.
- 3.1.4 If the average face velocity is at or below 60 fpm or greater than 150 fpm, RMS:
- Affixes a “Do Not Use” sign (Appendix B) on the front of the hood. If there are multiple sashes place a sign on each sash.
 - Informs the lab personnel that RMS recommends the hood not be used and provide the reasons.
 - Enters a work request to have the hood repaired.
- 3.1.5 If the average face velocity is between 61-71 fpm, RMS:
- Informs the lab personnel that that the face velocity average is below the recommended values and that, if possible, the hood should not be used until adjustments can be made.
 - Enters a work request to have the hood repaired.
- 3.1.6 If the average face velocity is greater than 132 fpm but less than 150 fpm, RMS performs a smoke test.
- If smoke flows out of the hood follow the procedure listed in 3.1.4.
 - If smoke is drawn in, follow the procedure listed in 3.1.5.
- 3.1.7 Enter evaluation information in Fume Hood Database. Include building, room number, date of evaluation, average face velocity, and inspector’s name.
- 3.1.8 Forward information regarding hoods that are out of compliance to Maintenance.
- 3.1.9 Conduct a follow-up evaluation on hoods out of range after Maintenance reports repairs have been completed.

3.2 Horizontal Sash/Walk-in Hoods



- 3.2.1 If hood has windows that may be opened both horizontally and vertically close all horizontal windows and open vertical window to 18 inches, then follow procedures listed in Sections 3.1.1 and 3.1.2.
 - 3.2.2 If window can only be opened horizontally, open from either left or right side then follow procedures listed in Sections 3.1.1 and 3.1.2.
 - 3.2.3 Walk in hoods are evaluated at an 18 inch opening following procedures listed in 3.1.1 and 3.1.2 with the exception of using the Test Result Sticker (Appendix A) if the hood is compliant.
- 3.3 Hoods used for radioactive material work
- 3.3.1 Laboratory hoods approved for radioactive material work are evaluated every six months in accordance with Notre Dame's Nuclear Regulatory Commission Broad Scope License. The hoods must draw a minimum of **100 fpm** at a face opening of **12 inches**.
 - 3.3.2 Open hood to 12 inches.
 - 3.3.3 Evaluate hoods using procedures listed in 3.1.1 and 3.1.2.
 - 3.3.4 If the hood draws at least 100 fpm, affix a Test Result Sticker (Appendix A) on left side of hood.
 - 3.3.5 If the hood fails to meet the criteria of the NRC License, follow procedures listed in 3.1.4.
- 3.4 Vertical Sash Hoods required to be used with sash greater than 18"
- 3.4.1 Labs desiring to use hoods in a full-open position (>18") request RMS to test the hood with the sash at that height prior to using the hood at a height >18".
 - 3.4.2 RMS personnel will evaluate the hood with the sash in full-open position or at the height the lab requires it. RMS will test the hood at the desired height and follow the procedures outlined in 3.1.
- 3.5 VelociCalc Air Velocity Meter
- 3.5.1 VelociCalc may be used in place of Velgrid.
 - 3.5.2 Utilize [Instruction Manual](#) for guidance.
4. RECORD KEEPING
- 4.1 Face velocity records are maintained by RMS for not less than three (3) years following the evaluation.
 - 4.2 Calibration records of the velometer are maintained by RMS for not less than three years following the calibration.



Revision History Table

History	Effective Date
3.2.4 – Added 10% adjustment for error in measurement per ANSI. Changed first bullet to 60 fpm from 80 fpm. 3.2.5 – Changed 80 fpm to 60 fpm. Added actions required by RMS when face velocity is at or below 60 fpm or greater than 150 fpm. 3.2.6 – Added to include RMS actions if face velocity average is 61-71 fpm. 3.2.7 – Changed the requirement when a smoke test is required to 132 fpm and below 150 fpm. 3.4.4 – Deleted “and enter information as listed in 3.2.4.” 3.4.5 – Changed “3.2.8 and 3.2.9” to 3.2.5. Appendix B – Modified wording.	August 2015
Throughout – wording clarifications	September 2015
Updated footer to align with new format	July 2017
Changed RM&S to RMS throughout. Removed Appendix C and D. Realigned some sections. Improved instructions in Section 3.1. Removed Shall throughout.	April 2024

Appendix A Lab Hood Evaluation Test Result Sticker

0.6	#7-281	100.0	100.0	SECURITY	#1000510	100.0
0.7	#7-281	100.0	100.0	SECURITY	#1000510	100.0
0.8	#7-281	100.0	100.0	SECURITY	#1000510	100.0

WORKING ➔

HEIGHT

APPROVED FOR:

Storage Only

General Chemistry

Radiolotopes

Carcinogen or Toxic Chemical Work

FACE VELOCITY
fpm
Date of Inspection:
Inspected by:
Expiration date:

Appendix B
Lab Hood Do Not Use Form



DO NOT USE

This hood shall not be used until repaired. The average face velocity is not within the established guidelines and may not provide adequate personal protection.

Risk Management and Safety has notified Maintenance and created a work request to repair this hood.

For status update please contact your building maintenance representative.

Date: _____

Time: _____

RMS Representative _____