Air Force Research Laboratory
Wright-Patterson AFB Ohio

Environmental, Safety, and Occupational Health Newsletter

November 2000

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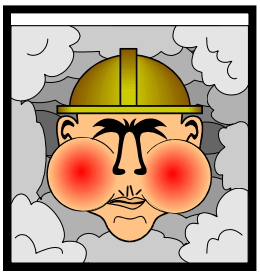
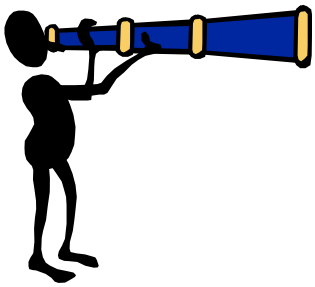


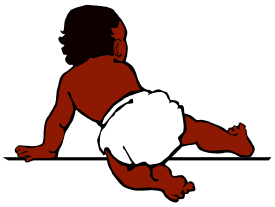
Industrial Ventilation Systems

Turn-in Procedures for Mercury Bulbs, PCB Items, Used Oil



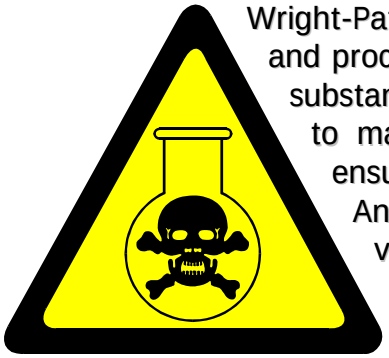
College Students Perform Environmental Audit at AFRL

Childproofing Your Home



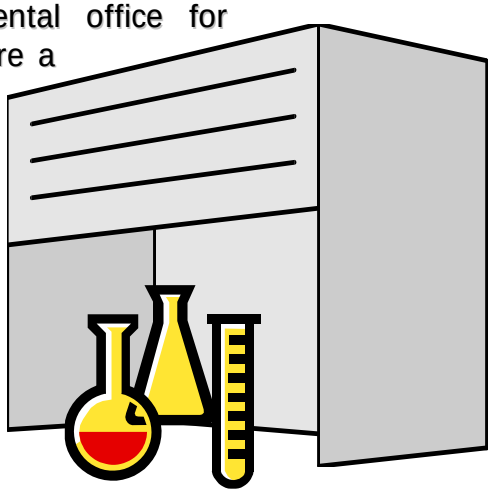
Industrial Ventilation Systems

Submitted by 2dLt Claudia Ead
Bioenvironmental Management



Wright-Patterson Air Force Base, with its complexity of operations and processes, uses a large number of chemical compounds and substances. Industrial ventilation systems are very important to maintaining a clean and healthy work environment and ensuring air contamination is kept within acceptable limits. An effective way of doing so is with a well-designed ventilation system. **Ventilation systems used in industrial areas are classified as one of two types of systems, supply or exhaust. Local exhaust ventilation systems are most efficient and effective in removing contaminated air as close to the source as possible.** The Bioenvironmental Engineering Flight ensures these systems are working properly and are controlling the chemical hazards associated with the operations.

If you are the user of a ventilation system, you can also maintain your system and ensure it is functioning properly on a daily basis by installing static pressure gauges. Static pressure gauges can be used on the hood throat, across any filters in the exhaust system, or other appropriate indicators to ensure that the exhaust flow is appropriate. Contact the Bioenvironmental office for recommended locations. Static pressure gauges are a great way for people using ventilation systems such as paint booths or laboratory hoods to monitor and maintain their systems.



Due to the numerous types of research and development, Wright-Patterson has plenty of laboratory hoods. According to the American Conference of Governmental Industrial Hygienists ACGIH Industrial Ventilation Handbook 22nd Edition, **the following are good workplace practices for laboratory hoods:**

- Conduct all operations that may generate air contaminants inside a hood.
- Keep any apparatus at least 6 inches back from the face of the hood.
- Do not put your head in the hood when contaminants are being generated.
- Do not use the hood as a waste disposal mechanism except for very small quantities of volatile material.
- Do not store chemicals or any apparatus in the hood. Store hazardous chemicals in an approved safety cabinet.

- Keep the slots in the hood baffle free of obstruction.
- Minimize foot traffic past the face of the hood.
- Keep laboratory doors closed (exception: some laboratory designs require lab doors to be open).
- Do not remove hood sash or panels except when necessary for apparatus set-up; replace sash or panels before operating.
- Keep the hood sash closed at the recommended point as much as possible.
- The recommended criterion for laboratory hoods is an average face velocity between 80-125 feet per minute. Exceeding this value may cause turbulence in front of the operation and may pull contaminants from the hood into the operator's breathing zone.
- If hood sash is supposed to be partially closed for operation, the hood should be so labeled and the appropriate closure point clearly indicated.

In order to update the Industrial Ventilation inventory, the Bioenvironmental Engineering Office asks that individual shops please notify them at 255-6815 ext 275 of systems (examples: laboratory hoods, canopies and paint booths) that are new or have not been visited by the Bio office within the last year.

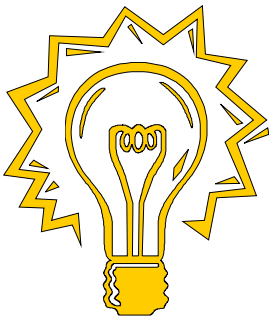
Procedures for Turning In Used Oil, Mercury-containing Fluorescent Light Bulbs, PCB-containing Items

Base Environmental Management (88 ABW/EM) has recently reorganized. As a result, you may find there are some new names and faces managing various environmental programs. Also, since Civil Engineering has reduced their environmental services, some responsibilities are being turned over to Environmental Management. Some areas that have recently seen changes include the procedures for turning in used oil, fluorescent light bulbs, and PCB (polychlorinated biphenyl) light ballasts. Because of the special environmental hazards associated with these waste streams, they cannot be disposed of as regular waste. In an effort to reduce the amount of waste generated on Wright-Patterson, Environmental Management recycles these products where possible. Please help us by turning in the following items as indicated:

Used Oil - The Used Oil program encompasses the management of Used Oils and Waste Liquid Petroleum Products. Included are off specification fuels (Avgas, Mogas, Jet, etc.) and

spent non-halogenated petroleum solvents. Follow the policies and procedures outlined on EM's website at http://www.abwem.wpafb.af.mil/em/emc/oil/default.cfm. Complete a WPAFB Form 1434. Send three copies to 88 ABW/EMY, Attn: Martin Nicodemus.

Mercury-Containing Fluorescent Light Bulbs - Included are:



Fluorescent (lengths > 1.5 feet)
Fluorescent U shape and circular
High pressure sodium
Metal halide
Mercury vapor

Follow the procedures outlined on EM's website:
http://www.abwem.wpafb.af.mil/em/emc/mercurylamp/default.cfm

Collect used bulbs and place them in their original box or one provided by Environmental Management. When full, tape box shut and mark the number of bulbs inside on the end of the box. Complete a WPAFB Form 1438 and send to 88 ABW/EMY.

PCB-containing Materials - In the 1940s through the 1970s polychlorinated biphenyls or PCBs were typically manufactured into electrical and mechanical items because of their ability to conduct electricity and resist high temperatures. PCB-containing equipment includes: transformers, capacitors, heat transfer systems, hydraulic systems, electromagnetic switches, voltage regulators, circuit breakers, reclosers, oil-encased cables, presses, lathes, milling machines, pipe threaders, and others.

The U.S. EPA banned the manufacturing of PCBs in 1979 and PCBs are now regulated by the Toxic Substances Control Act in 40 CFR 761. Known PCBs have been removed from Wright-Patterson; however, occasionally PCB-containing equipment is still identified and must be handled properly. PRIOR to removing or draining any equipment containing oil, hydraulic fluid, or cooling fluid, call Environmental Management to ensure oils do not contain PCBs.

For more information on proper turn-in of these hazardous items, contact Environmental Management - Martin Nicodemus 77152 x274 or Gary Selby 77152 x217

Sinclair Students get a Taste of Environmental Auditing

On November 2 and 3, students from Sinclair College's Environmental Compliance class performed a mock environmental audit of select hazardous materials and waste storage sites at AFRL. The class, part of Sinclair's Environmental Engineering Technology Program, focuses on environmental laws and audit principles similar to Wright-Patterson's Environmental Compliance, Assessment, and Management Program or ECAMP.

For the last several years the course instructor, Dr. Nick Scambilis (formerly Commander of Base Civil Engineering), has made arrangements with Environmental Management to set up the audit for the students at various sites around the base. Because of the wide variety of chemicals used and the number of Initial Accumulation Points (hazardous waste storage sites) at AFRL, the Laboratory is an ideal facility for the students to inspect and receive practical experience to add to their education.

This year, Sinclair students visited the Propulsion and Materials Directorates as well as the 90-day hazardous waste storage site at bldg 72. Prior to the audits, representatives from both directorates and Environmental Management got together to arrange some staged findings at the labs to test the students' skills.

Upon arrival, the students were given an overview of the hazardous materials and waste procedures at Wright-Patterson and the labs they were about to audit as well as a brief discussion on safety prior to their inspection. Students were provided with safety glasses and gloves, divided into teams, and accompanied by AFRL employees to answer any questions and provide assistance as necessary during their environmental audit. Some of the staged findings were ones typically looked for during ECAMP audits such as improperly labeled containers of waste - labels made with duct tape, sticky notes, or no label at all. Storage of incompatible materials (an oxidizer in a flammables cabinet or acids and caustics stored beside one another) as well as open hazardous waste containers were also displayed. Observant students thought to look in the refrigerator-freezer marked "HAZMAT storage only" and found a frozen pizza complete with extra cheese on the side.

Other findings required a bit of investigative work. For example, a mock hazardous waste can was missing from an Initial Accumulation Point even though it was accounted for on the lab's container tracking log. Meanwhile in a lab on the floor below, the missing hazardous waste container was placed in a trash can for the students to observe to see if they could put the two pieces of the puzzle together. Of course, all of the "findings" were simulated using inert materials or empty containers. A list of all the staged findings was kept so that any props could be removed after the students were finished with their inspections. The laboratory workers were made aware of props as well to avoid any confusion. Any real "write-ups" the students noted were fair game too.

Next, the students were taken to the 90-day storage site where hazardous wastes from all of Area B are consolidated and repackaged prior to manifesting and shipment off Base. The students got an opportunity to see the large variety of hazardous waste generated at Wright-Patterson, as well as learn the procedures and legal requirements for hazardous waste storage and labeling once the waste is transported from the laboratories to bldg 72.

Armed with their findings, the students will develop reports summarizing their audit results as part of their class project. A courtesy copy of the findings will be provided to Environmental Management for informational purposes and to pass along to the laboratories involved. The students and instructor were all very appreciative and gave their visit to AFRL and the Base a big thumbs-up. Not only did the Sinclair students learn a lot, we on base benefited by having a fresh set of eyes recently trained in the latest environmental requirements take a look at our operations and provide suggestions for improvement.

Thanks to the enthusiasm and support of the following people as well as the folks at each of the laboratories audited, Wright-Patterson and Sinclair can chalk up another successful mock environmental audit.

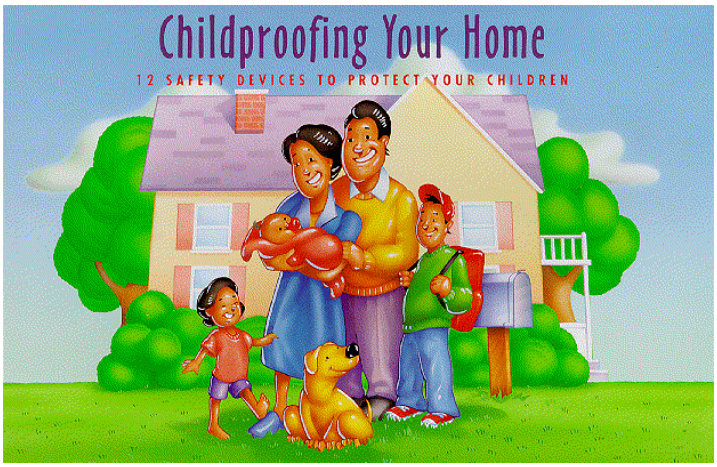
AFRL/ML
John Helton
Rob Marshall
Don Piddock
Rod Steele

AFRL/PR
Jami Blosser
Peggy Haines
Jim McMahon
Tim Price
Mike Schumacher
Gavin Spencer

Bldg 72
Mark Fahrenholz

CHILDPROOFING YOUR HOME

Submitted by SSgt Gerald Mayfield
88 CEG/CCO Safety Officer



About 2-1/2 million children are injured or killed by hazards in the home each year. The good news is that using **simple child safety devices** on the market today can prevent many of these incidents. Any safety device you buy should be sturdy enough to prevent injury to your child, yet easy for you to use. It's important to follow installation instructions carefully. In addition, if you have older children in the house, be sure they re-secure safety devices. Remember, too, that no device is completely childproof; determined youngsters have been known to disable them.

You can childproof your home for a fraction of what it would cost to have a professional do it. And safety devices are easy to find. You can buy them at hardware stores, baby equipment shops, supermarkets, drug stores, home and linen stores, and through mail order catalogues.

Here are some child safety devices that can help prevent many injuries to young children. The red numbers correspond to those on the image following the text.

1 Use **Safety Latches and Locks** for cabinets and drawers in kitchens, bathrooms, and other areas to help prevent poisonings and other injuries. Safety latches and locks on cabinets and drawers can help prevent children from gaining access to medicines and household cleaners, as well as knives and other sharp objects. Look for safety latches and locks that adults can easily install and use, but are sturdy enough to withstand pulls and tugs from children. Safety latches are not a guarantee of protection, but they can make it more difficult for children to reach dangerous substances. Even products with child-resistant packaging should be locked away, out of reach; this packaging is not childproof.
Typical cost of a safety latch or lock: less than $2.

2 Use **Safety Gates** to help prevent falls down stairs and to keep children away from dangerous areas. Safety gates can help keep children away from stairs or rooms that have hazards in them. Look for safety gates that children cannot dislodge easily, but that adults can open and close without difficulty. For the top of stairs, gates that screw to the wall are more secure than "pressure gates."

New safety gates that meet safety standards display a certification seal from the Juvenile Products Manufacturers Association (JPMA). If you have an older safety gate, be sure it doesn't have "V" shapes that are large enough for a child's head and neck to fit into. Typical cost of a safety gate: $13 to $40.

3 Use **Doorknob Covers and Door Locks** to help prevent children from entering rooms and other areas with possible dangers. Door knob covers and door locks can help keep children away from places with hazards, including swimming pools. Be sure the door knob cover is sturdy enough not to break, but allows a door to be opened quickly by an adult in case of emergency. By restricting access to potentially hazardous rooms in the home, doorknob covers could help prevent many kinds of injuries. To prevent access to swimming pools, door locks should be placed high out of reach of young children. Locks should be used in addition to fences and door alarms. Sliding glass doors with locks that must be re-secured after each use are often not an effective barrier to pools.
Typical cost of a doorknob cover: $1 and door lock: $5 and up.

4 Use **Anti-Scald Devices** for faucets and shower heads and set your water heater temperature to 120 degrees Fahrenheit to help prevent burns from hot water. Anti-scald devices for regulating water temperature can help prevent burns. Consider using anti-scald devices for faucets and showerheads. A plumber may need to install these. Typical cost of an anti-scald device: $6 to $30.

5 Use **Smoke Detectors** on every level of your home and near bedrooms to alert you to fires. Smoke detectors are essential safety devices for protection against fire deaths and injuries. Check smoke detectors once a month to make sure they're working. If detectors are battery-operated, change batteries at least once a year or consider using 10-year batteries. Typical cost of a smoke detector: less than $10.

6 Use **Window Guards and Safety Netting** to help prevent falls from windows, balconies, decks, and landings. Window guards and safety netting for balconies and decks can help prevent serious falls. Check these safety devices frequently to make sure they are secure and properly installed and maintained. There should be no more than four inches between the bars of the window guard. If you have window guards, be sure that at least one window in each room can be easily used for escape in a fire. Window screens are not effective for preventing children from falling out of windows. Typical cost of a window guard or safety netting: $8 to $16.

7 Use **Corner and Edge Bumpers** to help prevent injuries from falls against sharp edges of furniture and fireplaces. Corner and edge bumpers can be used with furniture and a fireplace hearth to help prevent injuries from falls or to soften falls against sharp or rough edges. Be sure to look for bumpers that stay securely on furniture or hearth edges. Typical cost of a corner and edge bumper: $1 and up.

8 Use **Outlet Covers and Outlet Plates** to help prevent electrocution. Outlet covers and outlet plates can help protect children from electrical shock and possible electrocution. Be sure the outlet protectors cannot be easily removed by children and are large enough so that children cannot choke on them.
Typical cost of an outlet cover: less than $2.

9 Use a **Carbon Monoxide (CO) Detector** outside bedrooms to help prevent CO poisoning. A carbon monoxide (CO) detector can help prevent CO poisoning. Consumers should install CO detectors near sleeping areas in their homes. Households that should use CO detectors include those with gas or oil heat or with attached garages. Typical cost of a carbon monoxide (CO) detector: $30 to $70.

10 Cut **Window Blind Cords** and use **Safety Tassels** to help prevent children from strangling in blind cord loops. Window blind cord safety tassels on miniblinds and tension devices on vertical blinds and drapery cords can help prevent deaths and injuries from strangulation in the loops of cords. For older miniblinds, cut the cord loop, remove the buckle, and put safety tassels on each cord. Be sure that older vertical blinds and drapery cords have tension or tie-down devices to hold the cords tight. When buying new miniblinds, verticals, and draperies, ask for safety features to prevent child strangulation. You can get window blind cord safety tassels free by calling 1-800-506-4636.

11 Use **Door Stops and Door Holders** to help prevent injuries to fingers and hands. Door stops and door holders on doors and door hinges can help prevent small fingers and hands from being pinched or crushed in doors and door hinges.
Be sure any safety device for doors is easy to use and is not likely to break into small parts, which could be a choking hazard for young children. Typical cost of a door stop and door holder: less than $4.

12 Use a **Cordless Phone** to make it easier to continuously watch young children, especially when they're in bathtubs, swimming pools, or other potentially dangerous areas. Cordless phones help you watch your child continuously, without leaving the vicinity to answer a phone call. Cordless phones are especially helpful when children are in or near water, whether it's the bathtub, the swimming pool, or the beach. Typical cost of a cordless phone: $30 and up.

You can copy the picture on the right into another document and stretch it to fit the page. The red numbers correspond to the tips noted above.

ESOH Training and Opportunities

RCRA Hazardous Waste Training

Annual Refresher Training

AFRL Employees: **13 Dec 00**
Schedule with Mary Shelly x59000

Initial Training – 16 Nov 00

Schedule with Shelly Baty, 77152 x281

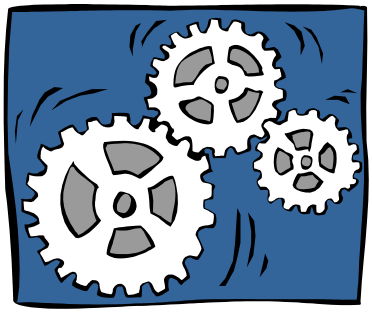
Environmental, Safety, and Occupational Health (ESOH) Awareness Training

10 Jan, 11 Apr, 11 Jul, 10 Oct 2001

This course covers a broad range of topics and requirements that apply to all of us at Wright-Patterson. Course is highly recommended for all employees on Base.

Schedule with Public Health at 52515

Operational Risk Management Training (Level II)



This course will teach you the skills necessary to anticipate and avoid costly and possibly injurious mistakes or delays in your program. By learning and applying tools to identify and eliminate potential land mines BEFORE they occur, your project will run more smoothly. This is NOT just a safety program. Any task you're faced with requires proper planning to ensure successful completion.

Upcoming Course Dates: 16 Nov, 14 Dec 00 (8:00-1:00)

Call Chuck Swankhaus at 43390 to schedule

For more information on ESOH topics, visit the following Home Pages:

ASC/SEG Safety Office: https://www.asc.wpafb.af.mil/asc/safety/index.html
88 ABW Environmental Management: http://www.abwem.wpafb.af.mil/em/default.cfm
Bioenvironmental Management: http://www.bio.wpafb.af.mil/