



### Policy Statement

Oregon State University (OSU) will take a conservative approach to roof access in order to minimize potential exposure to chemical, biological, and radiological hazards for personnel who are working on roofs. This approach involves restricting or limiting access to building roofs when potentially hazardous materials coming from operations inside of a building may reach the roof, even though it is unlikely these hazards will exceed occupational health limits.

### Definitions

**Permissible Exposure Limit (PEL)** and **Threshold Limit Value (TLV)** are exposure limits established for specific chemicals by the OSHA and the American Conference of Governmental Industrial Hygienists (ACGIH), respectively.

**Personal Protective Equipment (PPE)** is safety equipment used to provide protection and prevent exposure to an employee's skin, head, eyes, ears, extremities, and respiratory system.

A **Heating, Ventilating, and Air Conditioning (HVAC) system** supplies outside air to a building and may also provide heating and cooling.

### Scope

This policy applies to all personnel access on roofs maintained by OSU. The primary focus of this policy is to address concerns regarding employee exposure to chemical, biological, and radiological hazards when working on rooftops. Other safety issues involved when working on roofs, and equipment on roofs, (e.g., fall protection, electrical safety, lockout tagout) are covered separately in other safety instructions.

### Introduction

OSU employees are often required to access building roofs for tasks such as routine maintenance, equipment inspection, minor roof repairs, environmental sample collection, and changing HVAC filters. Less frequently, work may require employees or contractors to be on roofs for extended periods of time, such as when re-roofing or installing ventilation systems. Although it is unlikely that individuals working on roofs will be exposed to chemical substances in concentrations that exceed the PEL or TLV--because of the large amount of dilution that occurs in a laboratory hood and the further dilution that occurs when exhaust mixes with the surrounding air--it is good practice to minimize employee exposures to hazardous materials. In keeping with the policy to minimize potential employee exposure, certain buildings have been placed into restricted or limited roof access categories.

One of the purposes of limiting roof access on certain buildings is to minimize employee exposure to noxious odors, even though it is likely that the airborne concentrations are well below the PEL. A typical 4-foot laboratory hood exhausts around 500 cubic feet per minute (cfm). This is equivalent to 14,000 liters per minute and means that every liter of gas or vapor emitted in a minute is diluted by a factor of approximately 14,000 in the laboratory exhaust system. Example: It would take an emission rate of 0.14 L/min of hydrogen sulfide gas (an odorous gas with a rotten egg type odor) to reach the PEL of 10 ppm inside the laboratory fume hood duct. Because of its low odor threshold (i.e., 0.008 ppm or 1/1200 times the PEL), releases of hydrogen sulfide gas can generate odor complaints when it is released at a rate of 0.0001 L/min.

### Roof Categories

Each OSU building roof (or in some cases, section of a roof) has been classified into one of three access categories, depending on the number of hoods and the type of work done in the building.

1. **Restricted access** requires a pre-planned coordinated building hood curtailment involving hood users OR appropriate PPE before any roof access can occur.
2. **Limited access** requires checking hoods to prevent use of dangerous chemicals, but planned coordination is not required
3. **Unlimited access** roofs are open for work with no special restrictions

**Restricted Access Roofs** are those that have a high number of hood fans with short stacks so there is a reasonable potential for significant chemical emissions, and the time involved with checking individual hoods is significant. Roof access points will be posted and access prevented unless a hood curtailment has been planned or appropriate PPE and adequate staff (at least 3 employees) is available.

**Limited Access Roofs** are those that have a limited number of hood fans with short stacks, presenting a limited potential for diluted chemical emissions, or other geometric arrangements that prevent adequate dilution air. The characteristic that distinguishes this category from restricted access: due to small number of hoods, they can be quickly checked and posted to limit use. Roof access points will be posted to limit access to those situations where appropriate precautions have been taken. The posting will include locations of all hoods.

**Contact EHS:**  
safety@oregonstate.edu  
oregonstate.edu/ehs/  
541 • 737 • 2273

**Unlimited Access Roofs** are 1) office buildings and dorms with virtually no potential for chemicals or other hazardous agents inside of the building to affect roof work; or 2) buildings with adequately designed exhaust systems that allow for good dilution and dispersal outside the building. Roof access points will not be posted. Long-term work, or work that may impact building occupants (e.g., painting or roofing work near air intakes, shutdown of HVAC), must be coordinated with occupants.

## Signs

<b>Roof signs</b>	
<b>Caution:</b> This roof is designated as <b>“Restricted Access”</b>  Access not permitted except during planned maintenance periods or unless personnel are wearing adequate personal protective equipment, including self-contained breathing apparatus	<b>Caution:</b> This roof is designated as <b>“Limited Access”</b>  Authorized personnel only.  For information contact EH&S (7-2273) Hood locations: Room XXXX, YYYY
<b>Hood posting</b>	
<b>Facilities Services Notice</b>	
<b>DO NOT USE HOOD</b>	
<b>OUT OF SERVICE</b>	
<b>FUME HOOD and EXHAUST SYSTEM</b>	
<b>Date</b>	
<b>From (approximately)</b>	<b>To:</b>
<b>Reason</b>	
<b>For information contact</b>	<b>number</b>

## List of Buildings

**Unlimited Access:** Office buildings, dorms, and the following buildings with hoods:

ALS	Crop Science	Nash	Radiation Center
Burt	Dearborn	Merryfield	Richardson
	Gilbert	Ocean shops 221	West greenhouse
Clark Meat Lab	Gilmore	Oak Creek Bldg (west)	Wiegand
Cordley	Graf	Owen	Withycombe (east)
	Kelly	Pharmacy (north)	

**Limited Access:** The following buildings:

Cascade	Magruder	Oak Creek Bldg (east)	Seed Lab
Dryden	Milam	Peavy	Vet Research Lab
EH&S Annex	Moreland	Pharmacy (south)	Weniger (partial)

**Restricted Access:** The following buildings:

Gilbert Addition	Rogers	Wilkinson
Gleeson		Withycombe (west section)