

**IIT College of Architecture Materials Lab
Hazardous Material Communication Program 6-24-10**

Purpose:

Many hazardous chemicals are present in the Architecture Materials Lab. The shop staff needs to be familiar with these, the nature of the hazard each presents, the safe work procedures governing their use, and what to do in case of an accident with these materials. This is in conformity with OSHA's Hazardous Communication Program (29CFR 1910.1200)

Students working with hazardous materials are subject to the same requirements as regular, university employees.

Responsible Persons:

John Kriegshauser, Materials Lab Supervisor and the Designated Safety Officer for the College of Architecture is responsible for administering this program, maintaining the MSDS file, and overseeing performance training.

Michael Gillhouse, the Assistant Supervisor and Brett Balogh, the Lab Technician are also responsible for enforcing safe working conditions in the facility.

Brent Barth, the Campus Safety Director, is in charge of reviewing the program and hazardous material disposal.

Emergency Contact Information: In case of an emergency call:

Fire Department, Police or Ambulance 911

Public Safety emergency extension extension: 86363

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A. Hazardous Materials likely to be found in the Materials Lab include:

1. **The solvents: alcohol, mineral spirits (paint thinner), lacquer thinner, acetone, xylene (xylol) naphtha and ethylene dichloride or methylene dichloride (acrylic solvent cement).**
 - a. **These solvents are all flammable.**
 - They must never be used near open flame or heat sources.
 - They must always be stored in approved, flammable storage cabinets with the doors closed.

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- These solvents must never be stored in glass or other breakable containers.
 - Never store these solvents in unlabeled containers.
 - Never store solvents in coffee cups, soda cans or other food containers.
 - Solvent soaked rags can spontaneously combust. Either drape them in such a way that they can quickly dry out, or dispose of them in the covered, metal trash can. Never put solvent soaked rags in the regular trash.
 - In case of fire use a type ABC Dry Chemical fire extinguisher or a BC CO2 extinguisher. Water will not quench a fire of this type.
 - If a fire starts that you cannot immediately suppress, pull the emergency alarm, alert people to evacuate the building, call 911, and then contact Public Safety at extension 86363.
- b. **These solvents are unhealthful** either when breathed or absorbed through the skin.
- Use only in a well ventilated area.
 - Minimize skin contact, or, if that is not possible, wear heavy rubber gloves.
 - Never decant solvents in drinking cups or soda cans even if only for a brief time.
 - Minimize skin irritation by washing exposed areas with soap and water.
 - If solvent is splashed into the eye, flush generously with water and send the student to the emergency room for medical care.
 - If someone has respiratory problems from breathing these fumes, get them to fresh air immediately. If the condition persists or is severe, call 911 and get them medical help.
- c. These **solvents are toxic** and must never be taken internally.
- Do not induce vomiting because of the danger of lung damage.
 - Call 911 to get the person to an emergency room immediately.
 - Identify what the solvent is and communicate that to the medical personnel.
- d. These solvents must be **disposed of in the special, red toxic waste cans** by the spray booth in M&M. They must never be poured down the sink.

2. **Oil Based Paint, Varnish, Aerosol Paint and Lacquer:** because these coatings contain flammable and toxic solvents, the same rules for solvents apply to these.
 - a. Spray these paints only in the spray booth in M&M.
 - b. Store unused paint in the original container in the flammables locker with your name clearly marked on it. Otherwise we will dispose of it.

3. **Water Based (Latex or Acrylic Latex) Paints.** These paints are much less toxic or irritating to the skin and are not flammable.
 - a. If they need to be stored, the student should put his/her name on the container with the lid secure, and, for convenience, place the container in the flammables cabinet.
 - b. Though it is permissible to wash brushes and equipment in the sink, the paint waste should be poured into the red paint waste containers by the spray booth, never down the sink.
 - c. Prior to drying the paint can be cleaned up with soap and water, afterwards xylol or other organic solvent will be required to clean it off.

4. **Epoxy and Polyester Resin:** Minimize exposure to these chemicals because they are toxic, and many people have allergic reactions to epoxy.
 - a. Working with these resins makes a terrible mess. Always use a polyethylene drop cloth to cover the work bench and even the entire working area. Multiple layers of kraft paper will do in a pinch.
 - b. Students inevitably will get the resin all over their hands, so nitrile surgical gloves are required when using these resins. The students should provide these gloves for themselves.
 - c. Uncured resin can be cleaned off surfaces and skin using acetone (lacquer thinner), but cured resin must be removed by mechanical means, i.e. sanding and scraping.
 - d. Work with these resins in a well ventilated area, possibly even in the spray booth.
 - e. Store these resins in the flammable's cabinet.
 - f. Dispose of uncured resins by placing the cans by the red waste drums. Cured resin can be placed in the normal trash cans.

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- g. Students may use inert fillers with these resins, like cotton lint or micro-balloons, but care must be taken not to breathe these finely powdered fillers because they cause respiratory damage.
5. **Portland Cement, Lime and Concrete Mixes** are made up of fine powders that ought not to be breathed, and they are caustic enough to dry out and even burn the skin.
- Be careful to minimize skin exposure. Wearing gloves is advisable.
 - Raise as little dust as possible in handling and wear a dust mask if necessary. Dust masks are available from the Supervisor for a nominal charge.
 - Splashes, spills and collapsing molds make this a sloppy process.
 - Work on a drop cloth or several layers of paper.
 - Clean up any spills quickly before they have a chance to dry using water and a rag.
 - You can quickly destroy your shoes and/or your clothes. Wear old stuff.
 - Wash this material off your skin with soap and water as soon as possible, and re-moisturize with a skin lotion if necessary.
 - Allow any waste material to set up and become solid, and then dispose of it in the regular waste cans
 - Clean tools in a bucket of water and then leave the solid material settle from the water to the bottom of the bucket. This may take time, and leaving it to settle over night is perfectly alright. Then the clear water can be poured down the drain leaving the solid matter to be disposed of as solid waste.
6. **Acids and Plating and Patina Chemicals** are occasionally used in the shop. These are all health hazards and must be used carefully.
- Work on a drop cloth or paper so as not to leave residue on work tables.
 - Wear goggles to protect against splashes, and if material gets in anyone's eye, have them flush their eye with generous amounts of water immediately.
 - Control your work space so others cannot accidentally come in contact with the chemicals you are using.

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- d. When using Muriatic Acid (which is often used to clean masonry) or other acid, always add the concentrated acid to water and never the other way around, otherwise a violent reaction can occur.
 - e. Wear rubber gloves and/or wash your hands frequently. You need to keep these chemicals off of your skin and away from your mouth and nose.
7. **Contact Cement and Spray Adhesive** typically are solvent based and have the hazards associated with the use of solvents and the use of aerosol paints, so observe the precautions associated with those materials.
8. **Silicone Waxes, Mold Releases and Polishes** can contaminate and spoil painted finishes. These must not be used in the Materials Lab.

B. Procurement of Hazardous Materials

- 1. All hazardous materials purchased for use in the shop are purchased by John Kriegshauser, and he is responsible for maintaining the MSDS sheets for these materials, which are available in a binder located by the M&M north doorway vestibule.
- 2. Any hazardous materials, other than those listed above, that students or faculty wish to bring into the shop, must be accompanied by an MSDS sheet and the permission of the Materials Lab Supervisor.
- 3. The College of Architecture does not currently work with any of the following materials or engage in any of the activities listed below. If, at some point in the future, the department plans to incorporate any of these materials or activities, the department chair or DSO shall contact EOS for guidance.

2-Acetylaminofluorene
Acrylonitrile (Vinyl Cyanide)
4-Aminodiphenyl
Arsenic, Inorganic
Asbestos
Benzene
Benzidine
Biohazardous Agents/Human Pathogens
Cadmium
bis-Chloromethyl Ether
Coke Oven Emissions

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Cotton Dust
1,2'-Dibromo-3-Chloropropane
3,3'-Dichlorobenzidine (and its salts)
4-Dimethylaminoazobenzene
Ethylene Oxide
Ethyleneimine
Formaldehyde
Human Subjects
Laboratory Animals
Lead, Airborne
Methyl Chloromethyl Ether
4,4'-Methylenedianiline
alpha-Naphthylamine
beta-Naphthylamine
4-Nitrobiphenyl
N-Nitrosodimethylamine
beta-Propiolactone
Radioactive Materials and Radiation Producing Devices
Respirators, Negative Pressure
Vinyl Chloride
Work with Human Tissues, Blood or Fluids

C. Storage of Hazardous Materials

1. Preferably, hazardous materials should be stored in their original, factory labeled container.
2. Additionally, the owner of the material should mark his or her name on the container; otherwise it will be disposed of.
3. If material is stored in other than its original factory labeled container, the new container must bear a label explaining the hazards and precautions just as the original container had.
4. Flammable materials must be stored in the paint lockers.
5. If hazardous materials are to be decanted into containers for use or distribution, these containers must be:
 - a. Clearly labeled as to what they contain.
 - b. Never in soda cans, water bottles or coffee cups.

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D. Disposal of Hazardous Materials

1. Hazardous waste is accumulated next to the spray booth in the M&M Materials Lab and collected on every second Friday of the month. Items collected include:
 - a. paint and solvent waste
 - b. discarded aerosol cans
 - c. un-reacted resin components
2. Arrangements to dispose of materials other than these can be made with the Campus Safety Director.

E. Training of Materials Lab Personnel

1. All student workers in the Materials Lab must attend a presentation every school year explaining this Hazardous Communication plan. Afterwards they must answer questions to determine that they are knowledgeable about its contents. This is as a condition of employment in the Materials Lab.
2. Students and faculty using the Materials Lab will be guided in their use and disposal of these hazardous materials by the student workers and professional staff.

F. Addendums

**1. Portable Fire Extinguishers
Fighting Small Fires**

A portable hand-held fire extinguisher can save lives and property by putting out a small fire or containing it until the Fire Department arrives.

Portable extinguishers are not designed to fight large or spreading fires. Even against small fires, they are useful only under the right conditions:

- An extinguisher must be large enough for the fire at hand. It must be available and in working order, fully charged.
- The operator must know how to use the extinguisher quickly, without taking time to read directions during an emergency.
- The operator must be strong enough to lift and operate the extinguisher.
- The extinguisher must be rated for the type of fire it is used on. Using the wrong extinguisher may make things worse.

Before you consider fighting a fire:

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- Make sure everyone has left or is leaving the building.
- Make sure the Fire Department has been called.
- **Never** fight a fire if **even one** of the following is true:
 - the fire is spreading beyond the immediate area where it started.
 - the fire could block your escape route.
 - you are unsure of the proper operation of the fire extinguisher.

If you do fight the fire remember the word **P.A.S.S.**

PULL the pin. The pin blocks the handle from being accidentally activated.

AIM low. Point the nozzle of the extinguisher at the base of the fire.

SQUEEZE the handle. This releases the extinguishing agent.

SWEEP from side to side at the base of the fire until it appears to be out.

Depending on the size of the extinguisher, there is only enough extinguishing agent for 10 to 20 seconds of use.