SAFETY GUIDE

January 2023

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EMERGENCY INFORMATION

Emergency (Fire, Police, Ambulance)	911
Building Safety	(818) 708-9232 (Main Office)
Health Services	(818) 708-9232 (Main Office)
Environmental Health & Safety	(818) 708-9232 (Main Office)
Poison Control Center	(800) 222-1222
Hospital Emergency Room	(818) 885-8500 (Northridge Hospital)

LOCATIONS OF...

Fire Extinguishers: Studio 1, 2, 3, 4, 5, Library, Kitchen, Main Office

Emergency Eyewash Stations: Studio 1, 2, 3, 4

First Aid Kits: Studio 1, 2, 3, 4, 5, Kitchen, Main Office

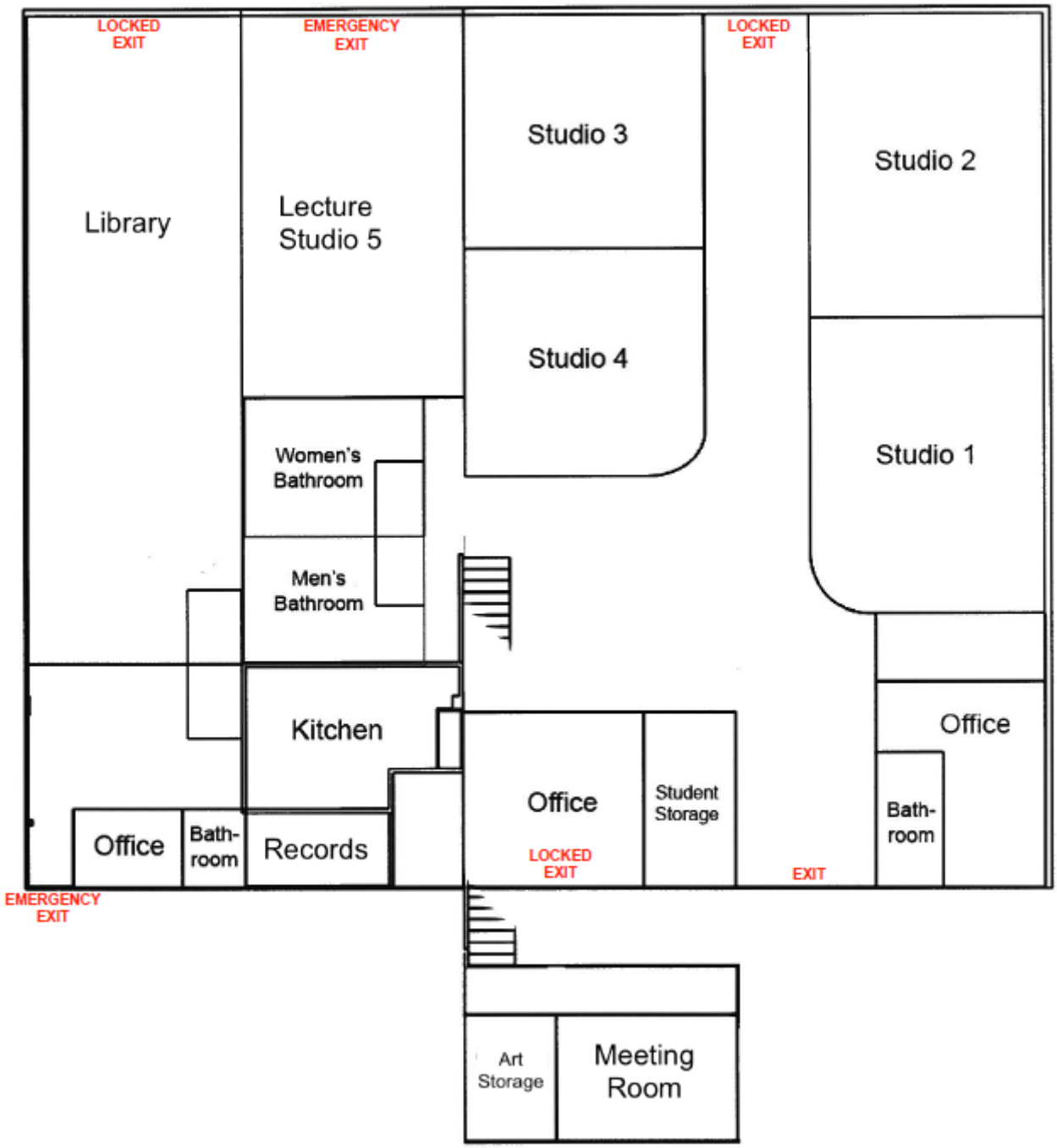
Spill Kit: Student Storage

Outside Assembly Point: View map of Parking Lot, indicating both Fire and Earthquake assembly points.

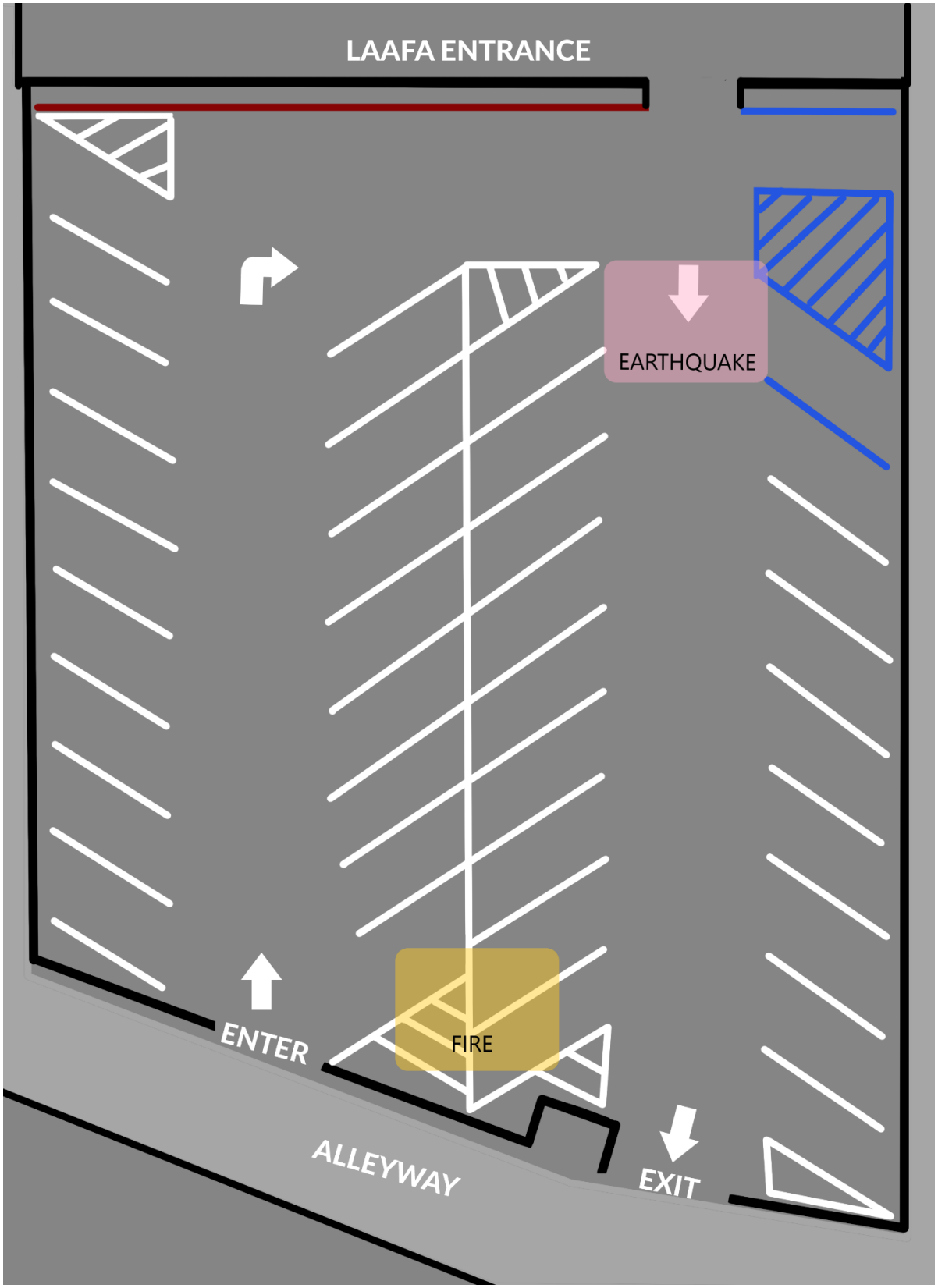
Shelter-in-Place: Nearest Studio or Office

Safety Data Sheets (SDS): Glass Desk in Plaza

MAP OF SCHOOL



PARKING LOT



EMERGENCY INSTRUCTIONS

In Case of Fire:

1. Leave the immediate area.
2. Closing all doors behind you.
3. Dial 911 to contact the fire department.
4. Use a portable fire extinguisher only if you have been trained to use one and the fire is very small.

In Case of Injury:

1. Get first aid right away.
2. If chemicals are on skin or in eyes, flush affected area with water immediately.
3. Do not move victim unless directed.
4. Report injury to instructor/office manager.

In Case of Spill or Leak:

1. Turn off all ignition sources and open all outside doors/windows to let any flammable vapors escape.
2. Call Management (818) 708-9232.
3. If spill or leak produces hazardous vapors, evacuate area immediately.
4. Use spill kit, if applicable, to contain spill/leak so it will not spread further. Wear appropriate protective equipment.

When Reporting an Emergency:

1. Give exact location of emergency.
2. Give your name and phone number of your location.
3. Describe nature of emergency (fire, leak, spill, injury, etc.).
4. Stay near phone, if possible, for additional instructions. Do not hang up the phone unless directed.

1.0 Introduction

This manual provides basic safety and hazards information about the Los Angeles Academy of Figurative Art programs and spaces, and how to protect yourself. Common hazards you may encounter include:

- Exposure to hazardous chemical compounds found in many art media.
- Possibility of repetitive-motion injuries and lifting injuries.

Chemicals and other materials can adversely affect your health. The hazards presented by many chemicals are of concern not only during their actual use, but also afterward, during their disposal. Improper disposal can cause many negative effects for people, plants, animals, and the surrounding environment. You can be exposed to these substances through inhalation, ingestion, or absorption via skin contact. Be a responsible artist and educate yourself on your media and process of choice every time you begin a project. Failure to do so may result in injury or illness for yourself or your fellow artists. Use tools and equipment with caution, and if you are unsure about something, ASK!

2.0 Basic Precautions

Know what you are working with:

- Read the packaging labels and follow the directions and precautions.
- Substitute safer materials whenever possible. Ask your instructor about substitution options if you are concerned about the safety of a substance.
- Know proper storage and handling of your materials.
- Label all containers. Clearly list their contents and special hazards.
- NEVER use food vessels as secondary containers!
- Safety Data Sheets (SDSs), previously called Material Safety Data Sheets (MSDSs), detail compositional and safety information about potential materials by the student and can be found on the glass desk found at the plaza. This database can be accessed through the Environmental Health and Safety website: https://www.msds.com/ (Free searches with sign-up).
- Refer to Communicating Chemical Hazards for more information on chemical labels.
- Be properly trained on hazardous/dangerous materials or equipment.
- Work with a classmate(s) is possible.

Know that other students in the studio can produce hazards that affect you. Be aware of problems caused by their processes, such as protecting yourself from hazardous airborne particles or vapors produced by those working closely and being aware of anyone with an allergen working in the room.

Always wear appropriate personal protective equipment (PPE):

- Maintain a set of "studio clothes" for messy work that are kept (and washed) separately from your "street clothes." Working in your street clothes can result in hazardous chemical contaminants polluting your home, and endangering your friends, family, and pets.
- Wear sturdy, closed-toed shoes whenever working on a project. **No open-toe shoes.**
- Watch your hands for any cracks or lacerations–an open wound can give a chemical direct access to your bloodstream.
- Employees may ask management for safety goggles, gloves, dust masks – a variety of appropriate protective equipment to suit particular hazards.
- Students may ask management for information on safety goggles, gloves, dust masks – a variety of appropriate protective equipment to suit particular hazards. It is the student's responsibility to have appropriate protective equipment as part of their supplies.

Use tools and equipment according to their intended functions. NEVER remove safety guards when using equipment. If there is a malfunction or failure with the tools or equipment, do NOT continue using it or attempt to fix it yourself! Explain the problem immediately to management.

Work in a well-lit and well-ventilated area. Many art processes produce toxic particles, fumes, and vapors, such as painting, sculpting, and many others. Do not forget to go outside to work with dust-producing media. **All spray finishing operations need to be conducted outside.**

Have regular medical check-ups. Let your doctor know the hazardous chemicals you have worked with and if you have any concerns.

Be aware of preexisting conditions that might put you at a higher risk for adverse effects caused by your media of choice (i.e., if you have allergies, asthma, diabetes, kidney problems, etc., or if you are a heavy smoker). If you have any of these conditions or are sensitive to solvents, paints, etc., extra precautions are in order, please alert management.

Use extra care if you are pregnant, nursing, or work with young children outside of your studio time. Many art media have not been tested for fetotoxicity or long-term exposure effects, and children are susceptible to smaller amounts of hazardous materials than adults are. This is particularly important regarding often-overlooked toxic pigments (in paints, glazes, and other colored art media) as well as more commonly known toxins found in various art materials.

To help minimize the risk of fire:

- Keep your area clean and free of trash.
- Never block fire exits and lanes.
- Do not use candles or other open flames in the studios.
- Dispose of oily or solvent-soaked rags in designated covered containers ONLY; oily rags may spontaneously combust. (oily/solvent-soaked rag safety information can be found on Page 13)
- Use only heavy-duty extension cords with surge protectors when using high voltage.
- Avoid using appliances that have exposed heating coils (i.e., space heaters, hair dryers, etc.

2.1 Personal Hygiene and Studio Cleanliness

Know your materials, your tools, and your safety resources. The same precautions you would use in the chemistry lab should be used in the process of making art.

- **Leave all food and drink outside any studio/classroom**. This will help protect you from accidentally ingesting a harmful chemical and/or dust particles, either through touching your food with dirty hands or through your food absorbing hazardous substances, such as dusts and vapors, present in the work area. There is a kitchen area in the building available for safe food preparation.
- Do not place any foreign substance into your mouth, including your brush, hands, pen, etc. while working. Pay special attention to keeping your fingernails clean and avoid biting them–you can accidentally ingest chemicals quite easily this way.
- **Wash hands with soap and water after each class, before breaks, and especially before smoking or eating.** Smoking with chemical residue on your fingers puts you at higher than usual risk because some chemicals become more dangerous when inhaled after being heated. Never use a solvent to clean your hands–this can remove the protective natural oils on your skin and make you more susceptible to the dermal absorption of other hazardous chemicals. Baby oil may be used to safely remove oil paint or other oil-based media, along with soap and water -- lotion should be applied after washing to keep your skin from drying and cracking.
- Maintain a clean and safe working environment–clean up all spills immediately, and do not leave the work area cluttered.

2.2 Kitchen Contamination

Hazards:

- Contamination of your home or living space can pose a serious health problem. Chemicals brought home on your clothes can greatly increase your exposure. Increased exposure to a chemical can go from hours to days, weeks, or even longer.
- Working in living areas puts family, children, and pets at risk of exposure.
- Preparing food using contaminated hands, wearing contaminated clothing while preparing food, preparing food in a contaminated area or contaminated containers. Your kitchen table is not a substitute for studio space.

Precautions:

- Wash contaminated clothing separately from street clothes.
- Use food-preparation utensils or containers for food only. Even if something is used just once in the studio, NEVER use it again in the kitchen. A surface, utensil, or container appearing clean may be porous and contain hazardous residues that can migrate into food and then be ingested.
- Separate work areas/studio from living areas.

2.3 Health Effects of Toxic Substances

The toxicity of any given substance depends on its chemical makeup, individual susceptibility, and the amount, type, and length of exposure.

Many compounds are relatively harmless in everyday life but may be very toxic if we are exposed to them at high levels or through certain parts of our bodies (via different routes of exposure). The relationship between quantity ("dose") of a chemical involved in an exposure and the health effects caused by the exposure ("response") is one of the basic principles of toxicology.

Types of Contact/Routes of Exposure

- **Skin Contact and Absorption:** Substances can enter the body through cuts or scrapes, as well as through absorption. Chemicals can enter the bloodstream through your skin and travel throughout your body. A more common occurrence is skin irritation resulting in redness, rash, itching, or blisters. Eye contact frequently results in irritation because of the delicacy of optic tissues.
- **Inhalation:** Breathing air that contains materials such as fumes, mists, vapor, dust, clay, plaster, and paint, causes these contaminants to contact the sensitive and highly permeable mucus membranes of the sinuses, mouth, and lungs. Some inhaled chemicals can absorb quickly and cause acute effects, such as sneezing, coughing, burning, dizziness, or headache, while symptoms of other toxins may take longer to surface and show effects.
- **Ingestion:** Ingestion of hazardous substances can occur by eating and drinking food that has been contaminated or more directly through oral contact with hands or tools used in art projects. Biting your fingernails, pointing brush tips with your lips, or eating and drinking while working dramatically increases your exposure to toxic substances.
- **Injection:** The use of pressurized air to spray dusts or paint pigments can transport substances through your skin and disperse the material into the air.

Types of Effects/Response Classes

- **Acute Effects:** Occur when a toxic substance provokes a response after a single, brief exposure. These symptoms are immediate and often diminish significantly when the exposure ends, for example, cleaning with solvents can produce headaches and nausea.
- **Chronic Effects:** Take place when a toxic substance builds up in the body during repeated or prolonged exposures. These insidious effects may take weeks, months, or years to show up, and are often irreversible. Examples include silicosis from repeated inhalations of airborne silica dust during powdered clay mixing, or the cumulative toxic effects after years of pigment ingestion through "pointing" paintbrushes with your lips.
- **Local Effects:** Limited to the point of first contact with a chemical or substance causing toxic or irritation effects.
- **Systemic Effects:** Result when a toxic substance passes through the point of original contact and causes "system-wide" harm to other organs of the body. Liver and kidney damage, central

nervous system (CNS) damage, cancer, reproductive disorders, and birth defects are all potential systemic effects.

2.4 Reporting

If you...

- Have any accidents
- Notice any potential hazards
- Experience any health-related problems that you suspect are caused by your exposure to art materials and/or techniques

Then please...

- Report the incident to management
- See your personal physician

2.5 Self-Protection for Artists

Face and eye protection:
Safety goggles or a face shield should be worn if there is a chance of splashes or flying debris from your project.
*Note: Normal eyeglasses and sunglasses do NOT count as safety goggles!

Protective clothing:
Shoes – Closed-toed shoes are required.
Clothes – Wear appropriate protective clothing. Cotton fabrics tend to trap dusts. Some synthetic fabrics are extremely dangerous when ignited or exposed to high heat. Wash contaminated studio clothing separately from "street clothes."
Gloves – Toxic substances enter your body most frequently through skin contact. Gloves can minimize this hazard. We recommend you wear gloves when working with certain art materials. Make sure your gloves are of an appropriate material for the hazards you are facing. No single type of glove is suitable for all hazards! Consult management if you need help figuring out what kind of gloves you need.

Storage:
Personal protective equipment, including eye protection, face shields, hearing protection, gloves, and respirators, needs to be stored in a clean and sanitary manner. It should not be left out on open shelving gathering dust and absorbing chemical exposures.

2.6 Electrical Extension Cord

Hazards:

- Frayed wires present an electroshock (especially in wet/outdoor conditions) and fire hazard.
- **Extension cords can present a physical hazard if they are not stored properly or if they are stretched across a work area, presenting a trip hazard.**
- Overloading an electrical cord can also increase the fire hazard.

Precautions:

- To prevent electrical fires, make sure all electrical wiring is in good shape.

- Make sure that all electrical systems and wiring are rated for power you are pulling from the system.
- Inspect all tool and machine power cords for damage, as well as any extension cords you may be using.
- Store electrical cords neatly and out of the way of foot traffic.
- All extension cords should have a ground fault circuit interrupter (GFCI) built into them if they are to be used outside.

3.0 Chemicals

3.1 Labeling of Chemicals and Art Media

You must label all containers regardless of whether their contents are new, used, or waste; this includes spray bottles that contain only water. A simple self-adhesive label, or even tape, written on with a felt tip pen or marker, is all that is necessary. Make sure that the label is legible.

- The label must have the name of container's contents (i.e., “mineral spirits”, “used developer”, etc.), and no abbreviations should be used.
- The warning(s) can be a word, picture, symbol, or any other means of indicating that the material in the container is hazardous.
- Identify each hazard associated with the material (i.e., “toxic,” “flammable,” “corrosive,” and/or “incompatible”).
- List the precautions that must be followed during handling, use, or storage to avoid harmful exposure to the material.
- Date product was first used.
- Name of person responsible for container.

Keep chemicals in their original containers unless in a container suitable for material and properly labeled.

3.2 Storage of Chemicals & Art Media

- Label all containers, clearly listing their contents and special hazards.
- **Store hazardous materials in non-breakable containers. Use metal or plastic containers, not glass.** Do not use soda bottles, milk cartons, or other food containers.
- Do not store large containers on high shelves where they might fall and break.
- Do not store chemicals that might react with each other in the same area.
- In case of spills or accidental contact with irritating chemicals, wash the affected area with lots of water. In case of eye contact, flush with water for 15 minutes in eyewash and seek medical attention. If there is no eyewash in the studio, flush eyes in the sink.

3.3 Disposal of Chemicals & Art Media

It is a federal law that whoever produces hazardous wastes is responsible for that waste until it is properly disposed, for example by incineration, reuse, or recycling.

- Make sure you clean up well after you work. Do not leave chemicals in trays or spills on or in your workspace.
- Collect waste chemicals in containers clearly labeled. Do not collect waste in unlabeled containers. Do not mix wastes of different types or sources in your personal containers.
- Keep waste containers always closed.
- Dispose of liquid waste chemicals in the toxic waste drum labeled for Liquid Waste Chemicals.

3.4 Non-Approved Media

PLEASE DO NOT BRING NON-APPROVED ART MEDIA OR CHEMICALS ON CAMPUS.
Examples include spray paints, house paints (interior or exterior latex and enamel), and other found objects. Many are extremely hazardous, and their disposal can be very expensive. Found objects may contain hazardous materials, such as asbestos, Polychlorinated Biphenyl (PCB) insulating oil, creosote preservatives, or lead paint. **Please do not bring potentially dangerous materials to class. Please check with your instructor and management before bringing any item into the classroom.**

If you really need to use a particular product.

- Get it approved by management.
- Add the SDS sheet for the product to our binder.
- Label materials with your name and date that they are brought onto campus-be sure not to obscure safety or identification information on container. Keep materials in their original containers whenever possible– do NOT use old food containers to repackage any hazardous materials!

3.5 Solvents

A solvent is any liquid substance that can dissolve another substance. Usually used for cleaning or for mixing, common solvents include water, alcohol, acetone, paint thinner, lacquer thinner, and turpentine.

LAAFA only approves use of Winsor & Newton Sansodor Low Odor Solvent, Gamblin Gamsol Odorless Mineral Spirits, Weber Odorless Turpenoid, and Grumbacher Grumtine.

Almost any solvent is volatile, toxic, and flammable. Because they evaporate quickly, solvents are easily inhaled. You may stop noticing the odor of many solvents after just a few minutes of exposure. Listen to people who enter the studio and comment on the smell of solvents. You can also absorb them through healthy, unbroken skin.

Solvents may affect your central nervous system, with additive effects accruing over years of usage. Solvents exposure can cause respiratory irritation, nausea, lightheadedness, dermatitis, kidney and bladder disease, and asthma.

A solvent's volatility affects its flammability. For example, some solvent vapors can travel far from the source. If these find an ignition source, they can start a fire. Others can spontaneously combust solvent-soaked rags.

LAAFA does not approve of any brand of dammar or damar varnish, any brand of pure gum spirits of turpentine.

Precautions:

- Start by using the safest solvent available for the project. Read the Safety Data Sheet (SDS) and note the permissible exposure limit (PEL), which is an OSHA measurement of how much solvent can be used without adverse health effects.
- Familiarize yourself with the possible side effects that can result from long and short-term exposure to the solvents you use.
- **Do not use solvents to wash your hands**. Solvents can transport chemicals through your skin, remove the protective oily barrier from your skin allowing chemicals to be directly absorbed through your skin or reduce the molecule size of a toxin making them easier to be absorbed. Baby oil may be used safely to remove oil-based media from the hands, followed by soap and water.
- Do not paint directly with your fingers–if you do get paint on your hands, be sure to clean under your nails when finished.
- Use the smallest amount of solvent that will get the project done.
- Do not store solvents near a heat source. Note the flash point on the label and check the SDS to determine a safe storage location.
- Use solvent-resistant gloves, aprons, or goggles to prevent contact. ALWAYS wear goggles when pouring a liquid.
- Good ventilation is the key to safe solvent use.
- **Do not eat or drink while using solvents**. Direct ingestion can be immediately hazardous to your health. For example, ingestion of mineral spirits can be fatal.
- Always make sure containers are clearly marked with the contents and hazards.
- Label and carefully store waste solvent and paint sludge as hazardous wastes. Contact management for proper disposal. **To protect the watershed, never wash leftover paints, solvents, solutions, toxic chemicals, or other artistic mediums down the drain.**
- Use water as the preferred universal solvent for non-oil-based media.
- Always use rags instead of paper towels for regular cleanup.

3.6 Oily/Solvent-Soaked Rags

Rags that you have been used for clean-up can self-ignite if not properly contained. **Thus, you must never discard rags used with flammable liquids into trashcans; this poses a high fire risk.**

Precautions:

- Never store oily/solvent-soaked rags near a heat source.
- Use the dedicated self-closing fire hazard can in studios for storing rags.
- Do not wash rags in home or commercial self-service laundries. Wash water contaminants from paint, solvent, or oil must be pretreated before it goes to a sewage treatment plant.
- Locate a cleaning service that is willing to work with solvent contaminated materials if you want to reuse your rags.
- Dispose of used rags and/or paper towels in the toxic waste drum labeled for Solvent-Soaked Rags/Paper Towels.

3.7 Aerosol Sprays

Aerosol sprays are used for a variety of purposes: painting, fixatives, adhesive sprays, etc. **Aerosol sprays are ONLY used outdoors.**

Aerosol Sprays:

- Can produce fine mists containing possibly toxic materials that can travel long distances or may be suspended in air for extended periods before settling.
- Have the potential for inhalation of active ingredients and propellant.
- Contain propellants that are commonly flammable or toxic.
- Have many active ingredients that are toxic. These may be skin, eye, respiratory, CNS, liver, urinary, or reproductive irritants.

Other hazards include:

- Some aerosol containers are considered hazardous waste. Check the safety information on the product or the Safety Data Sheet (SDS).
- High-powered spray devices can inject particles of your media under the skin in some circumstances, introducing the chemical directly into your bloodstream.

To protect yourself from these hazards:

- Always spray outdoors. Proper ventilation must be available to prevent exposure. Never breathe the vapors. Direct the spray away from other people's breathing space.
- Do not spray with pigments that are known human carcinogens, such as lead chromate or zinc chromate.
- Use liquid paints whenever possible.
- It is generally best to use the safest product that will get the job done.
- Keep all aerosol containers away from open flames, sunlight, heaters, and other possible sources of heat.
- Never spray paints or solvents onto your skin. Some liquids in aerosol containers may burn you or cause a skin rash.
- Store unused, or partially used, spray cans in paint storage cabinet.
- Contact management for proper disposal.

3.8 Varnishes, Lacquers, and Resins

Varnishes and lacquers are solutions of natural or synthetic resins dissolved in volatile solvents. Turpentine, mineral spirits, and methyl alcohol are moderately toxic by skin contact or inhalation and highly toxic by ingestion. Turpentine can cause allergic reactions. Methyl alcohol affects the nervous system and can cause blindness. Most of these products are also extremely flammable! Keep them away from any ignition sources. The most toxic component of lacquer thinners is toluene or xylene – toluene can cause birth defects in addition to the danger it poses to the nervous system, liver, and kidneys, while xylene also targets the central nervous system and is potentially fatal by ingestion.

3.9 Pigments

In pure powdered form or as part of some premixed media, pigments are a component of most common art supplies. Pigments are present in wet-colored media such as paints, dyes, and inks (oil-based as well as water-based), dry colored media (pastels, crayons, etc.), and ceramic glazes (though these pigments are often different). Despite their ubiquity, many pigments contain known toxins of varying potency, or include chemicals that have undergone inadequate testing. Inorganic pigments are usually derived from minerals, whereas traditional "natural" pigments are of plant and animal origins, for example carmine, produced by the cochineal insect. The laboratory synthesis of most contemporary organic pigments generates more predictable and consistent pigments. Nonetheless,

there is a paucity of information on the long-term effects of these pigments, and so they should be used with caution.

Make a habit of reading the ingredients (as well as the SDSs) of your paints/pigmented media. Often a manufacturer will keep a product's old marketing name even after they have changed the ingredients. The Color Index is a standardized shorthand system of color naming that is far more reliable and informative than the manufacturer's marketing name. For example, Venetian red, Indian red, and English red are all identical pigments- all three colors are designated PR101. The first letter is usually a "P" to denote a pigment; occasionally it may be "N" for natural pigment or "D" for dye. The next letter(s) indicate the general color group: "R" for reds, "O" for oranges, "Y" for yellows, "G" for greens, "B" for blues, "V" for violets, "Br" for browns, "W" for whites, "Bk" for blacks, and "M" for metallics. Following these letters will be an assigned number, which indicates where that color lies on a standard list of pigments in that color group. There are also Color Index numbers that are longer, with more specific numerical designations, but these are much less common.

If possible, limit your selection to media that feature the Color Index names on the labels–this will make it much easier to ascertain what pigments are in your materials. Single pigment media contain only one pigment, aside from the vehicle and some additives. Convenience mixtures contain blends of two or more pigments, but the proportions of the mixture depend on the manufacturer. Additionally, colors referred to as "hues" usually contain only small amounts of the pigment in question (if any) and are therefore safer than their more traditional full-strength counterparts.

Use care when pigmented media are part of your projects– many of the past ailments and mental disorders of certain famous artists (such as Van Gogh and Goya) are now thought to be related to their accidental ingestion of harmful pigments. Powdered pigments present a major inhalation hazard, while liquid or solid pigmented media can present an ingestion or skin absorption hazard. Choose premixed liquids over powders that require mixing whenever possible, wear gloves when working with any known toxin or substance that you are sensitive to and wear a dust mask or work in a hood to minimize pigment inhalation when working with powdered pigments.

Hazards:

- Many colored media contain extremely toxic substances, some of which have been proven to be carcinogens or are known to cause birth defects.
- Heavy metals and other highly toxic chemicals present in oil paints, including lead (yes, they are still using lead in some paints, notably "flake white"), cadmium, arsenic, antimony, manganese, mercury, barium, strontium, zinc, and cobalt.
- The greatest risks result from ingestion of chemicals on food in the studio or from holding/pointing brushes or other tools in your mouth.
- Smoking when there are residues of pigments on your fingers is also a major hazard.

Precautions:

- Read the labels and know your materials.
- If you are pregnant, nursing, or work extensively with young children, consider limiting your palette to well-tested non-toxic pigments.
- Minimize skin contact. Latex gloves reduce contact and possible absorption of paint, inks, and solvents. No single kind of glove is appropriate for all hazards. Consult your instructor to ascertain which kind of glove is best suited to your work. Should contact occur, wash up immediately.

- **Before leaving the studio, wash your hands!** Oil-based media can be safely removed from skin by using baby oil or vegetable oil before washing; do NOT wash hands with solvents! Make sure to wash under fingernails as well—nail biting can lead to accidental ingestion.
- NEVER put your paintbrush (or any other tool) in your mouth.
- Using pre-mixed liquid media is much safer than grinding and mixing powdered pigments.
- Avoid paint spraying, sanding, or grinding whenever possible. Reduce exposure to airborne particles by outside when spraying, and by wearing a mask for other particulate-producing work.
- **Do not eat, drink, or apply cosmetics or lip balm in work areas.**
- Never smoke without first washing your hands and face, as pigment dusts in combination with smoking are particularly dangerous.
- **Do not wash paints and inks down the drain**. Consult your instructor or management when dealing with wastewater from dyes–do not dump dye in the sink if it contains anything other than food coloring.
- Before washing brushes, rollers, or palette knives, wipe excess paint or ink onto a rag.
- All materials containing heavy metals are considered hazardous waste. Contact management for disposal information.

3.10 Highly Toxic Pigments

Avoid these pigments whenever possible: some are obscure preparations no longer in common use, but many are widely available. If you cannot do without these pigments in a project, use extreme caution while working with them! Note that this is simply an overview. Please review the SDS for the listed chemical names for full details on how to work with these pigments. Contact management if you need to dispose of media containing these pigments.

{Marketing name (chemical info; hazard info, specific hazards) [Color Index #]} An asterisk (*) indicates that this pigment is on the supply list for Painting.

- Antimony black (antimony sulfide; may produce hydrogen sulfide if ingested) [C.I.#77050]
- Antimony white (antimony trioxide; probable carcinogen) [PW 11]
- Barium yellow (barium chromate; carcinogen) [PY 35]
- *Cadmium red (cadmium sulfide, cadmium selenide; teratogen/fetotoxin, carcinogen) [PR 108 & 113]
- *Cadmium orange (cadmium sulfide, cadmium selenide; teratogen/fetotoxin, carcinogen) [PO 20 & 23]
- *Cadmium yellow (cadmium sulfide; teratogen/fetotoxin, probable carcinogen) [PY 35 & 37]
- Cadmium green (concentrated cadmium zinc sulfide, hydrated chromium oxide; teratogen/fetotoxin, carcinogen, mutagen) [PY 35 + PG 7]
- Cadmium/barium colors, esp. reds & oranges (cadmium and barium sulfate; teratogen/fetotoxin, probable carcinogens, potential allergen) [PO 20:1, PR 108 & others]
- Calcium strontium sulfide (calcium & strontium sulfides; may produce hydrogen sulfide if ingested) [PW 8 & 9, fluorescent blue]
- Chrome green, aka Prussian green, (lead chromate, ferric ferrocyanide; carcinogen, teratogen/fetotoxin) [PG 13 & 15]
- Chrome orange (basic lead carbonate; carcinogen, teratogen/fetotoxin) [PO 20 & 23]
- Chrome yellow (lead chromate; carcinogen, teratogen/fetotoxin) [PY 34]

- Cobalt violet, aka violet phosphates (cobalt arsenate or phosphate; sensitizer, carcinogen) [PV 14]
- Cobalt yellow, aka aureolin (potassium cobaltinitrite; cyanosis via ingestion) [PY 40]
- Emerald green (copper acetoarsenate; very low lethal ingestion dose, carcinogen) [PG 21]
- Lead white, aka ceruse, flake-, falk-, cremnitz-, silver-, or mixed white (basic lead carbonate; teratogen/fetotoxin) [PW 1]
- Lithopone (barium sulfate, zinc sulfide; may produce hydrogen sulfide if ingested) [PW 5]
- Mercadmium colors, esp. red & orange (cadmium & mercuric sulfides; may produce hydrogen sulfide if ingested, probable carcinogen, allergen) [PO 23, PR 113]
- Molybdate orange (lead chromate, lead molybdate, lead sulfate; carcinogen, teratogen/fetotoxin) [PR 104]
- Naples yellow, aka antimony yellow (lead antimonite, sometimes also zinc and bismuth oxides; teratogen/fetotoxin) [PY 41]
- Para red (insoluble azo pigment; cyanosis via ingestion, bacterial mutagen) [PR 1]
- Prussian blue (ferric ferrocyanide; produces hydrogen cyanide gas if exposed to heat, UV light, or acid) [PB 27]
- Red lead (lead tetroxide; teratogen/fetotoxin, carcinogen) [PR 105]
- Scheele's green, aka Paris green (cupric acetoarsenite; carcinogen) [PG 22]
- Silica white (quartz; silicosis via chronic inhalation) [PW 27]
- Strontium yellow, aka lemon yellow (strontium chromate; carcinogen) [PY 32]
- Toluidine yellow (insoluble azo pigment; cyanosis via ingestion)
- Vermilion, aka cinnabar (mercuric sulfide; may produce hydrogen sulfide if ingested, allergen. modern "vermilion" is usually made of less toxic pigments) [PR 106]
- Witherite (barium carbonate; extremely toxic by ingestion & inhalation) [PW 10]
- Zinc sulfide white (zinc sulfide; may produce hydrogen sulfide if ingested) [PW 7]
- Zinc yellow (zinc chromate; possible sensitizer, carcinogen) [PY 36]

3.11 Moderately/Slightly Toxic Pigments

Use care when working with these pigments. Though these pigments are not acutely toxic in most cases, they still pose a significant health hazard. Be aware of what you are working with and take steps to minimize your exposure and risks as much as possible.

- *Alizarin crimson (lakes of 1,2-dihydroxyanthaquinone or insoluble anthraquinone pigment; potential allergen) [PR 83]
- Azurite, aka mountain blue (copper mineral) [PB 30]
- Barium white, aka blanc fixe (barium sulfate; toxic if contaminated with soluble barium compounds) [PW 21 & 22]
- *Burnt or raw umber, aka mars brown (iron oxides, manganese silicates or dioxides; toxic by ingestion if contaminated with manganese) [PBr 7]
- Carbon black, aka lamp black (carbon) [PBk 6 & 7]
- Cerulean blue (cobaltous stannate) [PB 35]
- Cobalt blue (cobaltous aluminate) [PB 28]
- Cobalt green (calcined cobalt, zinc and aluminum oxides) [PG 50]
- Chromium oxide green (chromic oxide; possible carcinogen, bacterial mutagen) [PG 17]
- Diarylide yellow aka diazo yellow (insoluble azo pigments; teratogenic/fetotoxic/carcinogenic PCB contamination before 1982) [PY 83]
- Egyptian blue (copper calcium silicate) [PB 31]

- Hansa orange (insoluble azo pigments; bacterial mutagenic) [PO 1, 2 & 5]
- Hansa red, aka toluidine red (insoluble azo pigment; historical cyanosis via ingestion) [PR 3]
- Lithol reds (sodium, barium and calcium salts of soluble azo pigment; possible contamination with carcinogen beta-naphthylamine) [PR 49, 49:1 & 49:2]
- Manganese black (manganese dioxide) [PBk 14]
- Manganese blue (barium manganate, barium sulfate) [PB 33]
- *Manganese violet (manganese ammonium pyrophosphate) [PV 16]
- Manganese brown (manganese hydroxide and oxides) [PBr 8]
- Nickel azo yellow (complex nickel salts) [PY 150]
- *Pthalocyanine blue (copper phthalocyanine; teratogenic/fetotoxic/carcinogenic PCB contamination before 1982) [PB 15 & 16]
- *Pthalocyanine green (polychlorinated copper phthalocyanine; frequent teratogenic/fetotoxic/carcinogenic PCB contamination before 1982) [PG 7 & 36]
- Smalt blue (potassium cobaltous silicates) [PB 32]
- Talc white (hydrated magnesium silicate; highly toxic with chronic inhalation, possible silica or asbestos contamination) [PW 26]
- Nickel titanium yellow (nickel/antimony/titanium oxides) [PY 53]
- Verdigris (copper dibasic acetate) [PG 20]
- Viridian (hydrated chromic oxide; possible carcinogen) [PG 18]
- Yellow ochre, aka nickel dioxine yellow (benzimidazolone) [PY 153]
- Zinc white, aka Chinese white (zinc oxide; possible lead sulfate contamination) [PW 4]

3.12 Low-Risk Pigments

Although all pigments carry some risks (especially when they are being sprayed or are in powdered form) the following colors are good options for those who choose not to work with more toxic media:

- *Burnt and raw sienna [PBr 7]
- Caput mortuum, aka English-, Indian-, Venetian-, mars red, red ochre & mars violet [PR 101]
- *Gold ochre, aka yellow ochre [PY 43]
- Green earth/Terre vert/verdetta [PG 23]
- Iron oxides (except mars brown) [PR 102, PBr 7]
- *Ivory black [PBk 9]
- *Mars black [PBk 11]
- Mars orange [PY 42 + PR 101]
- Yellow ochres [PY 43]
- *Titanium white [PW 6]
- Transparent yellow oxide (also orange) [PY 42]
- *Ultramarine blue [PB 29], red, green & violet

4.0 Considerations for Projects

4.1 Guidelines for Senior Studios

- T**here is to be no eating and drinking in the studios.** There are two sinks in the kitchen for food preparation and dishwashing. There is a separate brush cleaning room in between the two main bathrooms in the hallway.

- Solvent, flammable, and corrosive material containers are to be kept always covered and stored in cabinets when not in use. **ALL MATERIALS MUST BE STORED SAFELY.**
- All waste solvents and other waste chemicals are to be poured into the disposal waste drums provided by LAAFA. Do not pour chemicals down the drain!
- Throw away oily rags in the special flammable-rag disposal containers provided by LAAFA.
- Do not mix incompatible chemical wastes in your personal containers.
- Do not mix chemical waste with trash.
- Keep floor free of clutter and trash. All electrical wires must be secured and kept out of high traffic areas, so they are not a tripping hazard. Furthermore, some of the studio walls and skylights in the building leak in heavy rain, and anything left on the floor, including electrical wires, computers, and books, are at risk.
- Do not store overflow materials, supplies, art, etc. in student storage areas or studios.
- Do not attempt any activity for which there is not adequate ventilation in a studio.

5.0 Ergonomic Hazards

5.1 Ergonomics

Ergonomics is a term derived from the Greek words for work ("ergos") and natural laws ("nomoi"). Good ergonomics can often help prevent two different classes of injuries: non-accidental and accidental injuries. Non-accidental injuries are those that are the result of normal activities, whereas accidental injuries are those that result from the occurrence of an unexpected event. When considering things from an ergonomic perspective, both static work and force must be considered. Static work is the term for the musculoskeletal effort required to hold any given position (i.e., standing or holding), and force refers to the amount of tension our muscles generate (i.e. moving or lifting). Projects that involve heavy lifting—such as certain aspects of ceramics and sculpture—are at high risk for accidental back injury. Projects that involve extended computer work, drawing, or weaving (among others) may put you at a higher risk for non-accidental back injury, as well as carpal tunnel syndrome. If you feel strain in your back, neck, or extremities at any point, take a break and change your position or activity. Stretching, shaking out your hands, shifting positions, or walking around can help to relieve mild discomfort in many situations.

Better yet, remember that your body needs these breaks and stretches at regular intervals to prevent pain and injury, rather than waiting until you are in pain to try to do something about it. If you can make a habit of taking regular breaks while working, you can easily increase your comfort level and your ability to work for lengthy periods. Try to perform a short series of stretches or simple exercises (even just taking breaks to wiggle your fingers and roll your wrists while doing extended computer work) to help improve comfort level and prevent future pain.

Look for alternatives to activities or techniques that you know are problematic or painful as far as posture or motion. Try adjusting your work surface before working in a posture that causes you to cramp up every 20 minutes. Opt for tools with vibration dampers rather than using high vibration equipment that makes your fingers go numb. While using a manual screwdriver in a power grip is infinitely better than using one in a pinch grip, it would be even better to use an electric screwdriver–especially one with built-in vibration dampening materials. When working in an awkward position or using high-vibration tools (especially pneumatic tools), be sure to take frequent rests to prevent muscle strain or circulatory problems.

To help avoid injury keep your posture in mind, both while standing and sitting.

- While standing, try to keep your head, shoulders, and pelvis vertically aligned.
- Keep your abdominal muscles tightened and your hips in line with your body, and your feet apart with your knees slightly bent.
- Prolonged static posture is the enemy. Try changing positions while working and take frequent breaks to walk around or stretch. Make sure you shift positions at least every 20 minutes. When returning to your task, make a concentrated effort to use an alternate posture for a few minutes. For example, try changing which foot your weight is resting on every 20 minutes to stay comfortable while working.
- If you are standing on a concrete floor, wear well-cushioned shoes, add a rubber mat, or work with one foot resting on a raised surface to help prevent discomfort.
- When seated, try to make your workstation fit your body. Adjust your seat so that your working surface is at elbow height and try to keep your knees slightly lower than your hips. If you're working with a computer, try raising your screen so that the top-most line on the screen is at eye level–you can prevent neck pains by eliminating the need to bend your head while working.
- Beware of motions that put undue stress on your joints. Awkward postures or frequent pushes at the limit of your range of motion are easy ways to hurt yourself.
- Heavy, bulky loads are high-risk loads.
- Fatigue makes you move awkwardly. If you are exhausted or feel unwell, get someone to help you rather than trying to do something alone.

5.2 Lifting

Many art supplies are very heavy, bulky, or awkwardly shaped. Lifting and carrying these objects without the correct attention to posture and technique could result in serious back injury. Most back injuries cannot be attributed to a single incident, but rather are cumulative conditions that develop over time and after repeated strains to a certain area. Poor lifting habits related to moving heavy objects can result in chronic back pain. Once injured, a back may never heal properly.

Objects that may present a lifting hazard include:

- Heavy objects (over 20 lbs. if they will be lifted repeatedly; or over 50 lbs. at one time).
- Bulky or awkward objects.
- Loads whose weight may suddenly shift.
- Objects that must be lifted from above shoulder level.
- Objects that must be lifted from the floor.
- Objects that cannot be held close to the body.
- Objects stored where there is not enough space to lift them safely, without reaching or twisting.

When lifting heavy objects, remember these rules:

- Avoid lifting objects that are on the floor or above your head–especially if they are heavy.
- Split up large loads into smaller ones to reduce weight.
- Get help!
- Use a cart or dolly to assist you. If the load requires pulling, keep the cart by your side to void twisting your lower back.
- When dealing with very heavy wheeled loads, turning around, and pushing with your legs while bracing your back against the object can be helpful and may minimize the danger of back injury.

- If dealing with multiple objects of approximately the same (small) size, carry one in each hand to balance the load.
- Use proper lifting technique:
  - Stand close to whatever you are lifting. Never reach over for a heavy item.
  - Place feet on both sides of the heavy item
  - Bend your knees, and not your back. Squat down. This may be hard on your knees, but it is a tradeoff.
  - Lift with a straight back, while bending and straightening the legs.
- Carry the load close to your center of gravity. Hold the item securely, close to your torso, and lift with your legs instead of your back.
- Choose pivoting over twisting when moving objects. Twisting puts a strain on the mid-torso and lower back, while pivoting keeps the shoulders, hips, and feet in line and the load always remains in front of you.
- Remember, do not lift more than you can lift comfortably–get help if you need it.

5.3 Repetitive Motion

Whenever you repeat the same hand movement for a long period of time, you run the risk of repetitive motion injuries. Extended computer work, drawing, painting, sanding, weaving, and many other processes may put an individual at risk for a repetitive motion injury (RMI).

Symptoms of RMIs include pain, numbness, or tingling of the fingers, wrists, elbows, or shoulders. Chronic back and neck problems may result in pain, numbness, or tingling that radiates to the arms or legs, as well as limited back motion and loss of hand strength. It can lead to inflammation of the muscles, tendons and nerves of the wrists and joints.

Grip positions that are high-force or involve repeated motions at a stressful angle can lead to carpal tunnel syndrome.

To prevent RMIs:
- Perform 5 minutes of alternative work activity for every 30 minutes of continuous, high intensity, repetitive work.
- Use neutral postures when working.
- Take frequent breaks and stretch your muscles.
- Vary your activities/motions.

6.0 Media Specific Hazards

6.1 Painting, Drawing, Sculpting

This section is intended to bring to light other specific hazards and precautions that are applicable to the various forms of wet and dry media themselves.

General Studio Safety:

A. <u>Acrylic and Oil Paints</u>

Hazards:

- Possible throat irritation from acrylic paints and gel medium can occur from small amounts of ammonia and formaldehyde in paints and media.
- Many oil paints are toxic by ingestion and harmful to the environment.

Precautions: see Pigments precautions, Page 14.

B. Pastels, Chalks, Graphite and Charcoal

Hazards:

- Many pastels can contain toxic pigments, including chromium, cadmium, and manganese.
- Blowing off excess pastel dust increases dust inhalation.
- Graphite or charcoal dusts may be carcinogenic if inhaled.
- Many pastels are poorly labeled for content.

Precautions:

- Avoid pigments containing lead chromate and other toxic pigments.
- Instead of blowing off excess dust, tap your drawing to remove accumulated dust. Wear a NIOSH-approved dust mask.
- Wet mop or vacuum instead of sweeping up dust.
- **Spray fixatives only outside.**

C. Markers/Ink

Hazards:

- Inks often contain solvents as well as preservatives. Solvent-based permanent markers may pose an inhalation hazard without proper ventilation; those containing toluene are particularly hazardous.

Precautions:

- Choose water or alcohol-based markers over other solvent-based ones.
- Work in a properly ventilated area.
- Obtain SDSs on all inks so that you know their potential hazards.
- If you must work with solvent-based markers or inks, do so with the precautions covered in the solvents section.

D. Water-Based Painting

Watercolors and acrylics can be among the safest artistic materials you may use. Recent innovations in paint production have also allowed for the development of water-based oil colors; these paints have the same pigments and qualities as traditional oil paints, but they may be thinned and cleaned up with water. These are a good alternative to those individuals with solvent sensitivities or respiratory difficulties, although the pigments are still hazardous.

Hazards:

- Some acrylic paints contain small amounts of ammonia or formaldehyde as preservatives.
- Many water-based paints contain the same heavy metal pigments used in oil paints.
- Gum binders in watercolors can cause skin allergies.
- Spraying watercolor paints can cause asthma if inhaled.

Precautions:

- Avoid paint dusts and sprays.
- Work in well-ventilated area.
- Paints that contain any of the following metals CAN NOT go down the drain: arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, copper, nickel, or zinc. See the chapter on pigments or the SDS of your specific paint to ascertain which pigments fall into this category.

E. Molds in Clays and Glazes

Hazards associated with clay:

- Under the right conditions, clay can be a good medium for growing molds. Some people are very sensitive to molds found in aging clay.
- Exposure can lead to chronic infections or allergic reactions. Molds may also alter the viscosity of clays and glazes, as well as produce odors.

Precautions:

- Wash your hands and change your clothes after working with clay.
- Wear respiratory protection when working with moldy clay. Gloves may help when handling wet clay.

F. Electrical

Hazards:

- Fires or electrical shock can be caused by overloaded electrical circuits, extension cords, or power strips.

Precautions:

- All electrical cords are required to have a built-in ground fault circuit interrupter (GFCI).
- If a circuit trips, reduce the electrical load and reset ONCE.
- If a circuit repeatedly trips, contact Physical Plant (503-777-7283); the circuit may have a short that could start a fire.

G. Hot Plates

Hazards:

- Heating elements are hot.
- The plates you heat up will be hot.
- Heating grounds and inks on a hot plate create fumes that can be extremely toxic.

Precautions:

- Do not touch a hot plate when it is on.
- Remember to turn it off when not in use.
- Safety to remove full waste containers and assist you with collection procedures.

H. Propane

Hand-held propane torches are occasionally required for various lab area activities. Since these involve an open flame, a potential fire hazard exists, and proper controls must be followed.

Hazards:

- Flammable liquid gas under pressure.

- Can form explosive mixtures with air.
- May cause frostbite.
- Simple asphyxiant.

Precautions:
- DO NOT use the propane torch near combustible or flammable materials. Designate a safe area in the lab area where hot work can be performed that is away from other hazards.
- An ABC-type fire extinguisher must be available within 30 feet of the hot work.
- Properly store the propane cylinders when not in use.
- Store securely in a segregated and approved area, i.e. fire-proofcabinet or shelf. Store away from direct sunlight in a dry, cool, and well-ventilated area, away from incompatible materials. Eliminate ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, firmly secured to prevent knocked over, and with valve protection cap in place. Cylinder temperatures should not exceed 52 °C (125 °F).
- Always disconnect the turbo torch head "pressure regulator head" when not in use. This is the rigid fitting on the top of the cylinder, used to start and control the flame.
- Propane cylinders that are empty are not returnable and must be properly disposed through the Waste Management Group. Do not dispose of used propane cylinders in the regular trash.

I. Adhesives and Glues

Hazards:
- Many of these products are flammable or combustible.
- Some adhesives and glues can cause irritation, allergic reactions, or burns if you get them on your skin.
- Many adhesives and glues contain hazardous solvents.

Precautions:
- Do not open the container until you have found out what is in the product and what the hazards may be.
- Check the label. You may find a list of ingredients, a safety warning, or both. All containers must be labeled.
- Read the Safety Data Sheet (SDS) for the product. SDSs are required by law, and everyone working on the site has a right to see them.
- Substitute less toxic glues and adhesives.
- Use only with adequate ventilation.

J. Plaster/Calcined Gypsum

Hazards:
- Plaster dust can be irritating to eyes and respiratory system.
- Contains crystalline silica.
- Heat builds up when plaster sets and can be dangerous enough to cause serious burning when casting parts of the human body.

Precautions:
- Do not sweep–wet mop or vacuum only!
- Wear appropriate PPE–mask, gloves, and goggles if you will be chipping or carving the set plaster.

Further Art Safety Resources

OSHA Occupational Chemical Database: https://www.osha.gov/chemicaldata/
Art and Craft Safety Guide: https://www.cpsc.gov/s3fs-public/5015.pdf
Solvent Safety OSHA: https://www.osha.gov/solvents
Studio Safety, Gamblin Colors: https://gamblincolors.com/studio-safety/studio-safety-create-without-compromise/
Safety Data Sheets (SDS): https://gamblincolors.com/studio-safety/sds/
Cal OSHA: https://www.dir.ca.gov/dosh/
Workplace Ergonomics: https://www.osha.gov/sites/default/files/2018-12/fy14_sh-26336-sh4_Ergonomic-Overview-Handout.pdf

Communicating Chemical Hazards

The Occupational Health and Safety Administration (OSHA) within the U.S. Bureau of Labor has adopted most – not all – of the provisions of the GHS within its hazard communication regulations (aka: HazCom Standard). They are found in Title 29 of the Code of Federal Regulations 1910.1200.

The Sixteen (16) Sections of the SDS (Safety Data Sheets)

- **Section 1—Identification:** Product identifier, manufacturer or distributor name, address, phone number, emergency phone number, recommended use, and restrictions on use.
- **Section 2—Hazard(s) identification:** All hazards regarding the chemical and required label elements.
- **Section 3—Composition/Information on ingredients:** Information on chemical ingredients and trade secret claims.
- **Section 4—First-aid measures:** Required first aid treatment for exposure to a chemical and the symptoms (immediate or delayed) of exposure.
- **Section 5—Fire-fighting measures:** The techniques and equipment recommended for extinguishing a fire involving the chemical and hazards that may be created during combustion.
- **Section 6—Accidental release measures:** Steps to take in the event of a spill or release involving the chemical. Includes: emergency procedures, protective equipment and proper methods of containment and cleanup.
- **Section 7—Handling and storage:** Precautions for safe handling and storage, including incompatibilities.
- **Section 8—Exposure controls/Personal protection:** OSHA's permissible exposure limits (PELs), threshold limit values (TLVs), appropriate engineering controls, and personal protective equipment (PPE).
- **Section 9—Physical and chemical properties:** The chemical's characteristics.
- **Section 10—Stability and reactivity:** Chemical stability and possible hazardous reactions.
- **Section 11—Toxicological information:** Routes of exposure (inhalation, ingestion, or absorption contact), symptoms, acute and chronic effects, and numerical measures of toxicity.
- **Section 12—Ecological information:** How the chemical might affect the environment and the duration of the effect.
- **Section 13—Disposal considerations:** Describes safe handling of wastes and methods of disposal, including the disposal of any contaminated packaging.
- **Section 14—Transportation information:** includes packing, marking, and labeling requirements for hazardous chemical shipments.
- **Section 15—Regulatory information:** indicates regulations that apply to chemical.

- **Section 16—Other information:** includes date of preparation or last revision.

Pictograms and Hazard Classes

For detailed information, please visit: https://www.osha.gov/hazcom/appendix-c

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases Under Pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** (Non-Mandatory)  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

Labels

All labels from manufacturers must have the following information:

- pictograms
- a signal word: either “danger” or “warning”
- hazard statements that describe the physical, health, and/or environmental hazards
- precautionary statements that describe measures to minimize or prevent adverse effects.

There are four types – “prevention,” “response,” “storage,” and “disposal.” For example, for a product identified as acutely toxic – oral, we would see the following:

- the product identifier
- supplier identification.

Prevention	Response	Storage	Disposal
Wash ...thoroughly after handling. ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink, or smoke when using this product.**	**If swallowed: Immediately call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if immediate administration of antidote is required.* **Rinse mouth.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

A standard label, identifying the required label elements, is shown below. Supplemental information can also be provided.

OSHA® QUICK CARD™

Hazard Communication Standard Labels

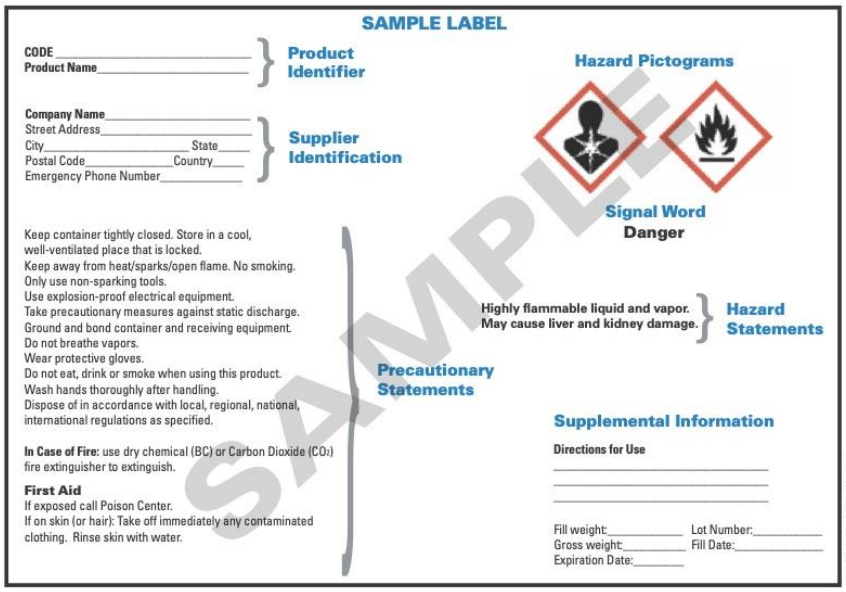
OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). All labels are required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed.

For more information:

U.S. Department of Labor

OSHA® Occupational Safety and Health Administration

www.osha.gov (800) 321-OSHA (6742)



Glossary of Terms

Acute: Acute exposures and effects involve short-term high concentrations and immediate results of some kind (illness, irritation, or death). The effect of a chemical is considered acute when it appears with little time lag, such as within minutes or hours.

Body Burden: The total amount of a chemical(s) in the body. Some chemicals build up in the body because they are stored in body tissue like fat or bone or are eliminated very slowly. Some chemicals present in the body can magnify the effects of exposure to another.

Breakthrough Time: The time taken in standard tests for permeation of a chemical through a protective barrier (such as rubber gloves or respirator filter) to be detected.

Caustic: Capable of destroying the texture of anything or eating away its substance by chemical action; burning; corrosive; searing. It may also imply a substance that is alkaline or basic in its nature (possessing a high pH).

Chronic: Chronic exposure is any exposure lasting for a long period of time or marked by frequent recurrence. Chronic effects are adverse effects characterized by symptoms that develop slowly over time and persist or recur.

Duration: The continuous length of time an event goes on for without a rest period. Duration may refer to exposure time, or the length of time for which an activity is performed.

Dust: Airborne particles with weight and mass that are generally larger in size than the particles in fumes. Dust particles within a respirable size (1-10 microns) represent a health problem via inhalation. Dust cannot be seen by the naked eye but may be visible when viewed through rays of light. Dust can be generated by handling, crushing, grinding, rapid impact, detonation, and breakdown of certain organic or inorganic materials (especially rocks, metal, wood and fibers). Dust is different from vapors and mists—it is comprised of solid particles, each of which consists of a large number of atoms or molecules of a material that is not normally volatile.

Ergonomic Hazards: Workplace conditions that place workers at increased risk of developing a muscular skeletal injury or which otherwise increase the likelihood of other work performance problems. Some examples of ergonomic hazards are lifting or extended work in one position (drawing, computer work, etc.)

Flash Point: Lowest temperature at which the vapor of a liquid or solid ignites when in contact with sparks, flames, or other ignition source.

Hazard: A situation or chemical that may present the potential for harm.

Health Hazard: Pertains to a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

Hazardous Substances: Any substance which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation,
physiological malfunctions or physiological deformations in such persons or their offspring. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive.

Health Risk Assessment: A document that identifies the risks and quantities of possible adverse health effects that may result from exposure to emissions of toxic air contaminants. A health risk assessment cannot predict specific health effects; it only describes the increased possibility of adverse health effects based on the best scientific information available.

Ingestion: Ingestion of hazardous substances can occur by eating and drinking food that has been contaminated or more directly through oral contact with hands or tools used in art projects.

Inhalation: Dusts, powders, vapors, gases, and aerosols may be inhaled and absorbed into the bloodstream.

LC50: (Lethal Concentration 50) is the concentration of a chemical that kills 50% of a sample population.

LD50: (Lethal Dose 50) is the dose of a chemical that kills 50% of a sample population.

Latency Period: The period of time between exposure to something which causes a disease and the onset of the health effect. For example, cancer caused by chemical exposure may have a latency period of 5 to 40 years.

Mist: A mist or fog is a microscopic suspension of liquid droplets in a gas.

National Institute of Occupational Safety and Health (NIOSH): The federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. NIOSH is part of the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services.

Occupational Diseases: Symptoms and diseases related to work related activities.

Occupational Health: Work related health

PPE: (Personal Protective Equipment) refers to whatever protective equipment may be used to insulate an individual from the chemical, thermal, explosive, or other hazards presented by the environment in which he or she is working, i.e., safety glasses, laboratory coat, protective shoes, chemical-resistant gloves, etc.

Physical Hazard: Refers to the chemical properties of a substance (combustible liquid, compressed gas, explosive, flammable, organic peroxide, oxidizer, pyrophoric, unstable/reactive, or water-reactive) or a condition that may potentially endanger an individual

Risk: Is the probability or chance that the hazard posed by the chemical or situation will lead to injury.

- Risk Assessment: A process that estimates the likelihood that exposed people may have health effects.
- Hazard Identification: Can this substance damage health?
- Dose-response Assessment: What dose causes what effect?

- Exposure Assessment: How and how often do people contact the substance?

Risk Factors: something that puts an individual at a greater risk, specifically for diseases or infections. Below are some of the most common risk factors:

- Amount of exposure
- Length of exposure
- Multiple exposures
- Exposure conditions
- Toxicity
- Total body burden
- High-risk groups:
  - Smokers
  - People taking medications
  - People with allergies
  - People who have pre-existing medical conditions
  - Pregnant women

Safety Data Sheets (SDS): A SDS contains information on the hazards associated with a chemical or product and gives information on its safe use. SDS are available and should be read before use of any new materials.

Safety Zone: A clear safe zone maintained around all power tools.

Skin Contact and Absorption: Caustic substances or solvents may cause local skin damage. Certain solvents can also pass through the skin into the bloodstream, resulting in damage to other organs.

Syndrome: A group of symptoms that collectively indicate or characterize a disease, psychological disorder, or other abnormal condition.

Threshold Limit Value/ TLV: are guidelines (not standards) prepared by the American Conference of Governmental industrial Hygienists, Inc (ACGIH) to assist in making decisions regarding safe levels of exposure to various hazards found in the workplace.

Toxic: The ability of a substance or material to cause injury, disease, or death in exposed humans or animals in relatively low concentrations

Target Organ: An organ (such as the liver or kidney) that is specifically affected by a toxic chemical.