HAMILTON COLLEGE STUDIO ART DEPARTMENT Environmental, Health and Safety (EH&S) Handbook <u>WOOD SCULPTURE & CASTING</u>

Purpose:

To serve as a supplemental EH&S guide and reference for students.

*Note—as the Wood Sculpture (List 219) and Casting (List 113) studios are often used interchangeably in terms of both equipment and chemicals, this EH&S handbook is combined for the 2 disciplines.

General Responsibilities:

- Students—Understand and adhere to all safe work practices as communicated by faculty and staff, and as outlined in this document.
- Student Monitors—Understand safe work practices of the department and assist faculty and staff with implementation and oversight.
- Faculty and Staff—Train students and other staff to ensure compliance with all EH&S regulatory requirements.
- Materials Technician—Coordinate and act as liaison among EP&S Director, department faculty, and students to ensure compliance with EH&S obligations.
- Director of Environmental Protection & Safety— Oversee college EH&S requirements, conduct audits, maintain and update compliance documents and plans, train faculty and staff, collect and dispose of departmental waste, and assist with all other regulatory matters.

Students:

- Must be enrolled in a class in order to use the department's facilities and equipment.
- Must understand all terminology used in this handbook.
- Must understand safety and health hazards associated with all chemicals (i.e. through MSDS's).
- Must use equipment and materials for their prescribed purposes only, and adhere to the following safety attire/other rules when using powered equipment:
 - No loose clothing (i.e., ties, scarves, loose sleeves, etc.).
 - No open-toed shoes/sandals, shorts or skirts.
 - All jewelry (i.e., rings, necklaces, bracelets, piercings, or watches) must be removed.
 - Long hair must be pulled back in a bun or otherwise tightly constrained. Long beards must also be constrained.
 - PPE in the form of safety glasses (at a minimum) is required for all personnel working in the studio, even if they are only a by-stander to ongoing work. Other PPE, such as dustmasks, ear plugs or facemasks, may also be required.
 - Cell phones shall not be used in the shop when work is ongoing, nor shall any equipment user be permitted to wear portable music devices with headphones.
- Must know and understand the location and use of safety equipment, e.g. safety showers, emergency eyewashes, fire extinguishers, and emergency exits.
- Must immediately notify the appropriate authority of any unsafe practice or condition, e.g. faculty, Materials Technician, Custodian, student monitor, or campus safety. All chemical spills must immediately be cleaned and disposed of properly.
- Are responsible for cleaning and maintaining all workstation, countertops and sinks, and clearing and discarding all trash after each work session.
- Are responsible for maintaining clean, obstruction-free work areas and access to emergency equipment, exits, electrical equipment, and passageways. All aisle-ways must be kept free of chairs, boxes, equipment, and waste receptacles.
- Must not engage in horseplay, practical jokes or other behavior that might confuse, startle, or distract other students.
- Must wash hands frequently during work session, after contact with any hazardous materials, before eating, drinking or smoking, and before leaving the studio.
- Must not eat or drink in the studio.
- Must not pour any hazardous or solid waste down a sink drain or allow it to evaporate.

CHEMICAL HAZARD INFORMATION



While it is similarly not common to see wood sculpture or casting chemicals wit LHAMA labeling, studio users should be familiar with their meaning. Generally speaking, art materials with the AP seal are considered to be low hazard or nontoxic. But, art materials with the CL seal, or California Proposition 65 icon, are considered to have some hazardous properties or ingredients that necessitate additional safety precautions, and you should consult the chemical's MSDS for further safety information, as per the above.

PHYSICAL HAZARD INFORMATION

Physical Hazards

Academic wood sculpture and casting studios also typically contain a variety of equipment types that represent both a physical hazard (from the equipment itself) and/or an additional chemical hazard from the materials they process. See examples below.



Stationary Power Tools/Equipment (in List 219)

There are 5 major stationary power tools in this studio, each of which is maintained by the Materials Technician. Each device has various cut/laceration, flying debris, and pinch point hazards (amongst others), and must rigorously comply with all manufacturer specifications and OSHA stationary power tool requirements (to include machine guarding and PPE considerations). Standard Operating Procedures (SOP's) have also been put together for these 5 pieces of equipment, and are appended below.



Compound Miter Saw



Table Saw



Belt Sander/Disc Grinder



Mobile Power Tools/Equipment (in List 219 and 113)

There are a litany of other mobile power tools and equipment in both the wood sculpture and casting studios, with a broad range of physical hazards, operating guidelines, electrical safety issues, and machine guarding requirements. Some of these devices are depicted below.



Other Physical Hazard Considerations

For all equipment-related physical hazards in wood sculpture/casting, the studios maintain manufacturer equipment manuals and SOP's (for the major stationary power tools) regarding the safe maintenance and use of each device. You MUST consult these sources of information, and be trained/authorized by your faculty member and course syllabi, or the Materials Technician, before you use any equipment with a physical hazard. Additionally, the studios frequently control access to some pieces of equipment (or take them out of service if they are damaged) through the use of lockout/tagout devicesdepicted to the right. If a lock/tag/cord lockout is found on any piece of equipment, it · shall not be used under any circumstances.



ENGINEERING/VENTILATION & CHEMICAL STORAGE CONTROL MEASURES

There are host of different engineering and ventilation control measures in the wood sculpture and casting studios, intended either to provide local exhaust ventilation (airborne hazard control at the source) or assist the List building's general dilution ventilation systems, as follows:

Equipment Mounted Dust Collection System The band saw in List 219 has its own equipment-specific dust collection system attached directly to the device's sawdust discharge. While this ventilation equipment is not equipped with a HEPA filter, it is a good engineering control for the collection and filtering of gross wood dusts generated by the device.
Multi-Equipment Dust Collection System List 219 has another dust collection system in the loft area, with multiple legs running into the main wood sculpture studio area. In the picture to the right, one of the legs is attached to the belt sander/disc grinder, and it may also be used for the table saw. Again, while this ventilation equipment is not equipped with a HEPA filter, it is a good engineering control for the collection and filtering of gross wood dusts generated by multiple devices.
Multi-Purpose Local Exhaust Ventilation Equipment Unlike the dust filtering devices from above that return filtered air back to the studio, List 113 has a multi-purpose ventilation device that is primarily intended to collect gases or vapors, and exhaust them directly to the outside (and out of the building). This device is controlled by a timer switch on the wall, and has 2 movable drop-down legs for multiple ventilation activities at a time. While this device has a very good capture velocity, it may only be used for gas/vapor generating activities that are small enough in surface area for the device to be effective. If particularly hazardous chemical products (like 2-part polyurethane foams with icocyanates) are to be used in List 113, and the surface area of the project is large enough to make this device ineffective, students should use the paint spray booth in the ceramics studio as an alternative.
Additional Ventilation In List 113 List 113 has an additional ventilation device to provide supplemental general dilution ventilation to the studio. The on/off switch is located in List 226 near the sink, and when activated, provides negative ventilation to 3 intakes—one near the sink, one near the ceiling, and one in the small room to the right near the floor (not visible in this picture). It is important to note that this system is only intended to supplement the building's normal ventilation system, and is not really intended to capture chemical hazards introduced into the studio. The other ventilation equipment listed above should more appropriately be used for chemically related tasks.
Chemical Storage All chemical materials that are flammable or combustible in nature should be stored in the 30-gallon flammable storage cabinet located in List 113 when they are not in use. As this cabinet is not ventilated, all chemical containers need to be capped so as not to accumulate volatile vapors. This shared storage cabinet must also be kept neat and clean at all times.

PERSONAL PROTECTIVE EQUIPMENT (PPE)				
General Stud	lio Attire	Clothing should cover arms, legs, and torso. Wear close-toed	shoes (no sandals,	crocs).
Eye Protection	The use of solvents o glasses. F strongly re	f any equipment with flying debris hazards, and chemical r other moderate hazard dry chemicals, requires safety for chemicals of higher toxicity, the use of safety goggles is ecommended.		
Hand Protection	The routin	he handling of solvents requires the use of nitrile gloves for hand	l protection.	
Hearing Protection	The use of minutes re are both a on the dev studios wh hazards as	f any powered equipment for lengths of time that exceed 5 equires the use of hearing protection. Ear muffs or ear plugs ecceptable, as long as the listed noise reduction rating (NRR) rice meets or exceeds 24. Note that other students working in here powered equipment is in use maybe impacted by noise well, and would also be required to wear hearing protection.	æ	Cause
Respiratory Protection	Use ventil hazards in dustmask dusts on a	ation controls as your first, best way to minimize exposure to re the wood sculpture/casting studios. However, the voluntary us is acceptable as a safe work practice when dealing with low haz n intermittent basis.	espiratory e of an N-95 ard or fugitive	

ENVIRONMENTAL PROTECTION & COMPLIANCE

The Management of Wood Sculpture/Casting Studio Wastes

The typical activities and/or projects constructed in the wood sculpture and casting studios (even with the use of chemicals) rarely result in the generation of a regulated hazardous waste. However, as some of the studio's chemical materials are regulated by the EPA, residual, unused or unusable remnants of those chemical materials would need be collected and properly disposed of hazardous waste, as follows:

Flammable Aerosol Paints & Solvents Flammable chemical containers, either in the form of aerosol paints or liquids (like thinners, oil based/combustible paints, etc.), that are no longer needed or usable, must be collected and managed as hazardous waste. Each of these 2 waste streams should be segregated in one of the two 5-gallon yellow hazardous waste buckets depicted in the image to the right (on top of the safety cabinet in List 113).
Other Chemical Hazard Types As there are other chemical hazards used in the wood sculpture/casting studios (like the 2-part polyurethane foams to the left, which would be a poison), the Director of Environmental Protection & Safety should be notified when such materials are in need of a hazardous waste determination. Based upon this determination, such materials will be properly managed and disposed of.

EMERGENCY EQUIPMENT—KNOW THE LOCATION OF THE FOLLOWING		
List 113	Emergency Eyewash Equipment:	List 219
	Emergency Personal Eyewashes bottles are located in both studios near the sinks, and a plumbed Emergency Eyewash Station (sink-mounted) is also located within the List 113 casting studio. First Aid Kit First aid kits are also located within both studios,	
Studio Art Anis + Salter	Chemical Spill Kits: The larger acid and solvent spill kit (left) is located in the Materials Technician's office, and smaller spill buckets are located throughout List near flammable storage cabinets.	
Emergency Shower	2 nd floor List Printmaking corridor.	
Fire Extinguishers	Main hallways/exit corridors of List, and in all studios	
	 Fire Alarm Visual/Audible Enunciators & Pull Sta There are 4 fire alarm enunciators and pull station building exits), by or within rooms 111, 114, 115b In the event of a fire alarm signal, evacuate the bu designated initial gathering point. In the event of a fire or some other emergency was notification (and in the absence of direct access to call Campus Safety to the scene. 	tions s on the west side of List (all near o and 230. ilding and proceed to your rranting immediate Campus Safety a phone), use the pull station to
Emergency Phone #'s	<u>Campus Safety</u> —4000 (emergency line), 4141 (non-en <u>Physical Plant</u> —4500 <u>HCEMS</u> —4000 <u>Environmental Protection & Safety</u> —4647 <u>Materials Technician</u> —4827	mergency line)

Wood Sculpture/Casting Studio Use & Misc. Safety Considerations

- While studio art activities often require independent work, working alone or without supervision is generally discouraged. Further, studio art activities that utilize hazardous chemicals or dangerous equipment may be subject to other restrictions, as per the below.
- The wood sculpture and casting studios are only to be used by students under the direct supervision of the Materials Technician, Studio Monitor or Professor, during posted studio hours. Students are not to be in the studio areas outside of these time frames.
- All dangerous equipment with access controlled through lockout/tagout devices may only be used by students under the direct supervision of the Materials Technician or Professor. All other power tools may be used under the direct supervision of the Materials Technician, Professor or Studio Monitor.
- Students working in the wood sculpture/casting studios are required to attend the "Sculpture Studio Safety Seminar" before allowed to work in either studio. The Safety Agreement in attachment A below may be used by the Studio Art department to help facilitate a safe and environmentally friendly place of working and learning.
- Student studio monitors with additional supervisory roles for the art department, and who are compensated for their efforts, require additional training beyond the scope of this handbook.

ATTACHMENT A WOOD SCULPTURE & CASTING STUDIO SAFETY AGREEMENT FOR STUDENTS

Hamilton College Student Safety Agreement Form

Hamilton College is committed to providing *all workshop/studio users* a safe environment in which to work and learn. Students must be well informed of the chemical and physical hazards associated with workshop/studio activities, and conform to the following rules established for the use of these facilities:

- 1. The use of any hazardous chemical material, or the use/operation of any equipment/machinery/power tool, must be approved by your instructor.
- 2. Unauthorized facility use, horseplay or pranks are strictly prohibited in the workshop/studio.
- 3. Report all injuries to your faculty member or instructor immediately. Any student injured in a workshop or studio must be seen by the Health Center.
- 4. Eating, drinking or smoking in a workshop or studio where chemicals are actively in use is strictly forbidden. Eating or drinking is acceptable in suitable non-chemical use or storage areas, or as specified by your instructor.
- 5. Everyone who uses a workshop or studio must know the locations of emergency equipment, such as fire extinguishers, fire blankets, eyewashes, showers, first aid kits, spill kits and telephones.
- 6. Wear the appropriate attire when working with chemicals or dangerous equipment in a workshop or studio. Wear the necessary Personal Protective Equipment as specified by your instructor, and do not wear loose clothing, dangling jewelry, or your hair in an unconfined manner when using equipment that may catch these loose items.
- 7. When using equipment, machinery or power tools, obey the instructions, Standard Operating Procedures, or manufacturer's recommendations/warnings governing their use at all times.
- 8. All hazardous chemical materials must be properly used, stored, labeled and disposed of.
- 9. Know the flammability, reactivity, health hazard and special hazards of any hazardous chemical material you must use. Report any signs or symptoms indicating a potential overexposure to a hazardous chemical to your instructor.
- 10. After using chemicals in the workshop/studio, always wash your hands prior to leaving, even after wearing protective gloves.
- 11. Dispose of hazardous chemical materials in a manner specified by your instructor. Do not use sinks to drain dispose of chemical materials. Sinks are only to be used for rinsing or other hygienic purposes. Do not dispose of any residual chemical waste materials unless you are certain that the waste stream may be discarded as trash/solid waste. Report all spills to your instructor immediately.
- 12. Maintain the areas you use in the workshop/studio in a tidy, neat, and well-kept manner. Since you individually are in the best position to know what chemicals or products are in use during certain workshop/studio activities, do not assume that others within your class, your instructor's, or college support staff will clean up messes they were not responsible for.

I, ______, have carefully read the workshop/studio safety agreement for Hamilton College and understand that these rules will be rigorously and impartially enforced. I also understand that willful and/or repeated violations of these safety rules will result in my being dismissed from the class.

Student Signature:	Date:
Class Name/Section & Instructor:	

STUDIO ART EQUIPMENT/PHYSICAL HAZARD SOP

Equipment Name: Delta 17-900 16.5" Drill Press

Equipment Application: Wood/Materials Cutting

Principal Location: Studio Art, Wood Sculpture, List 219

Link To Manf. Operating Instructions & Parts Manual:

• <u>http://igor.chudov.com/manuals/Delta-17-900-Drill-Press-Manual.pdf</u>

Identified Health and Physical Safety Hazards:

Eye/Skin Hazards
Chemical Hazards
Crush/Pinch Hazards
Laceration Hazards
Compressed Air Hazards
Noise Hazards



Respiratory Hazards Electrical Hazards Heat/Pressure Hazards Flying Debris Hazards Ionizing Radiation Hazard Other: Nip Points

ΓY	ΜN
ΓY	ΜN
ΓY	$\square N$
$\boxtimes Y$	N
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×Υ	N

Other/Process Comments:

Equipment produces wood dusts and flying debris when in operation.

Hazard Control Strategies:

Engineering Controls:

Ventilation Required	$\Box Y \boxtimes N$	
Isolation Required	$\Box Y \boxtimes N$	
Wet Methods	$\Box Y \boxtimes N$	
Machine Guarding	$\bigvee Y \square N$	Machine guard must be used when machine is in operation.
Plug Lockout	$\square Y \square N$	Restricted device—plug must be locked out when device is not in use.
Administrative/Safe	e Work Pract	ice Controls:
Training Required	$\bigvee Y \square N$	Signage Required X N Signage Types: SOP and Manf. Labels
Restricted Device	$\bigvee Y \square N$	Use must be directly supervised by dept. faculty or Materials Technician.
Other—no jewelr	y or loose clo	thing may be worn, and hair must be constrained.

Personal Protective Equipment Required: \boxtimes Safety glasses Face shield Chemical goggles Apron Hearing Protection **Respiratory Protection Emergency Controls Available:** Chemical Spill Kit $\square Y \square N$ First Aid Kit $\times |Y|$ N Fire Extinguisher $\boxtimes Y \square N$ Emergency Shower/Eye Wash |X| | N **SOP** Approved By: Print Name Sign Name Date



STUDIO ART EQUIPMENT/PHYSICAL HAZARD SOP

Equipment Name: DeWalt DW705 12" Compound Miter Saw

Equipment Application: Wood/Materials Cutting

Principal Location: Studio Art, Wood Sculpture, List 219

Link To Manf. Operating Instructions & Parts Manual:

DeWalt DW705 12" Compound Miter Saw Information •

Identified Health and Physical Safety Hazards:

Eye/Skin Hazards **Chemical Hazards** Crush/Pinch Hazards Laceration Hazards **Compressed Air Hazards** Noise Hazards



Respiratory Hazards Electrical Hazards Heat/Pressure Hazards Flying Debris Hazards Ionizing Radiation Hazard $\Box Y \boxtimes N$ Other: Nip Points



Other/Process Comments:		
Equipment produces wood dusts and flying debris when in operation.		
Hazard Control Strategies:		
Engineering Controls:Ventilation RequiredY NIsolation RequiredY NWet MethodsY NMachine GuardingY NPlug LockoutY N	Machine guard must be used when devic Restricted device—plug must be locked	e is in operation. out when device is not in use.
Administrative/Safe Work Practice Training Required X N S Restricted Device X N U Other—no jewelry or loose clothi	e Controls: Signage Required XY N Signage Use must be directly supervised by dept. Sing may be worn, and hair must be const	ge Types: SOP and Manf. Labels faculty or Materials Technician. rained.
Personal Protective Equipment Re ☐ Safety glasses ☐ Hearing Protection	quired: Chemical goggles Respiratory Protection	e shield 🗌 Apron
Emergency Controls Available:Chemical Spill KitY NFire ExtinguisherY NSOP Approved By:	First Aid Kit Emergency Shower/Eye Wash	$ \begin{array}{c} \boxtimes Y \ \square N \\ \boxtimes Y \ \square N \end{array} $
Print Name	Sign Name	Date



STUDIO ART EQUIPMENT/PHYSICAL HAZARD SOP
Equipment Name: Jet 708599 Belt Sander/Disc Grinder Equipment Application: Materials Sanding and Grinding
Principal Location: Studio Art, Wood Sculpture, List 219
Link To Manf. Operating Instructions & Parts Manual: • <u>http://content.wmhtoolgroup.com/manuals/708599K_man.pdf</u>
Identified Health and Physical Safety Hazards:
Eye/Skin HazardsYNRespiratory HazardsYNType: irritant dustsChemical HazardsYNElectrical HazardsYNCrush/Pinch HazardsYNHeat/Pressure HazardsYNLaceration HazardsYNFlying Debris HazardsYNCompressed Air HazardsYNIonizing Radiation HazardYNNoise HazardsYNOther:Nip PointsYN
Other/Process Comments:
Hazard Control Strategies:
Engineering Controls:Ventilation Required \boxtimes YNIsolation Required \square Y \boxtimes NWet Methods \square Y \boxtimes N
Machine Guarding $Y \ge N$ But must operate device with minimal nip gaps.Plug Lockout $\boxtimes Y \supseteq N$ Restricted device—plug must be locked out when device is not in use.
Administrative/Safe Work Practice Controls: Training Required Y N Signage Required Y Signage Types: SOP and Manf. Labels Restricted Device Y N Use must be directly supervised by dept. faculty or Materials Technician. Other—no jewelry or loose clothing may be worn, and hair must be constrained.
Personal Protective Equipment Required:Safety glassesChemical gogglesFace shieldApronHearing ProtectionRespiratory Protection (Type—N95 dustmask)
Emergency Controls Available: Chemical Spill Kit Y N First Aid Kit Fire Extinguisher Y N Emergency Shower/Eye Wash SOB Assessed Device
SUP Approved By:
Print Name Sign Name Date

STUDIO ART EQUIPMENT/PHYSICAL HAZARD SOP

Equipment Name: Rockwell/Delta Band Saw

Equipment Application: Wood/Materials Cutting

Principal Location: Studio Art, Wood Sculpture, List 219

Link To Manf. Operating Instructions & Parts Manual: TBD

Identified Health and Physical Safety Hazards:

Eye/Skin Hazards
Chemical Hazards
Crush/Pinch Hazards
Laceration Hazards
Compressed Air Hazards
Noise Hazards



Respiratory Hazards Electrical Hazards Heat/Pressure Hazards Flying Debris Hazards Ionizing Radiation Hazard $\Box Y \boxtimes N$ Other: Nip Points



Other/Process Comments:
Farring ant man drages was a dragte and flying

Equipment produces wood dusts and flying debris when in operation.

Hazard Control Strategies:

Engineering Controls:

Ventilation Required $X \square N$ Device must be operated with dust collection system on. **Isolation Required** $Y \boxtimes N$ Wet Methods $\exists Y \boxtimes N$ Machine Guarding $\boxtimes Y \Box N$ Machine guard must be used when device is in operation. Restricted device—plug must be locked out when device is not in use. Plug Lockout \bowtie Y \square N Administrative/Safe Work Practice Controls: Training Required $\bigvee Y \square N$ Signage Required $\bigvee Y \square N$ Signage Types: SOP and Manf. Labels $\bigtriangledown Y \Box N$ Use must be directly supervised by dept. faculty or Materials Technician. Restricted Device \boxtimes Other—no jewelry or loose clothing may be worn, and hair must be constrained. **Personal Protective Equipment Required:** \boxtimes Safety glasses Chemical goggles Face shield Apron Respiratory Protection (Type—N95 Dustmask) Hearing Protection **Emergency Controls Available:** Chemical Spill Kit $\bigvee Y \Box N$ First Aid Kit N Fire Extinguisher $\boxtimes Y \square N$ Emergency Shower/Eye Wash ٦N **SOP Approved By:** Print Name Sign Name Date



STUDIO ART EQUIPMENT/PHYSICAL HAZARD SOP
Equipment Name: Saw Stop 10" Professional Cabinet Saw Equipment Application: Wood/Materials Cutting
Principal Location: Studio Art, Wood Sculpture, List 219
Saw Stop 10" Professional Cabinet Saw
Identified Health and Physical Safety Hazards:
Eye/Skin HazardsYNRespiratory HazardsYNType: irritant dustsChemical HazardsYNElectrical HazardsYNYNCrush/Pinch HazardsYNHeat/Pressure HazardsYNYNLaceration HazardsYNFlying Debris HazardsYNCompressed Air HazardsYNIonizing Radiation HazardYNNoise HazardsYNOther: Nip PointsYN
Other/Process Comments: Equipment produces wood dusts and flying debris when in operation.
Hazard Control Strategies:
Engineering Controls:Ventilation Required $\forall Y \mid N$ Device must be operated with dust collection system on.Isolation Required $\forall Y \mid N$ Wet Methods $\forall Y \mid N$ Wet Methods $\forall Y \mid N$ Machine guard must be used when device is in operation.
Plug Lockout $\square Y \square N$ Restricted device—plug must be locked out when device is not in use.
Administrative/Safe Work Practice Controls: Training Required Y N Signage Required Y N Signage Types: SOP and Manf. Labels Restricted Device Y N Use must be directly supervised by dept. faculty or Materials Technician. Y Other—no jewelry or loose clothing may be worn, and hair must be constrained.
Personal Protective Equipment Required:Safety glassesChemical gogglesFace shieldApronHearing ProtectionRespiratory Protection(Type—N95 dustmask)
Emergency Controls Available: Chemical Spill Kit Y Y N Fire Extinguisher Y Y N Emergency Shower/Eye Wash Y
SOP Approved By:
Print Name Sign Name Date