A. **PURPOSE:** To establish protocols for the safe use of chemical fume hoods (CFH) in research laboratories at Columbia University.

B. **APPLICABILITY/SCOPE:** This policy is applicable to all laboratory personnel using chemical fume hoods in research laboratories at all Columbia University campuses, including Morningside, Medical Center, Lamont-Doherty Earth Observatory (LDEO) and Nevis.

C. **RESPONSIBILITIES**
   1. **User**
      a. Always use fume hood safely for your experiments, as outlined below.
      b. Inform all other CFH users in the lab if hood is suspected of not working properly.
      c. Contact EH&S for air flow verification if fume hood is suspected of not working.
      d. Place a “Do Not Use” sign (Appendix 1) on the hood when hood is not working, if not placed by EH&S or Facilities, to avoid use by others.
      e. Following repair, before use, ensure CFH is recertified by EH&S and Do Not Use sticker is removed.
   2. **EH&S**
      a. Perform annual certification of all fume hoods.
      b. Place a sticker on each CFH showing the date of certification, flow rate and your initial.
      c. Inform PI and Facilities if a CFH fails certification or re-certification and place a “Do Not Use” sticker to take it out of service.
      d. Generate a work order with Facilities if fume hood fails certification or re-certification.
      e. Re-certify CFH after repairs or adjustment made by Facilities.

D. **DEFINITIONS:**
   1. **Engineering Controls (Chemical Fume Hoods)**
      Engineering controls are a critical component of protection against workplace hazards, removing the hazard from the worker’s environment. Engineering controls include local exhaust ventilation (e.g., chemical fume hoods) to prevent exposure to gases, chemical vapors and aerosols. There are two basic categories of laboratory hoods: chemical fume hoods and biological safety cabinets. This policy outlines safe work practices when using chemical fume hoods. Biological safety cabinets are tested and certified by an independent contractor and procedures for their safe use are contained in a separate policy http://ehs.columbia.edu/BiosafetyCabinetsPolicy.pdf
   2. **Face Velocity:** Measurement of the speed at which laboratory air enters a fume hood's face plane opening.
   3. **Average Face Velocity:** Measurement of the speed at which laboratory air enters a fume hood’s face plane opening averaged over several measurement points.

E. **PROCEDURES:**
   1. **Fume Hood Safe Work Practices**
      a. Lab personnel shall employ work practices that minimize/eliminate their exposures when working with hazardous materials in chemical fume hoods:
      b. Lab personnel must not place their upper body in the fume hood except during initial setup of equipment inside the hood, before any hazardous materials have been placed inside the hood.
      c. Hazardous materials should be placed at least 6” inside the hood for proper containment of airborne chemical hazards.
      d. Do not use fume hood for permanent storage of equipment or materials.
e. Equipment inside the hood should be placed so as to not block airflow through slots in the baffle. (See Fig 1)

f. The hood sash or panels should be lowered to the lowest (comfortable) working height, usually 12”.

g. Do not work in a fume hood with an open sash at a height greater than 18”, a wide sash opening lowers the face velocity and capture effectiveness of the hood, and removes the physical barrier provided by the sash.

h. When not in use, the hood sash should be kept at the lowest level for greater safety and to conserve energy.

i. The hood sash or panels shall not be removed except for initial experimental setup and before hazardous chemicals are placed in the hood.

2. Removing Hoods from Service
When a chemical fume hood is to be removed from service, the PI or lab manager must ensure that all hazardous materials have been removed and the hood has been properly decontaminated. If radioactive materials have been used in the hood, the Radiation Safety Officer must survey the fume hood for radioactive contamination. After decontamination and final survey, clearance for removal is given by EH&S.

3. Use of Ductless Fume Hood
Ductless fume hoods are not permitted by the New York City Fire Department (FDNY) regulations.

F. EMERGENCY CONTACTS/INQUIRIES
2. Columbia University Medical Center (CUMC) Campus: EH&S at (212)-305-6780.

G. MEDICAL SURVEILLANCE N/A

H. RECORDKEEPING N/A

I. APPENDICES
1. Appendix 1. “Do Not Use” Sticker to be Placed on a Non-Functional Fume Hood

J. FORMS – N/A

K. REFERENCES
3. RCNY Chapter 10, Chemical Laboratories, 1992

L. CFH WG/ACKNOWLEDGEMENTS
1. Muhammad Akram
2. Kathleen Crowley
3. Dae-In Kim
4. Thomas Morgan
5. Christopher Pitoscia
6. Christopher Pettinato
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Version: 1.0</td>
<td>Revised: NA</td>
</tr>
</tbody>
</table>
CAUTION

Do Not Use This Fume Hood

This Hood Is Not Functioning Properly and is Unsuitable For Chemical Use

All Chemicals Must Be Removed from Hood to Repair

Face Velocity (FPM): _______ Name____________________

Date Facilities was Notified to Repair: _____/ _____/ ______

If any Question, Please Contact:

<table>
<thead>
<tr>
<th>Department</th>
<th>Phone</th>
<th>For</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities Management</td>
<td>See Below*</td>
<td>Repair, Noise, etc.</td>
</tr>
<tr>
<td>Environmental Health and Safety</td>
<td>CUMC 212-305-6780</td>
<td>Safety, Air Flow, etc.</td>
</tr>
<tr>
<td></td>
<td>MS 212-854-8749</td>
<td></td>
</tr>
</tbody>
</table>

EH&S Has Notified Facilities for Repair

*CUMC Campus - (212) –305 – 7367
*Morningside Campus (212)-854-2222
*LDEO Campus – (845)-365-8860
*Nevis Campus (914) 591 – 9244

Following Repair Contact EH&S For Recertification
Figure 1 Do Not Clutter and Block Air Flow Through Slots in the Back of Fume Hood
Fume Hood Use Safe Work Practices

Lab personnel shall employ safe work practices that minimize/eliminate their exposures when working with hazardous materials in chemical fume hoods, such as:

- **Do not** place your upper body in the fume hood except during initial setup of equipment and before any hazardous materials have been placed inside the hood.
- **Do not** use fume hood for permanent storage of equipment or materials.
- **Do not** work in a fume hood with an open sash at a height greater than 18”; a sash wide open lowers the face velocity and capture effectiveness of the hood, and removes the physical barrier provided by the sash.
- **Do not** place hazardous materials less than 6” inside the hood for proper containment of airborne chemical hazards.
- **Do not** place equipment inside the hood in a way to block airflow through slots in the baffle. The hood sash or panels should be lowered to the lowest (comfortable) working height, usually 12”.
- **Do not** leave the sash open when fume hood is not in use, the hood sash should be kept at the lowest level for greater safety and to conserve energy.
- **Do not** remove hood sash or panels except for initial experimental setup and before hazardous chemicals are placed in the hood.
Fume Hood Use Safe Work Practices

Lab personnel shall employ safe work practices that minimize/eliminate their exposures when working with hazardous materials in chemical fume hoods, such as:

- **Do** place your upper body in the fume hood except during initial setup of equipment and before any hazardous materials have been placed inside the hood.
- **Do not** use fume hood for permanent storage of equipment or materials.
- **Do** work in a fume hood with an open sash at a height greater than 18”; a sash wide open lowers the face velocity and capture effectiveness of the hood, and removes the physical barrier provided by the sash.
- **Do** place hazardous materials less than 6” inside the hood for proper containment of airborne chemical hazards.
- **Do not** place equipment inside the hood in a way to block airflow through slots in the baffle. The hood sash or panels should be lowered to the lowest (comfortable) working height, usually 12”.
- **Do not** leave the sash open when fume hood is not in use, the hood sash should be kept at the lowest level for greater safety and to conserve energy.
- **Do not** remove hood sash or panels except for initial experimental setup and before hazardous chemicals are placed in the hood.