

## Changing Burned Out Fluorescent Light Tubes in Chemical Fume Hoods

Routine service of laboratory fume hoods includes the periodic changing of burned out fluorescent light tubes. Although chemical fume hoods are designed to exhaust hazardous materials away from the lab, some hoods may have small amounts of chemical residue and require special preparation before light tubes can be replaced. The following procedures have been developed to ensure the safety of the facilities personnel as well as to prevent damage to laboratory materials and equipment.



*Note: Chemical fume hoods should not be confused with Biological Safety Cabinets (BSCs). A separate protocol has been developed for changing spent ultraviolet lamps in BSCs.*

### Step 1: Notifications

- A. Lab occupants should notify their appropriate facilities contact when fluorescent light tubes need to be replaced.
- B. Facilities personnel should notify lab occupants in advance of the date and time that the light tubes will be changed to allow sufficient time for lab occupants to prepare the fume hood.

### Step 2: Lab Occupant Fume Hood Preparation

- A. Materials and Equipment
  - *When bulbs are changed from above the hood:* Lab occupants must ensure all potentially hazardous materials inside the hood are capped and/or secured such that there is no possibility of release during service. Wherever feasible, active experiments should be halted during service. Highly hazardous materials should be removed from the hood altogether during service. In addition, lab personnel must remove any obstructions to the fume hood (items on the floor, etc.) such that a ladder can be placed nearby.
  - *When bulbs are changed from inside the hood:* Lab occupants must remove all potentially hazardous materials, equipment, and experimental apparatus from inside the hood prior to service. In addition, lab personnel must remove any obstructions to the fume hood (items on the floor, etc.) such that a ladder can be placed nearby.
- B. Cleaning and Decontamination:
  - *When bulbs are changed from above the hood:* Lab occupants should clean and decontaminate the sash and any other parts of the hood that the facilities maintenance operator will reasonably come in contact with during the activity.
  - *When bulbs are changed from inside the hood:* Lab occupants should clean and decontaminate all hood surfaces prior to any work by facilities personnel.
- C. Special Procedures
  - **Radioisotope hoods:** Lab personnel must survey radioisotope hoods prior to changing fluorescent light tubes. If contamination is found, lab personnel must clean the work surface until acceptable contamination levels are achieved. Any surfaces with fixed contamination must be covered and shielded to background levels. Any coverings used, (ie..plexiglass) must be secured so that the material cannot move.

- Special hazard hoods: Certain hoods may require special considerations due to the use of chemicals with unique hazards (e. g. perchloric acid). Contact EH&S for service activities with these types of hoods
- Biological materials and animals: Hood surfaces must be wiped down with a disinfectant if biological materials are used. For Biosafety Level 2 (BL-2) laboratories, all BI-2 materials must be placed into storage before entering the laboratory.
- Other: Lab occupants must mitigate the hazards of any other materials used in their hood that requires special handling. EH&S can be contacted for assistance in extenuating circumstances.

### **Step 3: Facilities Personnel Preparation**

- A. Check to ensure that lab occupants have secured all hazardous materials and equipment prior to service.
- B. When changing a bulb from above the fume hood, close the sash and cover the work area with a drop cloth to prevent spreading dust and dirt.
- C. When changing a bulb from within the hood, cover the work area with a drop cloth. Pay special attention to cover areas upon which you may need to sit or lean against.
- D. Wear the recommended protective apparel of safety glasses and nitrile gloves.
- E. Ensure all ladders is in good working order, secure, and of sufficient height.
- F. Turn off the power to the light source prior to service.

### **Step 4: Facilities Personnel Safe Work Practices**

- A. Be aware of body movements and take care not to sustain awkward postures. When working inside or above fume hoods it may be necessary to move the body in an awkward manner or position. These movements may contribute to musculoskeletal injury. To the extent feasible, try to adjust the ladder or other work surfaces to minimize any sustained awkward or forceful movements for the duration of the service.
- B. Use a flashlight when working in dark corners. The areas above fume hoods are often shadowed by pipes or other items near the ceiling and the darkness may contribute to an accident.
- C. Wash hands after service activities.

### **Step 5: Disposal**

- A. Fluorescent light tubes contain small quantities of mercury and must be treated as Universal Waste. Facilities personnel should take care to remove all spent fluorescent tubes from the lab and place them in the appropriate universal waste accumulation area.