

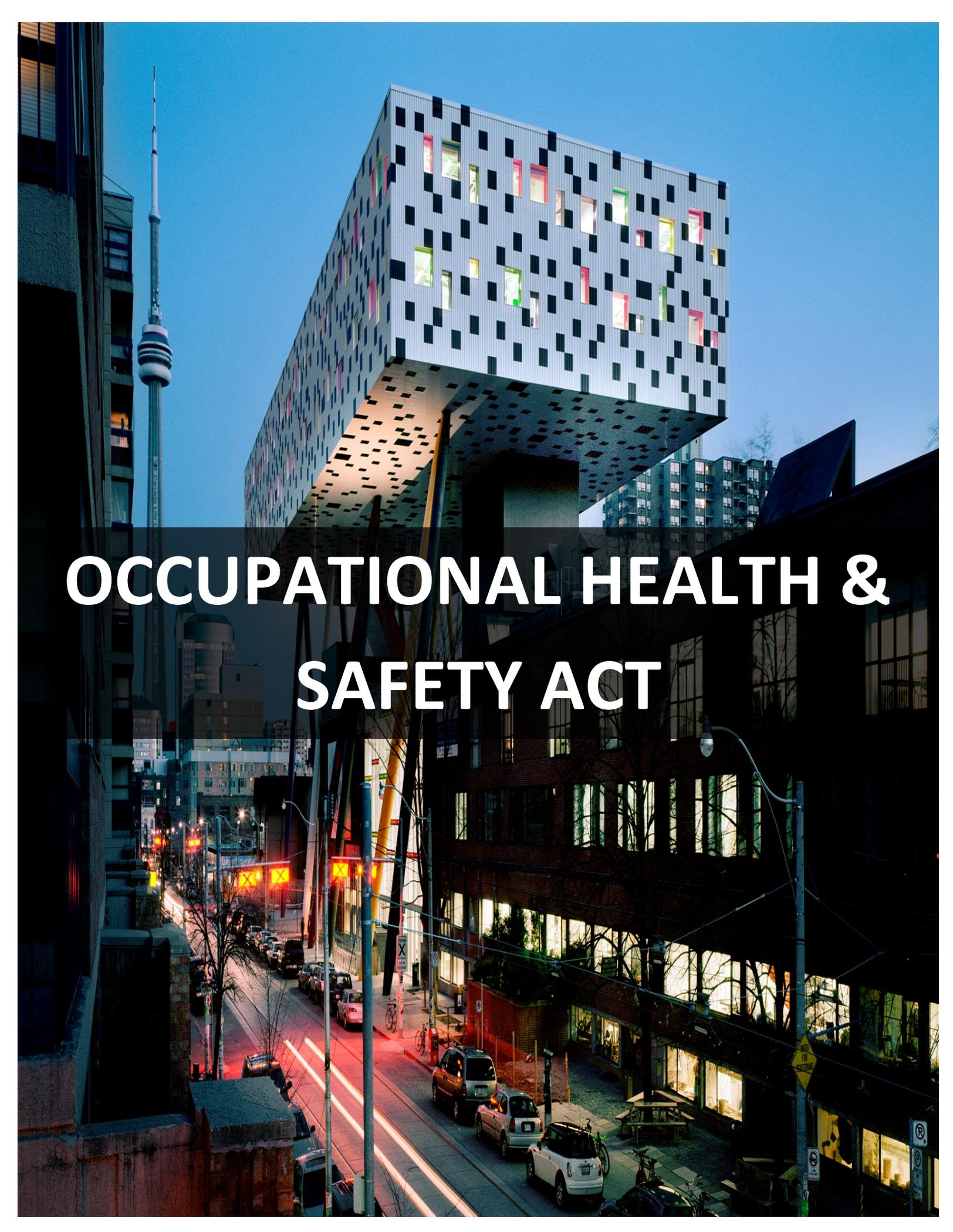
Jewellery Studio

Office of Safety & Risk Management
Rosalie Sharpe Pavilion
115 McCaul
Room 2210



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A photograph of a modern building with a perforated facade and colorful windows, set against a city street at dusk with the CN Tower in the background. The building's facade is white with a grid of black squares, and some windows are illuminated with colorful lights. The street below is dark, with some cars and streetlights visible. The CN Tower is visible in the background on the left side of the image.

OCCUPATIONAL HEALTH & SAFETY ACT

LEGISLATION

Ontario Occupational Health & Safety Act

In Ontario, health and safety requirements are legislated under the Ontario Occupational Health & Safety Act (OHS Act). The Act outlines the roles and responsibilities of various workplace parties. You can find a copy of The Act located on the Health & Safety board at 100 McCaul's main floor.

OCAD University, as an employer, is responsible for ensuring compliance with the Act and regulations, and for taking every precaution reasonable for the protection of faculty, staff (Section 25(2) h of the OHS Act) and students.

As a Student Monitor, you are now considered a worker at OCAD University and you will have specific rights, roles and responsibilities that you will need to understand which we will discuss further in this section.

Internal Responsibility System

The Occupational Health and Safety Act outlines the different roles of the employer, supervisor and worker, and how these parties work together to contribute to making their workplace safe. This is the Internal Responsibility System, or IRS.

Communication is a big part of the IRS in any workplace, and the ability to communicate effectively is an important skill. To communicate effectively, you need to be good at both listening and speaking.

If a worker sees a hazard or practice that goes against the OHS Act or workplace health and safety policies or procedures, that worker has a duty to tell their supervisor or employer. This should be done as soon as possible so that the hazard can be addressed. That's how employers, supervisors and workers come together to make the workplace safer. This is an example of the Internal Responsibility System in action.

You should inform the employer of any health and safety concern, even if you have the ability and authority to handle it yourself. Your employer may need to know about the problem in order to fulfill his or her duties.

WORKER RIGHTS & RESPONSIBILITIES

1. WORKER RIGHTS:

The OHS Act gives workers three important rights:

- a) The **right to know** about workplace hazards and what to do about them
- b) The **right to participate** in solving workplace health and safety problems
- c) The **right to refuse** work that they believe is unsafe



1.1. The Right to Know

It's the employer's responsibility to inform the workers about any health or safety hazards and to show them how to work safely. This supports workers' right to know about hazards to which they might be exposed. For example, the law says workers have to receive information and training on the chemicals or hazardous materials that are used, handled or stored at work. This information is available either on warning labels or information sheets. Sometimes you may also have to give the worker written instructions on how to do the work. The employer supports the workers' right to know by making sure they get:

- Information about the hazards in the work they are doing
- Training to do the work in a healthy and safe way.
- Competent supervision to stay healthy and safe. That means the employer has made sure that you know how to do your job.

1.2. The Right to Participate

Supervisors support the workers' right to participate in health and safety by encouraging them to get involved. There are various ways to be involved in workplace health and safety such as asking questions, raising concerns and giving positive feedback. One of the most effective ways workers can participate in health and safety is by becoming or communicating with a **Joint Health and Safety Committee (JHSC)** member.

What is a Joint Health and Safety Committee (JHSC)?

In Ontario, organizations that employ more than 20 employees must have a formal Joint Health and Safety Committee. The JHSC consists of worker (union employee) and management members.

Worker representatives are selected by the union and management members are appointed by the employer.

What do OCAD University JHSC Members do?

- Act as an advisory body to OCADU in areas of health and safety
- Identify hazards and obtain information about them
- Assist in resolving work refusal cases
- Participate in accident investigations and workplace inspections that involved OCADU employees
- Recommend corrective actions required to resolve health and safety concerns
- Meet every month to discuss safety issues at OCADU
- Inspect the workplace (or at least some areas of the workplace) each month

Who are the JHSC Members?

Management Representatives:

Nick Hooper (Studio Management) – Co-Chair
Connie Arezes-Reis (Human Resources)
Christine Wallace (Facilities and Planning)

Contact:

Ext. 2202
Ext. 209
Ext. 620

Worker Representatives:

Eric Steenbergen (Printmaking) – Co-Chair	Ext. 268
Alvaro Araya (IT Services)	Ext. 240
Angela Del Buono (Photography)	Ext. 264
Ted Hunter (Faculty)	Ext. 313
Myly Pham (IT Services)	Ext. 3846
Katrina Tompkins (ED/ID)	Ext. 397
Adam Wilkinson (Distribution Services)	Ext. 612

Where Can I find the JHSC's Monthly Meeting Minutes and Inspection Sheets?

Your JHSC's monthly meeting minutes and inspection reports are posted on the Safety & Risk Management Bulletin Board located at the main floor at 100 McCaul.

1.3. The Right to Refuse.

The third right of workers in the OHS Act is the right to refuse to do work that you have reason to believe is unsafe for yourself or another worker. The OHS Act prohibits the employer from reprimanding a worker for such things as complying with the OHS Act or seeking its enforcement.

Your supervisor will respect that right by taking "every precaution reasonable" in the circumstances to protect workers and by complying with the process for work refusals specified in the Act. When a worker is refusing to do particular work because it is likely to endanger him or herself, the supervisor must look into the worker's concerns and do everything they can to help the employer address them. Most of the time, the employer or the supervisor will be able to solve the problem with the worker's JHSC member. But if an agreement can't be met on how to solve it and the worker still feels the work is unsafe, a Ministry of Labour inspector will be called in to investigate.

For details on how this process works, refer to our policy: 5004 - Work Refusal Procedures (*Attached: Appendix 4*).

2. DUTIES OF A WORKER

The OHS Act gives workers certain duties, as a student monitor you must:

- a) Follow the law and the workplace health and safety policies and procedures.
- b) Always wear or use the protective equipment that the employer requires.
- c) Work and act in a way that won't hurt them or any other worker.
- d) Report any hazard they find in the workplace to your supervisor.

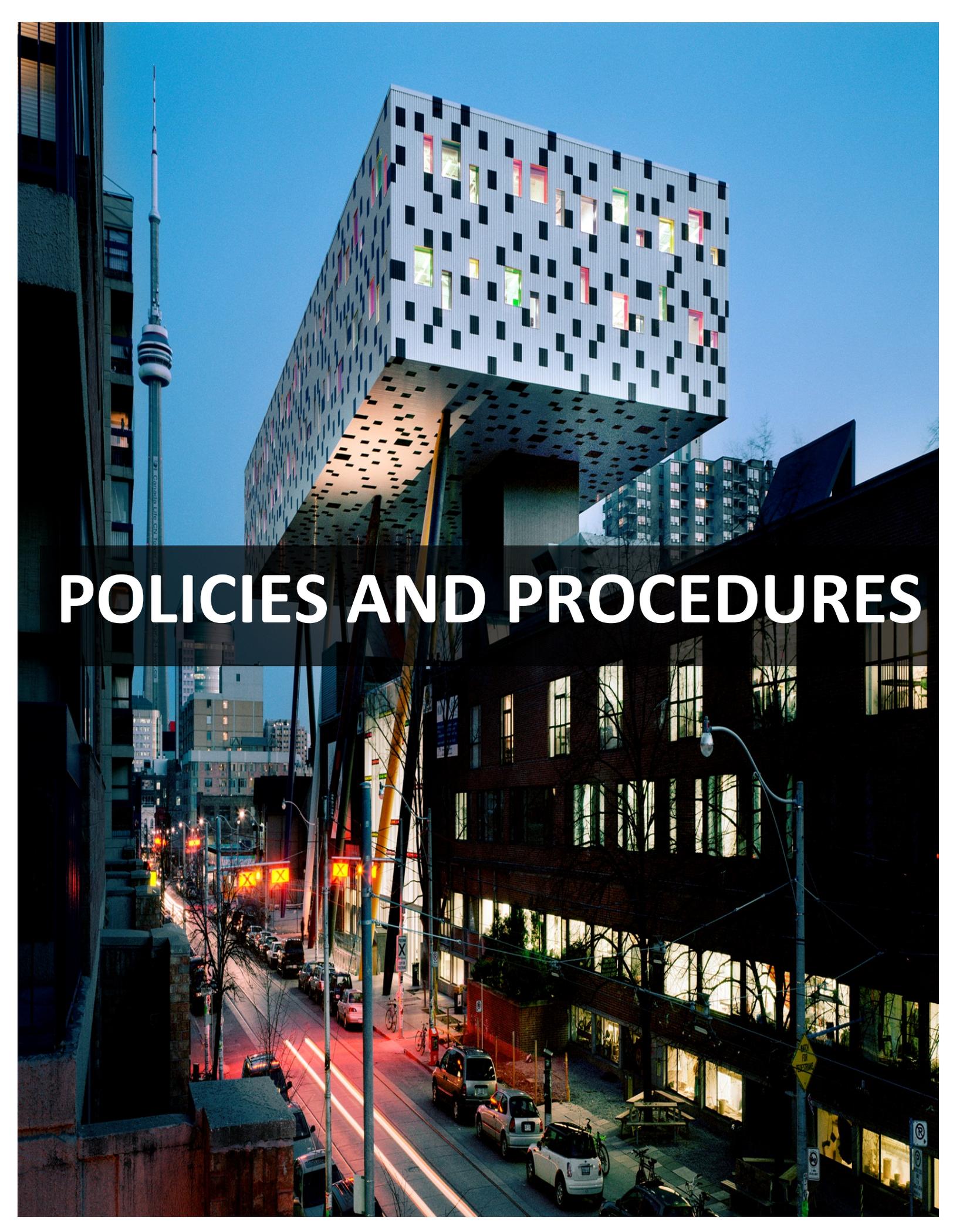


SUPERVISOR RIGHTS & RESPONSIBILITIES

Every supervisor is also considered to be a worker and has the same workplace duties and rights as a worker. But if you are also supervising others, the OSHA also gives you specific duties related to your role as a supervisor, including:

- a) Telling workers about hazards and dangers and responding to their concerns
- b) Showing workers how to work safely and making sure they follow the law, and the workplace health and safety policies and procedures
- c) Making sure workers wear and use the right protective equipment
- d) Doing everything reasonable in the circumstances to protect workers from being hurt or getting a work related illness



A photograph of a modern building with a perforated facade and colorful windows, set against a city street at dusk with the CN Tower in the background. The building's facade is a grid of white panels with black perforations, and some windows are illuminated with vibrant colors like red, green, and yellow. The building is cantilevered over a street. In the background, the CN Tower is visible against a blue twilight sky. The foreground shows a city street with cars, streetlights, and a brick building with large windows.

POLICIES AND PROCEDURES

POLICIES

The policies relating to Safety and Risk Management can be downloaded at:
http://www.ocadu.ca/about_ocad/risk_management/policies.htm. The policies that you will likely reference to are:

- **Health and Safety Policy** - This policy is mandated by law; outlines OCAD U's commitment to health and safety; updated annually and approved by the Board.
- **Fire & Flame Policy** - This policy prohibits incorporating fire or flame into artwork without obtaining a written Fire and Flame Permit. Smoke producing equipment are strictly prohibited.
- **Work Refusal Procedure** - This procedure outlines the process for work refusals, identifies the parties involved and the responsibilities and procedure to follow for work refusals.
- **Scented Products Guidelines** - Raises awareness of the effects of scented products on some individuals and provides "best practices" for the management of scent-related complaints
- **Temporary Installation of Student Art Work** - Facilitates the safe exhibition of artwork and applies to student artwork installed in OCAD U public spaces
- **Smoke Free Policy** - This policy protects the OCAD U community from unwanted exposure to tobacco smoke
- **Reporting and Resolving Health and Safety Concerns** - This procedure provides direction on how to report health & safety concerns that affect you and your colleagues.



PROCEDURES

1) Dealing with Emergencies

In the event of an emergency wherein incidents or behaviours presenting immediate or imminent danger should be reported immediately to OCAD U Security:

- a) If you can do so safely, pick up a red emergency phone to connect to Security immediately. (Knocking a red emergency phone off the hook alerts Security of your location and sends assistance).
- b) Or, pick up a white courtesy phone or OCAD office phone and dial 511.
- c) If none of the above options are possible, use a mobile phone to dial 911



2) Injured person(s)

Campus Security personnel are certified in First Aid/CPR and will be the first responder for all medical emergency situations on campus. First Aid Kits (*Attached: Appendix 5*) and A.E.D.s are located throughout the campus and Campus Security is equipped with First Aid Response Bags. The Incident & Investigation Report Form (*Attached: Appendix 2*) should be filled out following any incident.

Non-injury incidents, near misses or “close calls” should also be reported on the Incident & Investigation Report Form. This will help us ensure that the situation is dealt with and other staff, faculty or students are not exposed to the hazard.

For incidents resulting as a critical injury, where the injury:

- a) Places life in jeopardy;
- b) Produces unconsciousness;
- c) Results in substantial loss of blood;
- d) Involves the fracture of a leg or arm but not a finger or toe;
- e) Involves the amputation of a leg, arm, hand or foot but not a finger or toe;
- f) Consists of burns to a major portion of the body; or
- g) Causes the loss of sight in an eye.

Please refer to Policy 5002 – Critical Injury Procedures (*Attached: Appendix 3*) or online:

http://www.ocadu.ca/Assets/pdf_media/ocad/about/policies/administrative_policies_5002_critical_injury_procedures.pdf

3) Workplace Violence

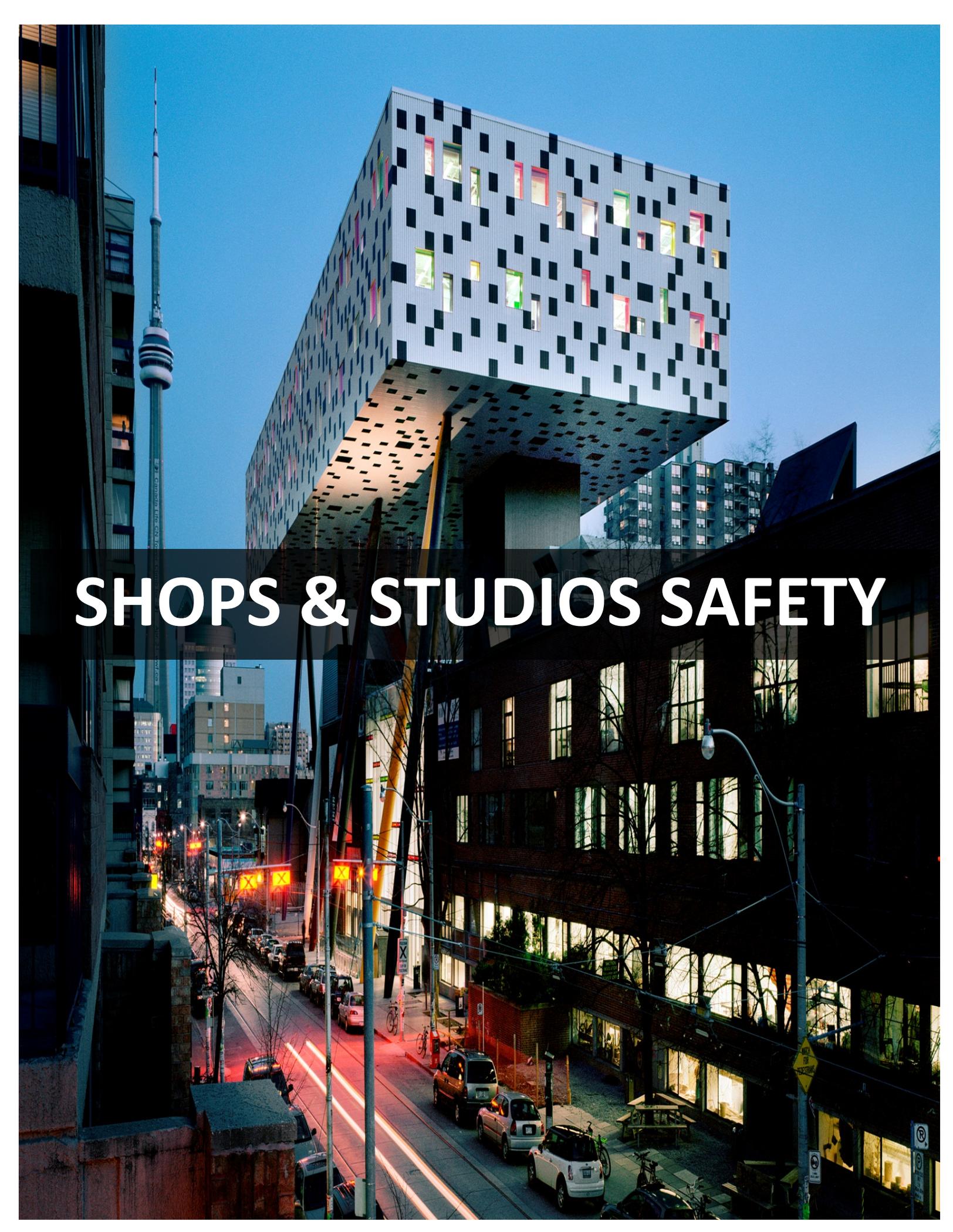
OCAD University expects that any incidents of violence or threatening behaviour in its work and learning environment will be investigated and dealt with promptly by all relevant parties in a fair, consistent, thorough, and confidential manner

Incidents of a potentially violent or threatening nature but not presenting immediate or imminent danger should be reported immediately to:

- a) For students – relevant Chair, Associate Dean or Associate VP, Students;
- b) For staff – relevant Supervising Manager or Director, Human Resources; or
- c) For faculty – relevant Chair, Associate Dean or Director, Human Resources.

For more information see Policy 5005 – Response to Violent or Threatening

Behaviour: http://www.ocadu.ca/Assets/pdf_media/ocad/about/policies/administrative_policies_5005_response_to_threatening_or_disturburing_behaviour_policy.pdf



SHOPS & STUDIOS SAFETY

SHOPS & STUDIOS PROGRAM

This section contains specific information for your studio in relation to:

1. Shop & Studio Dress Code
2. Chemical Safety
3. Equipment Safety

Within the program, you will be provided with the necessary tools and information to help guide you through the processes and procedures to work safely in the shop and studio. This form of work information and instruction is called: Safe Operating Procedures. Safe Operating Procedures (SOPs) are developed to ensure that where hazardous processes, techniques, chemicals or equipment are performed or used there are clear written instructions that identify the potential hazards and the correct steps to follow to complete the task safely. SOPs are used to train new staff and students, as a reference when a task is to be performed, and as documentation of the correct procedure.

The Studio's chemical, equipment and operational safe operating procedures are included in the appendix 8 for your review.

SHOPS & STUDIOS DRESS CODE

Studio Management asks all faculty, staff and students to observe the following rules in all shops, and in certain studios.

Faculty and technicians will expect students' cooperation if they wish to use the shops and studios. Faculty and technicians are empowered to suspend shop privileges if in their opinion a user may be putting him/herself or others in danger.

- Wear sturdy and appropriate shoes:** e.g., sneakers, closed leather shoes or work boots - NOT open-toed sandals, flip-flops or high heels.
- No bare midriffs if exposure** to chemicals or tools/machinery is likely, wear an apron if necessary.
- Face-shields or safety glasses **MUST** be worn when using machinery, and other **personal protective equipment** (e.g., gloves, splash goggles, dust mask, respirator, hearing protection) must be worn if needed.
- No long, dangling clothing or accessories:** (scarves, flowing sleeves, chains, long necklaces, etc.). Long hair must be tied back.



CHEMICAL SAFETY

The Chemical Safety Program includes:

1. Training Requirements

WHMIS (Workplace Hazardous Materials Information System) is a Canada-wide system designed to give employers and workers information about hazardous materials used in the workplace. Under WHMIS, there are three ways in which information on hazardous materials is to be provided:

- Labels
- Material Safety Data Sheets
- Worker Education Programs

It is important for you to understand the purpose of the WHMIS program. Any worker who handles, works with, or works in proximity to a hazardous material (controlled product) or has a potential for exposure will receive training regarding the potential hazards of exposure.

This training program is available online, please log into CANVAS to complete the Chemical Safety Training.

2. Chemical Matrix *(Attached: Appendix 8)*

This is an inventory of all the chemicals for the studio. This will serve as a quick overview of the chemical which includes the WHMIS classification, safe handling, storage and disposal procedures.

3. Spill Kits

Spill kits are found in each studio *(Attached: Appendix 7)* and used to help contain spills in the case of an accidental spill. Please refer to the procedure - Responding to Chemical Emergencies for further details and instructions.

Inside a spill kit, you will find:

- Sorbent Pads – 17" x 19"
- Sorbent Socks – 3" x 48"
- Sorbent Pillows – 8" x 18"
- Safety Goggles
- Nitrile Gloves
- Disposal Bag



The Chemical Matrix, Spill Kit and MSDS binder located inside each studio. Ask your Studio Technician to help you find this and if you need additional assistance with any unfamiliarity to chemicals you may have.

4. Procedures for working with chemicals

Please review the following procedures (*Attached: Appendix 8*):

- a) Screening procedures for introducing new chemicals to OCAD U
- b) Managing MSDS and Labels
- c) Transporting Chemicals within OCAD U
- d) Storing Chemicals
- e) Responding to Chemical Emergencies
- f) Safety Procedures for Chemical Users
- g) Chemical Waste Disposal Procedures



5. Personal Protective Equipment (PPE)

The following type of Personal Protective Equipment (PPE) is available in your studio. Please talk to your faculty or technician for more information and how you can obtain the specific PPE to increase your protection.

Please ensure that the students under your care are all wearing the required Personal Protective Equipment.

Type	Brand
Safety Glasses	Safety Glass
	Visitor Safety Glass
	Chemical Splash Goggle
	Clear Face shield
	Honeywell North Ratchet Head Gear (for above)
Gloves	Blue 4 mil. Nitrile disposable glove (S-L)
	Grease Monkey 5 mil black nitrile, Powder Free (S-L)
	Mapa Stansolv Glove (7-10)
Respirators	N95 Disposable Respirator
	3M 1/2 face respirator (S-L)
	OV/AG Cartridge
	P100 filter
Aprons	Ansell Yellow Urethane 35X45 4oz Yellow Urethane Apron

EQUIPMENT SAFETY

Where specific questions related to machine use arises, they should first be directed to your immediate supervisor. The Office of Safety & Risk Management is also available to assist you in fulfilling the health and safety responsibilities of your job.

1. Studio Equipment Safe Operating Procedures

These SOPs will provide a step-by-step guide on how to use the machines. It is important that you familiarize yourself with these SOPs prior to using any of the equipment in the studio.

The contents of each SOP include:

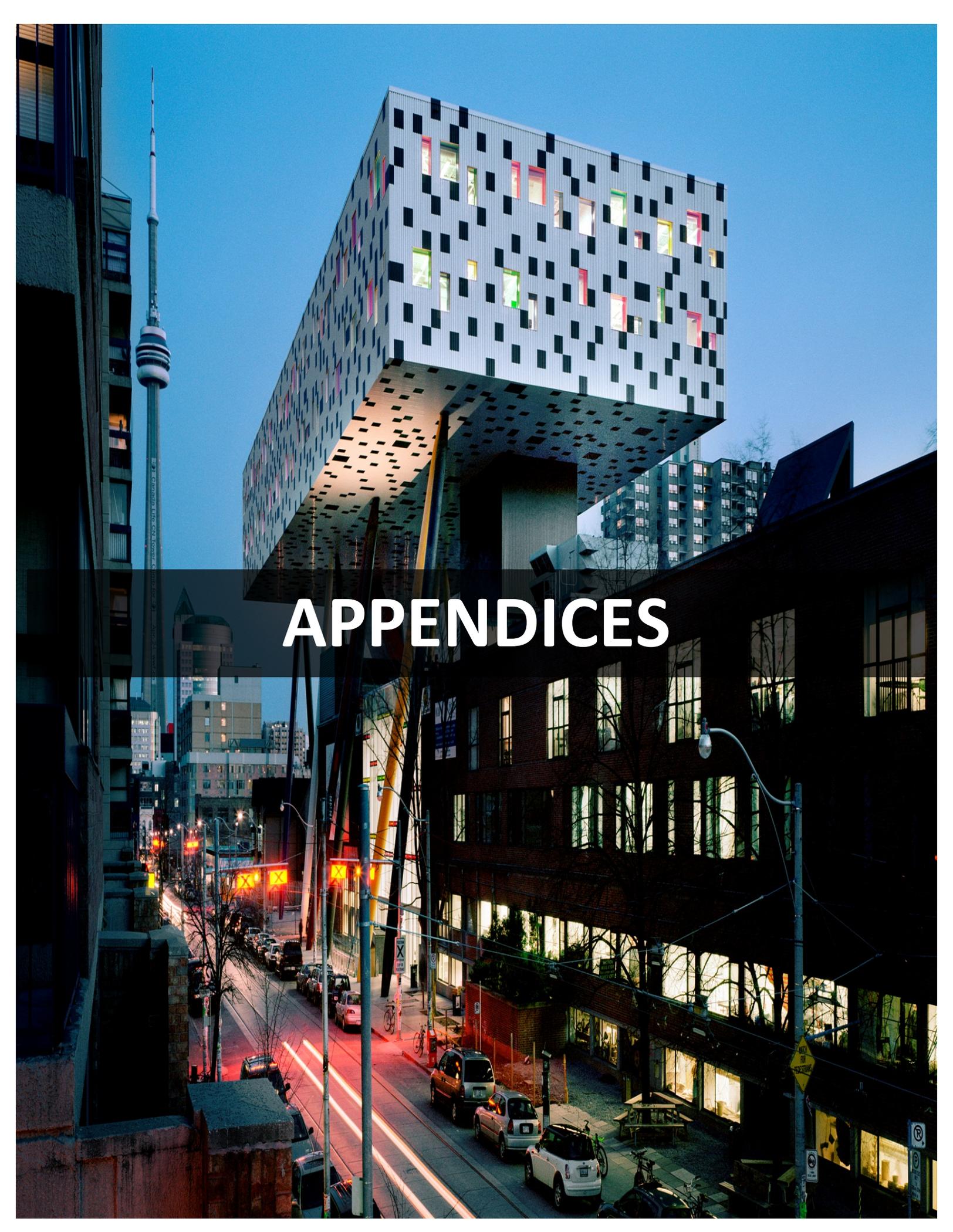
- a) Personal Protective Equipment requirements and recommendations
- b) Pre-use Inspection Checklist
- c) General Safety Guidelines
- d) Safe Operating Procedure
- e) Lockout / Tag-out
- f) Maintenance and Inspection Checklist

2. Jewellery Studio SOPs

The following SOP's are available for your review (*Attached: Appendix 8*):

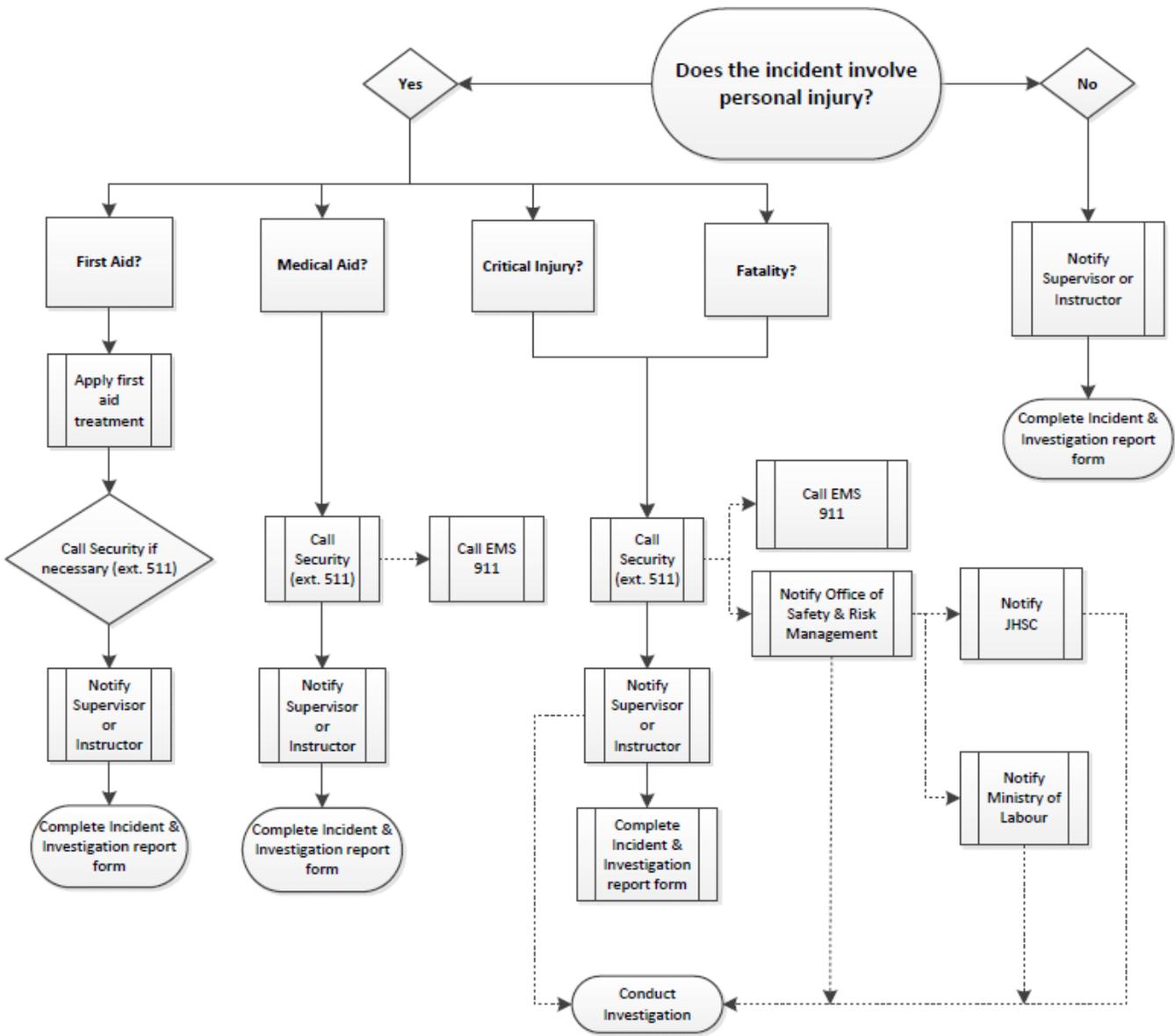
- | | |
|------------------------------|-----------------------|
| a) Annealing Booth | q) Steam Generator |
| b) Belt Disc Sander | r) Ultrasonic Cleaner |
| c) Bench Grinder | s) Vacuum Cast |
| d) Bench Shear | t) Vulcanizer |
| e) Casting Centrifuge | |
| f) Casting Torch | |
| g) Draw Bench | |
| h) Drill Press | |
| i) Electric Kiln | |
| j) Flexible Shaft Power Tool | |
| k) Jeweller's Saw Frame | |
| l) Kick Press | |
| m) Mini Lathe | |
| n) Pickle Pot | |
| o) Polishing Bench Lathe | |
| p) Rotary Tumbler | |





APPENDICES

Appendix 1: What To Do In Case Of An Incident



Appendix 2: Incident & Investigation Report Form



OCAD UNIVERSITY INCIDENT & INVESTIGATION REPORT FORM

Send to The Office of Safety & Risk Management within 24 hours of the incident – 115 McCaul r.2210

PERSON INVOLVED: Employee Student Contractor Visitor

I. INCIDENT TYPE

- | | | |
|--|---|---|
| <input type="checkbox"/> First Aid (immediate care) | <input type="checkbox"/> Medical Aid (hospital or physician) | <input type="checkbox"/> Loss Time (medical aid, missed work) |
| <input type="checkbox"/> Near Miss (no injury, potential hazard) | <input type="checkbox"/> Occupational Illness (skin, respiratory etc) | <input type="checkbox"/> Property Damage |
| <input type="checkbox"/> Critical Injury | <input type="checkbox"/> Fatality | |

II. PERSONAL INFORMATION (Bold – Mandatory)

Name: _____ Male Female
Telephone: (____) _____ **Age:** _____
Address: _____

III. EMPLOYEE SECTION

Position: _____ **Department:** _____
Supervisor/Instructor: _____

IV. CONTRACTOR and VISITOR SECTION

OCAD U Contact: _____ Company name: _____
 Company address: _____
 Visitor reason for being at OCAD U: _____

V. INCIDENT DESCRIPTION (Please complete all)

Date (dd/mm/yy): _____ **Time:** _____ a.m. / p.m. **Date Reported (dd/mm/yy):** _____ **Time:** _____ a.m. / p.m.
Reported to: _____ **Position:** _____ **Telephone:** (____) _____
Witness: _____ **Telephone:** (____) _____
Location of Incident: _____ **Room Number:** _____
Incident Description: (what you were doing, what happened, what injuries occurred, equipment details, environmental conditions?)

Type of Incident:

- | | | | |
|---|--|---|---|
| <input type="checkbox"/> Cut | <input type="checkbox"/> Overexertion | <input type="checkbox"/> Fall from heights | <input type="checkbox"/> Assault |
| <input type="checkbox"/> Slip/Trip | <input type="checkbox"/> Repetitive Strain | <input type="checkbox"/> Harmful Substances | <input type="checkbox"/> Fire/Explosion |
| <input type="checkbox"/> Fall | <input type="checkbox"/> Caught/Struck by | <input type="checkbox"/> Burn | <input type="checkbox"/> Motor vehicle |
| <input type="checkbox"/> Other (specify): _____ | | | |

Body Part(s) Affected:

- | | | | | | | |
|---------------------------------|----------------------------------|-------------------------------------|---|---|---|--|
| <input type="checkbox"/> Head | <input type="checkbox"/> Neck | <input type="checkbox"/> Upper Back | <input type="checkbox"/> <input type="checkbox"/> Shoulder | <input type="checkbox"/> <input type="checkbox"/> Wrist | <input type="checkbox"/> <input type="checkbox"/> Hip | <input type="checkbox"/> <input type="checkbox"/> Ankle |
| <input type="checkbox"/> Face | <input type="checkbox"/> Chest | <input type="checkbox"/> Lower Back | <input type="checkbox"/> <input type="checkbox"/> Upper Arm | <input type="checkbox"/> <input type="checkbox"/> Hand | <input type="checkbox"/> <input type="checkbox"/> Upper Leg | <input type="checkbox"/> <input type="checkbox"/> Foot |
| <input type="checkbox"/> Eye(s) | <input type="checkbox"/> Abdomen | | <input type="checkbox"/> <input type="checkbox"/> Elbow | <input type="checkbox"/> <input type="checkbox"/> Finger(s) | <input type="checkbox"/> <input type="checkbox"/> Knee | <input type="checkbox"/> <input type="checkbox"/> Toe(s) |
| <input type="checkbox"/> Ear(s) | <input type="checkbox"/> Pelvis | | <input type="checkbox"/> <input type="checkbox"/> Lower arm | | <input type="checkbox"/> <input type="checkbox"/> Lower Leg | |
| <input type="checkbox"/> Teeth | | | | | | |

Has injury/problem occurred in the past? Yes No If yes, explain:

VI. TREATMENT INFORMATION

Check all that apply:

- First Aid Ambulance Emergency Room Hospital
 Physician's Office Health and Wellness Clinic

Name of Hospital/Provider: _____ Date Visited (dd/mm/yy): _____

VII. PROPERTY DAMAGE

Damaged property, equipment or material: _____

Describe Damage: (how, what happened?) _____

VIII. SUPERVISOR'S ACTION PLAN

Root Cause Analysis: (check all that apply)

Unsafe Acts

- Improper work technique
- Safety rule violation
- Improper PPE or PPE not used
- Operating without authority
- Failure to warn or secure
- Operating at improper speeds
- By-passing safety devices
- Guards not used
- Improper loading or placement
- Improper lifting
- Servicing machinery in motion
- Horseplay
- Drug or Alcohol use
- Unnecessary haste
- Unsafe act of others
- Other: _____

Unsafe Conditions

- Poor workstation design or layout
- Congested work area
- Hazardous substances
- Fire or explosion hazard
- Inadequate ventilation
- Improper material storage
- Improper tool or equipment
- Insufficient knowledge of job
- Slippery conditions
- Poor housekeeping
- Excessive noise
- Inadequate guarding of hazards
- Defective tools/equipment
- Insufficient lighting
- Inadequate fall protection
- Other: _____

Management

- Lack of written procedures or policies
- Safety rules not enforced
- Hazards not identified
- PPE unavailable
- Insufficient worker training
- Insufficient supervisor training
- Improper maintenance
- Inadequate supervision
- Inadequate job planning
- Inadequate hiring practices
- Inadequate workplace inspection
- Inadequate equipment
- Unsafe design or construction
- Unrealistic scheduling
- Poor process design
- Other: _____

Preventive Action (explain corrective measures and recommendations):

1. _____
2. _____
3. _____
4. _____
5. _____

IX. SIGNATURES (Grey area for the Office of Safety & Risk Management)

Person Involved:	Supervisor/Instructor/OCAD U contact:	Date (dd/mm/yy):
Reviewed by:	Signature:	Date (dd/mm/yy):

FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY ACT, 1987

The information on this form is collected under the legal authority of the Colleges and Universities Act, R.S.O. 1980, C.272, s5. R.R.O. 1980, Reg. 640, and the Occupational Health and Safety Act, R.S.O. 1990, C.O.1, S51, S52. R.R.O. 1990 Reg 851, S5. This information is used for the purpose of documenting and investigating incidents/accidents occurring on University property. For further information, please contact The Director, Risk Management, 100 McCaul, Toronto, Ontario M5T 1W1 (416)977-6000, ext. 2920

Appendix 3: Critical Injury Procedures

1. Purpose

As per the “Occupational Health & Safety Act - Section 51.(1) Notice of death or injury – Where a person is killed or critically injured from any cause at a workplace, the constructor, if any and the employer shall notify an inspector, and the committee, health and safety representative and trade union, if any, immediately of the occurrence by telephone, telegram or other direct means...”. In the case of death or critical injury, OCAD is required to immediately report the incident to the Ministry of Labour.

Further, as per “Section 51.(2) Preservation of wreckage – Where a person is killed or is critically injured at a workplace, no person shall, except for the purpose of,

- a. saving life or relieving human suffering;
- b. maintaining an essential public utility service or a public transportation system; or
- c. preventing unnecessary damage to equipment or other property,

interfere with, disturb, destroy, alter or carry away any wreckage, article or thing at the scene of or connected with the occurrence until permission so to do has been given by an inspector.”

2. Scope

Following the requirements of OCAD’s Health & Safety Policy # 5001, these procedures apply to all incidents involving a faculty, staff, contractor, or student monitor while working on campus.

As per the “Occupational Health & Safety Act ONT. REG. 834 – CRITICAL INJURY – DEFINED

R.R. O. 1990, Reg. 834, as am. O. Reg., 351/91 (Fr.).

1. For the purposes of the Act and Regulations, ‘critically injured’ means an injury of a serious nature that,

- a) places life in jeopardy;
- b) produces unconsciousness;
- c) results in substantial loss of blood;
- d) involves the fracture of a leg or arm but not a finger or toe;
- e) involves the amputation of a leg, arm, hand or foot but not a finger or toe;
- f) consists of burns to a major portion of the body; or
- g) causes the loss of sight in an eye.”

3. Policy

The following procedures must be followed carefully:

- Notify Security immediately (x 511) so that the necessary emergency response measures can be taken, and the site secured
- Notify the Director Safety & Risk Management (x 2920) or via cell (647) 210-9611 so that they can:
 - Immediately notify the Ministry of Labour (MoL) with a brief report.
Note: This is required even if the injury is deemed a “possible” critical injury
 - Attend the scene to begin investigations
 - Notify a Joint Health & Safety Committee worker representative to assist with the investigation
- The scene is to be photographed if at all possible
- Important - Never move anything at a critical injury site until the MoL Inspector has arrived, except to alleviate human suffering or to preserve property from further damage.

Appendix 4: Work Refusal Policy

1. Purpose:

The purpose of this procedure is to describe the process to address work refusals should they occur; it identifies the various workplace parties involved in a work refusal and the process which must be followed to assure that the safety concern, which triggered the work refusal process, is adequately addressed.

It also ensures that the OCAD University ("OCAD U" or the "University" complies with the Occupational Health and Safety Act (OHSA), R.S.O. 1990, Section 43 ("The Act").

2. Scope:

This procedure applies to all employees, faculty, and students who are paid to do research, or carrying out any other work that takes place on or off-campus that is under the purview of OCAD U.

3. Definitions:

- a. **Certified member:** a Joint Health and safety Committee member who is certified in accordance with the OHSA.
- b. **Dangerous circumstance:** a situation in which a provision of the Act is contravened; the contravention poses a danger or a hazard to a worker and the danger or hazard is such that any delay in controlling it may seriously endanger a worker.
- c. **Safety hazard:** something that has the potential to cause physical harm to people or damage to property.

4. Procedure:

4.1 *Application of OHSA Work Refusals*

- All OCAD U employees can exercise their right to refuse unsafe work when they believe a safety hazard or dangerous circumstance exists in the workplace.
- Supervisors and employees must distinguish this work refusal procedure from every day due diligence associated with the recognition, reporting and correcting of workplace safety hazards.

4.2 *Initiating OHSA Work Refusals*

The worker shall:

- Notify his or her supervisor that he or she is refusing to perform unsafe work because he or she has reason to believe that performing the work may endanger themselves or another worker.
- Please be specific and explain in detail your reason for refusing work.
- Remain in a safe place near the workstation until the investigation takes place.

4.3 OHS Work Refusal Investigation

Step 1: Internal Resolution:

- a. Upon an employee reporting a work refusal, the Supervisor requests the employee to specifically explain why he or she is refusing work.
- b. If the work refusal is not safety related, the work refusal stops, and the employee returns to work, and addresses the concern using other appropriate venues.
- c. However, if the work refusal is safety related, the Supervisor must immediately contact:
 - JHSC worker member (preferably a certified member)
 - Director, Safety and Risk Management (or designate)
- d. Supervisor leads a joint investigation of the matter with the refusing employee, the JHSC worker member, and the Director Safety and Risk Management.
- e. If the employee feels that their safety is no longer threatened with the results and corrective measures implemented following the investigation, they may return to work.

Step 2: External Resolution:

- a. The employee may not be satisfied with the remedial action that is taken, and they may continue to refuse work if he or she has reasonable grounds to believe that the work is still likely to endanger someone at OCAD U.
- b. At this point, a Ministry of Labour inspector must be called in to investigate. The Director, Safety and Risk Management will contact the Ministry of Labour and report the work refusal.
- c. Pending the arrival of the Ministry of Labour inspector:
 - The refusing employee remains in a safe place near the workstation.
 - The refusing employee may be assigned reasonable alternate work.
 - The Supervisor may ask another employee to perform the work that was refused; however this employee must be advised of the other employee's refusal and of his reasons for the refusal in the presence of the JHSC worker member.
- d. Once the Ministry of Labour Inspector is onsite, a joint investigation will be carried out with the MOL inspector, the employee, the Supervisor, the JHSC member, and the Director, Safety and Risk Management.
- e. The MOL inspector will issue a directive, and this must be complied with, pending appeals (if necessary)
- f. The employee, Supervisor, JHSC member, and Director Safety and Risk Management must complete the "Work Refusal Report"

4.4 MOL Decision

- a. Following the investigation, the MOL will issue a decision.
- b. The decision must be complied with
- c. The decision can be appealed, pending which it must still be complied with

5. Related Documents

- Work Refusal Report
- Work Refusal Flow Chart

Work Refusal Report Form

SECTION A: WORKER INFORMATION (to be completed by employee)	
Employee Name:	Employee #:
Department:	
Supervisor Reported to:	Date & Time Reported:
Location of work refusal:	Task Assigned:
Employee's reason for work refusal (please provide specific details):	
Employee's Signature:	Date:

SECTION B: SUPERVISOR INFORMATION (to be completed by Supervisor)	
Supervisor Name:	Date & Time Notified of Work Refusal:
Immediate action taken (if any):	
INVESTIGATION DETAILS: (STEP 1 - INTERNAL RESOLUTION)	
Date and Time of Investigation:	
JHSC Worker Member:	Office of Safety and Risk Mgmt:
Supervisor's observations of existing conditions and hazards during investigation (please provide specific details):	
Does Supervisor agree that hazardous conditions exist?	
<input type="checkbox"/> YES-Complete Section C Action Plan <input type="checkbox"/> NO-PROCEED TO SECTION D(2)	
Supervisor's Signature:	Date:

SECTION C: RECOMMENDED ACTION PLAN TO RESOLVE CONCERN (completed by Supervisor and Employee)

Action	Target Date	Completion Date
This Action Plan agreed upon by both the worker and Supervisor on (Date):		
Employee's Signature:	Supervisor's Signature:	
Once Action Items are complete, proceed to Section D1 below for signature. If this Action Plan is not agreed upon by Employee and Supervisor, proceed to Section D2.		

SECTION D: RESOLUTION OF WORK REFUSAL (completed by Safety and Risk Mgmt. and JHSC Worker Member)

D1) COMPLAINT RESOLVED - Employee is satisfied that the work is no longer hazardous	
Date:	Time:
Employee Signature:	JHSC Worker Member Signature:
Supervisor Signature:	Safety and Risk Mgmt. Signature:

D2) COMPLAINT IS NOT RESOLVED – (STEP 2: EXTERNAL RESOLUTION)

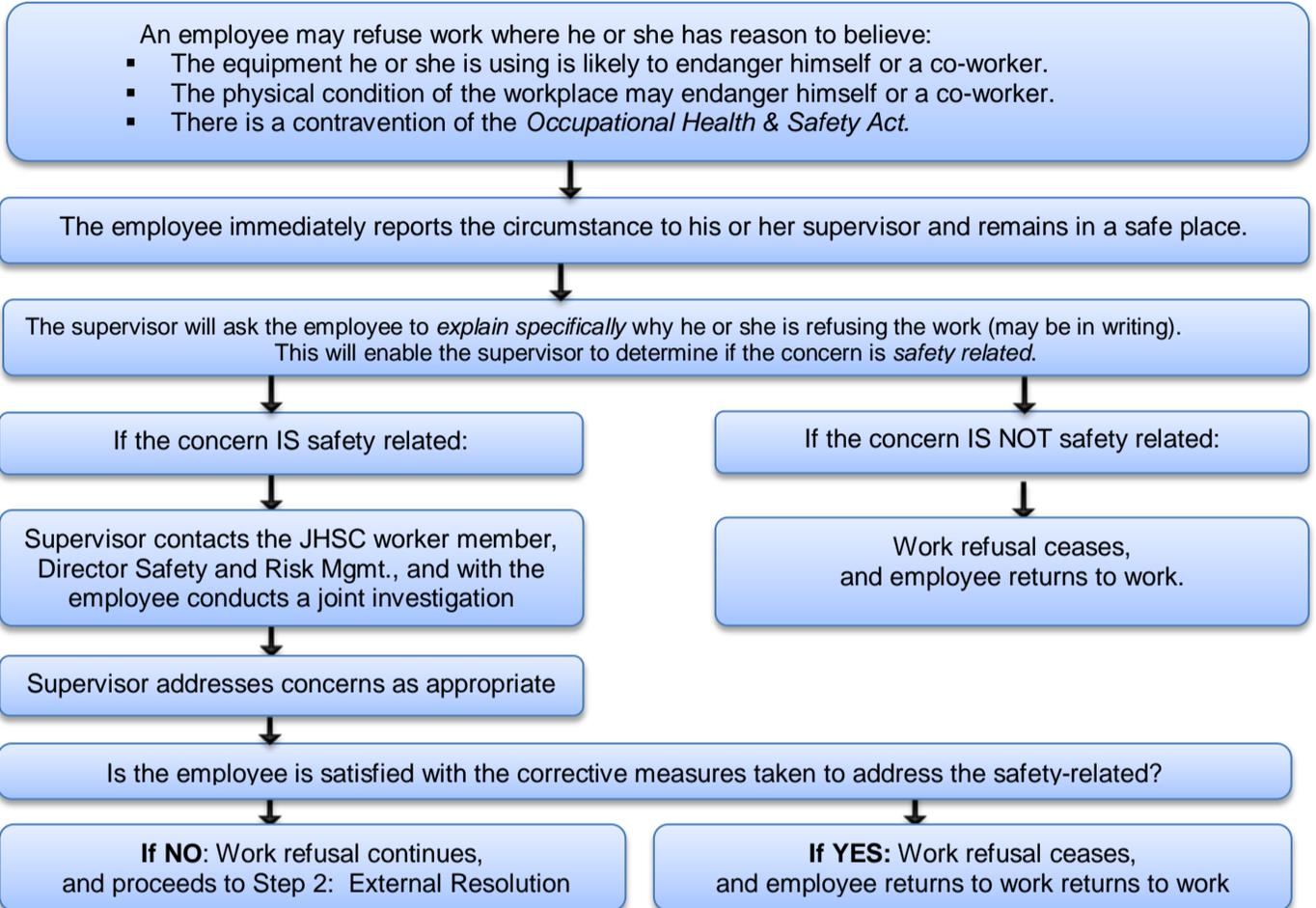
Explain why work refusal is not resolved:		
Date:	Time:	
Employee Signature:	JHSC Worker Member Signature:	
Supervisor Signature:	Safety and Risk Mgmt. Signature:	
MINISTRY OF LABOUR INSPECTOR TO BE CONTACTED FOR INVESTIGATION & DECISION 1-877-202-0008		
Time MOL contacted:	Time MOL Inspector arrived:	Time MOL Inspector departed:
MOL Investigation Notes (Findings, Decision, Orders Written, etc.):		

Work Refusal Flow-Chart

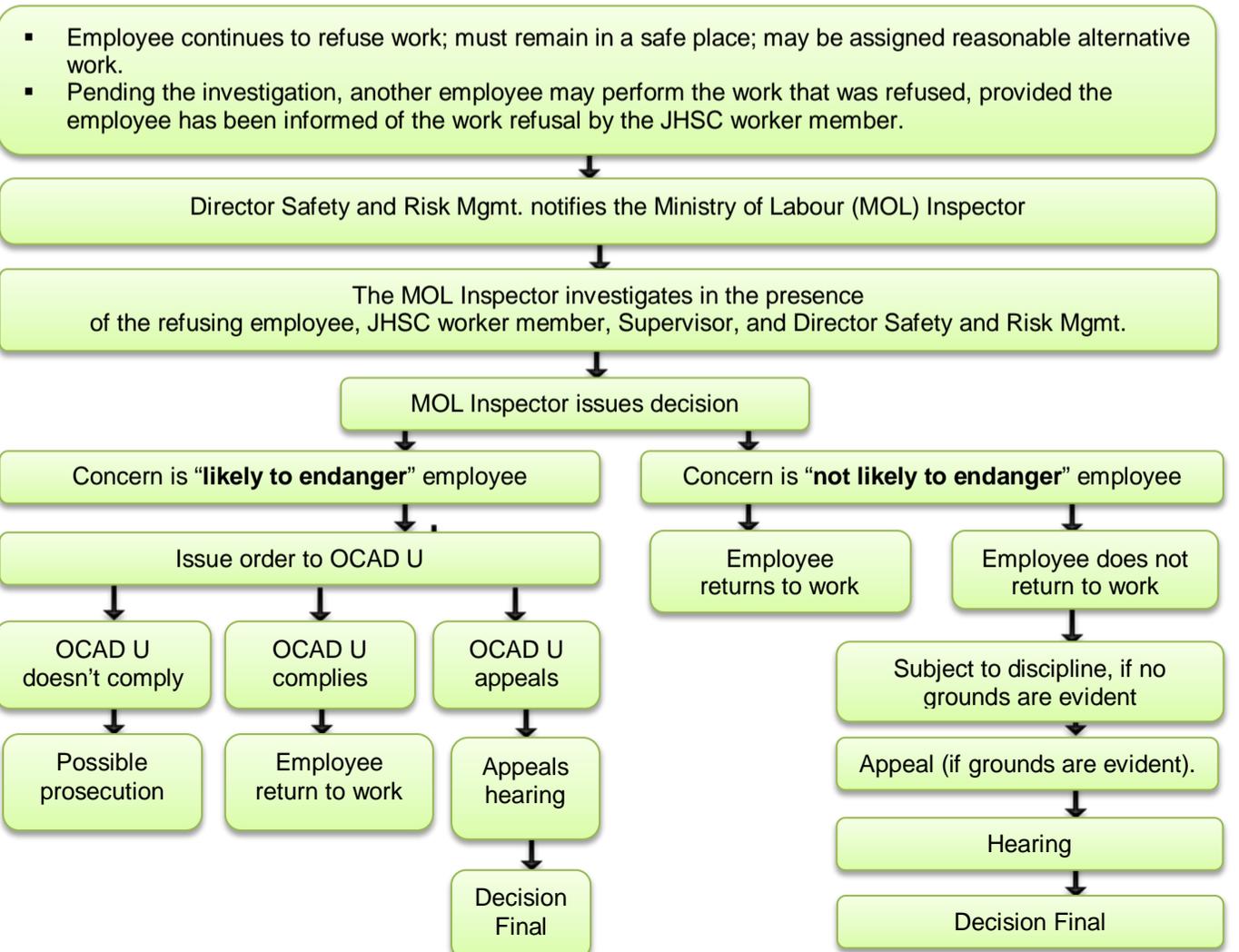
Using your right to refuse unsafe work

The *Occupational Health and Safety Act*, Section 43, gives an employee the right to refuse unsafe work. The flowchart below outlines the procedure to follow when this right is exercised in the workplace.

STEP 1: Internal Resolution



STEP 2: External Resolution



Appendix 5: First Aid Kit Locations

Location	Level	Room	Description
100 McCaul	1	-	Front desk lobby
		100	Security office
		108	Wood Shop
		117f	Plastics Shop
		122	Metal Shop
		130	Rapid Prototype
		152	Foundry/Mouldmaking Studio
		159	First year sculpture installation shop
	2	201	Fibre Studio
		217	Jewellery Studio
		225	Print Services
		239	Mail Room
		241	Central Storage
		253	Ceramics Studio
	3	315a	Faculty of liberal studies
		317a	IT Services Helpdesk
		341	AV loans
		352	Integrated Media
		375	Printmaking Studio - Intaglio/etching
		384	Printmaking Studio - Relief
		387	Printmaking Studio – Lithography
	389	Printmaking Studio - Screen printing	
	4	401	Faculty of Art offices
		417	Photography Studio
		466	Media and Colour studio
		475	Drawing & Painting studio
	5	500	Faculty of Design offices
		517	ED/ID shop
		540	ED/ID open space
	6	662	Open space
664		Mobile Computing Helpdesk	
49 McCaul	1	-	Kitchenette
51 McCaul	1	5120	Campus Life and Career Services
	2	5215	Centre for Students with Disabilities
52 McCaul	1	-	Kitchenette
	2	-	Open Studio Space
	3	-	Open Studio Space
60 McCaul	1	-	Kitchenette
		-	Drawing & Painting/Printmaking Studio
205 Richmond	LL	7000	4th year drawing & painting studio
	G	7110	CCP studio
	3	7314	Workspace
	4	7415	Assembly space
	5	7515	Photocopy room
	6	7620	IAMD studio
	6		DIGF/CADN studio
7	7701	DMRii office	

Appendix 6: Emergency Eyewash and Shower Station Locations

Building	Department	Room	Bottle	Station	Shower
100 McCaul	Foundry	152		√	
	Mouldmaking	154	√		
	SCIN	170	√		
	Metal	123		√	
	Plastics	117e		√	
	Fibre	201	√		
	Ceramics	253	√		
	Jewellery	217		√	
	Jewellery	218		√	
	Integrated Media	358		√	
	Printmaking	375a		√	√
	Printmaking	387		√	
	Printmaking	389a		√	
	Printmaking	381a		√	
	Photography	417p		√	
	Photography	417g		√	
	Photography	417		√	
	Photography	Hallway		√	
	D&P	466		√	
D&P	475		√		
ED/ID	517		√		
60 McCaul	Kitchenette	-	√		
	Open Studio	-	√		
52 McCaul	2 nd floor	-	√		
	3 rd floor	-	√		
205 Richmond	Basement	-	√		

Appendix 7: Spill Kit Locations

Location	Level	Room	Description
100 McCaul	1	108	Wood Shop
		117f	Plastics Shop
		122	Metal Shop
		130	Rapid Prototyping
		152	Foundry Studio
		154	Mouldmaking Studio
		159	First year sculpture installation shop
	2	201	Fibre Studio
		217	Jewellery Studio
		253	Ceramics Studio
	3	352	Integrated Media
		375	Printmaking Studio
	4	417	Photography Studio
		Drawing & Painting Studio	
5	517	ED/ID shop	

**Studio Equipment
Safe Operating Procedures**



Jewellery Studio

Office of Safety & Risk Management
Rosalie Sharpe Pavilion
115 McCaul
Room 2210



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Annealing Booth



Machine	Annealing Booth
Location	Jewellery Studio
Manufacturer	Unknown
Applicable Legislation	<ol style="list-style-type: none">1. CAN/CSA-Z432-04 "Safeguarding of Machinery"2. CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask		✓
Respirator		✓
Ear Plugs / Ear Muffs		
Gloves		✓
Closed-Toe Foot Wear (no heels)	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is power cord free of frays and damage			
2	Is the area around the machine free of slip/trip hazards?			
3	Are flammable/combustible materials (i.e. paper) and degreasing, cleaning and spraying operations removed from the bench top?			
4	Are the tongs, holders and torches free of defects, grease and oil?			
5	Are you using the correct torch for the job? For melting larger amounts of metal and heavier work, use a casting torch.			
6	If you are mixing elements, are you using a carbon drag rod? Remember to preheat the drag rod end prior to introducing it to the molten metal to prevent molten metal from spitting back.			
7	Is an oxygen pressure regulator being used on the oxygen tank?			
8	Is there a fire extinguisher in close proximity?			
9	Is the mold stable on the table surface?			
10	Are the mold and clamp in good condition without defects?			
11	Is the ventilation/fume hood turned on? Alert the technician of poor draw at the exhaust slot.			
12	Are the protective curtains of the booth free of tears and holes?			
13	Is the handheld crucible secure in the holder?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- a) Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- b) If you have any questions or uncertainties, please ask your studio technician before use.
- c) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- d) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- e) Ensure you know where the emergency stops for the equipment prior to use.
- f) Do not remove or render machine guarding ineffective in any way.
- g) Ensure the work area is both well-lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Setting up molds on the Annealing Booth	
	<p style="text-align: center;">Picture 1</p> <ol style="list-style-type: none"> a) Put on your PPE b) Be cautious of other people working in the proximity when transporting/pouring hot metal or using casting equipment. c) Lightly oil the molds for the wire/sheet. d) Clamp the mold sections together securely, ensure there is no foreign matter preventing the mould halves from seating properly which will result in the metal leaking out of the mould. e) Set the mold, with clamp, up on the booth bricks or tray bricks (see picture 1).
2. Melting metal on the Annealing Booth	
	<p style="text-align: center;">Picture 2</p> <ol style="list-style-type: none"> a) Place the metal into the handheld crucible. b) Do not put your face over the work area-flux and, zinc fumes are toxic. c) Apply the flame (see picture 2) to the metal in the crucible to melt it – Please refer to the Torch-specific SOP for procedure. d) Once the metal is hot (5 to 10 sec.), add borax and sprinkle some charcoal on the mixture. e) If mixing different elements, use a carbon drag rod. Remember to preheat the drag rod end prior to introducing it to the molten metal to prevent molten metal from spitting back.
	<p style="text-align: center;">Picture 3</p> <ol style="list-style-type: none"> f) Heat the mold until the oil film starts to smoke. g) Using the crucible holder, slowly pour the metal in to the heated mold, maintaining a steady stream and with you torch playing on the metal as it enters the mould (see picture 3). h) The mould may be opened immediately with pliers and gloves and the ingot removed. Do not quench the ingot moulds. i) Quench the ingot in water and place in the pickle pot.
3. After using the Annealing Booth	
	<ol style="list-style-type: none"> a) Ensure that the torch is left in a secure upright position. b) Inform personnel in the vicinity that moulds are hot and/or leave a note on them indicating this. c) Allow cooling period-do not touch hot parts to prevent burns. d) Clean the work area and sweep the floor.

4.1. LOTO Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Annealing Booth
	Equipment Location: Jewellery Studio
	Total # of Energy Isolation Devices/locks: 1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	
	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	Junction Box	Lockout Hasp	Stop machine, pull disconnect arm to the off position, align the holes, install lockout hasp, lock and tag.	Attempt to start machine, visually confirm it will not start.

IFbooth CANNOT BE LOCKED OUT OR IFbooth FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the booth and bricks are secure and level.	
Ensure that the area around the booth is free of slip/trip hazards.	
Ensure that flammable/combustible materials (i.e. paper) and degreasing, cleaning and spraying operations removed from the immediate work area?	
Ensure that there is a fire extinguisher in close proximity.	
Ensure that the torch is free of defects and leaks.	
Ensure that the hose connectors on the torch are seated properly-the fitting which goes on the fuel gas side has a left hand thread, the side marked 'oxygen' has a right hand thread. Push the ends of the hose well up on the barbed hose connectors on the torch body. .	
Ensure that a carbon stir rod is available for mixing different elements.	
Ensure that an oxygen pressure regulator is being used on the oxygen tank.	
Ensure that the mold and clamp are in good condition without defects.	
Ensure that the ventilation/fume hood is operating properly.	
Ensure that the protective curtains are free of tears and holes.	
Ensure that the handheld crucible is secure in the holder.	
WEEKLY	✓
Check all connections and parts. Tighten loose connections with a wrench.	
MONTHLY	✓
Replace bricks if necessary.	
Check for leaks by brushing a thick soap solution on all connections. Open valve and watch for bubbles to appear at points of leakage. Never use the flame to check for leaks.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

Any changes or updates to this document must be recorded and maintained.

Initially Created By: The Office of Safety and Risk Management	Date: September 2011
Consultation: <ul style="list-style-type: none"> ▪ Studio Managers and Technicians ▪ Program Chairs and faculty 	Date: January-April 2013 April – May, 2013
Approval By: VPFA and VPA	Date: September, 2013
Review and Revisions Made By:	Date Revised:
Changes Made (<i>indicate sections</i>):	
Revisions Approved By:	Date of Approval:

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Belt and Disc Sander



Machine	Belt and Disc Sander Model: KC-702C (1" x 30" belt & 5" disc sander) Belt Sander Model: P-6-60
Location	Plastic Studio
Manufacturer	Name: King Canada Address: 700 rue Meloche, Dorval, Québec, H9P 2Y4 Tel: (514) 636-5464
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask	✓	
Respirator		✓
Ear Plugs / Ear Muffs	✓	
Gloves		
Closed-Toe Foot Wear (no heels)	✓	
Lab Coat / Protective Apron	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Are the power cords free of frays and damage?			
2	Do you know where the emergency stop feature is located? The sander has an attachment plug and receptacle (plug/socket combination) for cord connection, which may be used to disable the machine in the event of an emergency.			
3	Is the power cord free of frays or damage?			
4	Are guards in place and in good working order?			
5	Is the area around the sander free of slip/trip hazards?			
6	Has the debris/material from previous operations been removed?			
7	Are the sanding surfaces free of defects? Not showing backing, curling, buckling, nicks or cuts on the surface or edge, or damage due to creasing or poor handling?			
8	Is the gap between the belt and the table no larger than 1/16"?			
9	Is the belt tracking properly? To adjust, use the tacking knob.			
10	Is the size of the work piece suitable for the sander?			
11	Is the work piece free of magnesium? (Sanding magnesium results in fire).			
12	Is the work piece big enough to be held onto securely?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before sanding		
		<ul style="list-style-type: none"> a) Put on your PPE. Never wear gloves for a sander to prevent entanglement hazards. b) Ensure the distance between the disc and the table is kept to a maximum of 1/16" to prevent pinch point hazard. c) Turn on the power- Wait for the belt to reach full speed before using d) Check the sanders stability while running BEFORE operating on it-ensure it does not wobble or run out. e) Hold small or thin pieces of stock in a jig or holding device to prevent injuries to the fingers or hands. f) Do not force the work piece on the surface g) The sander has an attachment plug, which may be used to disable the machine in the event of an emergency.
2. Belt Sanding		
	Picture 1	<ul style="list-style-type: none"> a) Place the material on the sander against the forward rotation of the belt to prevent kickback, while keeping your fingers as far away from the belt as possible to prevent pinch point, entanglement and drawing in hazards between the belt or disc and the machine frame or work table. b) Hold the work piece firmly with both hands-loss of control can result in injury. c) Apply only enough pressure so that the belt removes the material-do not apply too much pressure. d) If horizontal, place the material on the sander in a way to prevent kickback (see picture 1). Do not place the work piece in a position that may cause kickback (see picture 2).
	Picture 2	<ul style="list-style-type: none"> e) Sanding curved sides: External curves must be sanded on the flat portion of the belt. Internal curves must be sanded on the drum portion of the belt. f) End sanding: End sand long work pieces with the belt in its vertical position. Move the work equally along the belt. Use the miter gauge (see picture 5) for precise work.
3. Disc Sanding		
	Picture 6	<ul style="list-style-type: none"> a) Ensure safety glasses are appropriate for sparks. b) When sanding small flat surfaces, or convex edges is needed, disc sanding is the best method. c) Ensure that the disc is rotating clockwise. d) Always present the work piece to the wheel while resting the work piece firmly on the table (to prevent throwing of the work piece off the wheel causing injury) (see picture 6). e) Place the material on the sander against the side of the disc that is moving downwards, while keeping your fingers as far way from the disc as possible-using the other half will cause the work piece to fly up, and is potentially very dangerous. f) Hold the work piece firmly flat against the table and pushed up against the disc-loss of control can result in injury.

4. After Sanding

- | | |
|--|--|
| | <ul style="list-style-type: none">a) Turn off the power. Allow sander to come to a complete stop.b) Clean the sander and the workspace. NEVER clean the machine while it is in motion.c) Remove all accumulated debris on the sander.d) Sweep the floor surrounding the sander. |
|--|--|

4.1. Lockout/Tagout Procedure

LOCKOUT TAGOUT PROCEDURE		
Equipment Identification	Equipment Name/Description:	Disc and Belt Sander and Belt sander
	Equipment Location:	Plastic Studio
	Total # of Energy Isolation Devices/locks:	1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE		

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	Breaker box	Plastic breaker adaptor	Stop machine, flip breaker switch. install plastic breaker adaptor, lock and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure guards are in place and in good working order.	
Sander is secured and balanced	
Ensure the area around the sander free of slip/trip hazards.	
Ensure the debris/material from previous operations has been removed.	
Examine the face of the disc; ensure it is not showing backing, curling, buckling, nicks or cuts on the surface or edge, or damage due to ceasing or poor handling-replace the disc if necessary-when installing a new disc, be certain it is centered on the drive wheel and position the disc drive so that it is no more than 1/16 inch away from the table.	
Examine the face of the belt; ensure it is not showing backing, curling, buckling, nicks or cuts on the surface or edge, or damage due to ceasing or poor handling-replace the belt if necessary-when installing a new belt, always check the tracking.	
Make sure lock knobs and handles are tight.	
WEEKLY	✓
Lightly apply wax paste on the table surface.	
Clean the drums to prevent tracking problems and slippage of the belt.	
Clean the dust chute and tracking system to avoid major accumulation of dust.	
Blow out all air passages with dry compressed air –use all required PPE.	
Check the drums for scrolling, signs of wear, or looseness. Tighten or replace parts as required.	
MONTHLY	✓
Using a scale, check the gap between the edge of the table and the face of the disc-it should be a maximum of 1/16 inch. If it is much more or less than that, adjust it.	
Check all bearings for excessive heat or loose shafts-replace if necessary.	
Follow lock out tag out procedures when removing the guard from the machine.	
ANNUALLY	✓
Check rotations; ensure that the motor is running counterclockwise, the belt is moving downwards and the disc is rotating clockwise.	
Inspect entire machine and perform maintenance as required.	

Any changes or updates to this document must be recorded and maintained.

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Consultation: <ul style="list-style-type: none"> ▪ Studio Managers and Technicians ▪ Program Chairs and faculty 	Date: January-April 2013 April – May, 2013
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Review and Revisions Made By:	Date Revised:
Changes Made (<i>indicate sections</i>):	
Revisions Approved By:	Date of Approval:

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Bench Grinder



Machine	Bench Grinder Model: M23-652
Location	Jewellery
Manufacturer	Name: Rockwell
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians
 DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!	

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 		✓
Respirator 		
Ear Plugs / Ear Muffs 	✓	
Gloves 		
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  		
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Are the power cords free of frays and damage?			
2	Do you know where the emergency stop feature is located? The grinder has an attachment plug and receptacle (plug/socket combination) and so it may be used to disable the machine in the event of an emergency.			
3	Are guards in place and in good working order?			
4	Is the area around the grinder free of slip/trip hazards?			
5	Has the debris/material from previous operations been removed?			
6	Are the wheels surfaces free of defects? (Faults in the wheels can be very hazardous wear or tear in the wheels can be very hazardous).			
7	Do the wheels move freely without obstruction? Turn the wheel by hand to ensure it doesn't touch the guard, spark deflectors or tool rests and runs freely.			
8	Is the work/tool rest adjusted to within 1/8-inch gap to the wheel? (The gap should be not greater than 1/8-inch gap).			
9	Is the material you are grinding suitable for the grinder and wheel being used? Wheels are made only for grinding ferrous metal only. Do not grind rough forgings on a small precision grinding wheel.			
10	Is the material/tool the correct size for the grinder being used? (Ensure the material is not too big or too small).			
11	Is there a water container nearby for cooling of the material being ground?			
	Comments/Corrective Action:			

This procedure is outlined as follows:

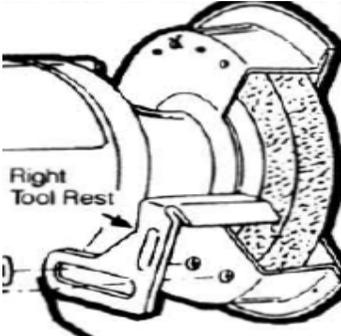
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the grinder		
 <p>Right Tool Rest</p>	Picture 1	<ul style="list-style-type: none">a) Put on your PPE. Never wear gloves while using a grinder; they may become caught in the rotating mechanism and cause severe injury.b) Be careful of the pinch point and entanglement hazards between the wheel and the tool rest (see picture 1).c) Make sure that the wheel is not in contact with the work when you go to start the grinder.d) Stand to one side, turn the power and allow the motor to reach full speed.e) The grinder has an attachment plug and receptacle (plug/socket combination) for cord connection, which may be used to disable the machine in the event of an emergency.
2. Using the Grinder		
	Picture 2	<ul style="list-style-type: none">a) Once the wheel is at full speed, apply the material in a controlled and slow manner to the front, midpoint of the wheel (see picture 2), without bumping. The work should be in contact with the tool rest whenever possible.b) NEVER try to stop the grinder with your hands.c) Apply gradual pressure to allow the wheel to warm up.d) Use as little pressure as possible on the material to complete the task. Too much pressure will burn the material and put the operator's hands and fingers at risk should the material get pulled from the grip of the operator.e) Cool the work piece as needed by dipping it in the water reservoir or a nearby container of water.
3. After Sanding		
		<ul style="list-style-type: none">a) Remove the work from the grinder wheel.b) Turn off when not in use.c) Wait until the wheel has come to a complete stop - Never leave it running unattended.d) Don't touch the work immediately as it may be hot.e) Clean the grinder-NEVER clean while it is in motion.f) Sweep the surfaces surrounding the grinder.g) Dispose of the container of water used for coolant.h) Wipe up any water spills.

4.1. Lockout/Tagout Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Bench Grinder
	Equipment Location: Jewellery Studio
	Total # of Energy Isolation Devices/locks: 1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	
	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx Approved by:	Revision #: Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure guards are in place and in good working order.	
Machine is secured and balanced	
Ensure the area around the sander free of slip/trip hazards.	
Ensure the debris/material from previous operations has been removed.	
Ensure that the wheels are free of defects (faults in the wheels can be very hazardous as they can propel debris towards the operator).	
Ensure that the wheels move freely without obstruction.	
WEEKLY	✓
Ensure that the adjustable tongue guard is kept to within 1/4-inch of the wheel.	
Ensure that the work rests are kept to within 2 mm of the wheel.	
Ensure that the spark breaker is kept within 1/16-inch of the wheel.	
Dress wheels-frequently, light dressings rather than one heavy dressing.	
MONTHLY	✓
Ensure that wheels have blotters on each side.	
Ensure that the wheels fit and don't vibrate. If loose, get another wheel.	
Ensure that the wheels are free of defects. If replacing, inspect wheels before mounting. Don't use a wheel that was dropped or doesn't fit properly. Don't use excessive force to tighten wheels. Test run a new wheel before use.	
ANNUALLY	✓
Check that all nuts, bolts, screws and other fixings are properly tightened-don't over tighten wheel nuts.	
Ensure that tool rest and spark breakers are adjusted correctly.	
Inspect entire machine and perform maintenance as required.	

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Revisions Approved By:	Date of Approval:

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Bench Shear



Machine	Bench Shear Model: # 12
Location	Jewellery
Manufacturer	Name: Di-Acro Houdaille Industries Inc. Address: 800 Jefferson St., Lake City, MN 55041 Tel: (612) 345-4571
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  		
Dust Mask 		
Respirator 		
Ear Plugs / Ear Muffs 		
Gloves 		
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  		
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Are guards/hold-down bars in place and in good working order?			
2	Is the shear secure and level?			
3	Is the area around the shear free of slip/trip hazards?			
4	Has the debris/material from previous operations been removed?			
5	Are the blades surfaces free of defects?			
6	Is the shear sufficient for the material being sheared?			
7	Does the lever move smoothly without obstruction and free of grease/oil?			
8	Are you sheering silver, copper, brass or nickel and <u>not steel, rods, wire or bar stock?</u>			
9	Is the material clean and dry?			
	Comments/Corrective Action:			

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before shearing		
	Picture 1	<ul style="list-style-type: none">a) Put on your PPE.b) Identify the desired area(s) to be sheared.c) Support long pieces to be sheared.d) Ensure the bed area and the area under the hold-down bar are free of debris prior to shearing,.e) Place the material between the hold-down bar and the table (see picture 1) Careful of pinch points!
2. Using the shear		
	Picture 2	<ul style="list-style-type: none">a) Keep fingers as far away from the blade as possible.b) Pull down the lever to engage the hold-down bar and the shear blade (see picture 2).c) Do not pry or twist the work piece when cutting.
3. After shearing		
		<ul style="list-style-type: none">a) Remove the sheared material from the table.b) Remove the waste from the surrounding area.c) Place debris in the scrap box, beneath the shear table (see picture 3).d) Clean the area upon completion of the task.e) Sweep the floor surrounding the shear.

4.0 Maintenance and Repair

4.1. Inspection Checklist

DAILY	✓
Ensure guards are in place and in good working order.	
Machine is secured and balanced	
Ensure the area around the shear free of slip/trip hazards.	
Ensure the debris/material from previous operations has been removed.	
Ensure that blades are sharp and free of defects. Re-sharpen if necessary.	
Ensure that the lever moves smoothly without obstruction and is free of grease/oil.	
WEEKLY	✓
Adjust and lubricate cutter and moving parts, if necessary.	
Ensure that the bottom shear blade is located so that its upper edge is flush with the top of the base casting and shear table. Adjust if necessary.	
MONTHLY	✓
Ensure that the protective guards/hold-down bar clearance is kept to a minimum – just enough to feed material. Adjust if necessary.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Casting Centrifuge



Machine	Casting Centrifuge Model: JN1 1015
Location	Jewellery Studio
Manufacturer	Name: Northcott-Morris Machine Co., Div. of J. Northcott Industries Ltd. Address: PO Box 307 Stn Main, Milton, ON, L9T 4Y9 Tel: 905-854-2130
Applicable Legislation	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CSA Z460-05 "Control of hazardous energy-lockout and other methods" 3. CAN/CSA Z462-08 "Workplace electrical safety"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 	✓	
Respirator 		✓
Ear Plugs / Ear Muffs 		
Gloves 	✓	
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is power cord free of frays and damage			
2	Do you know where the emergency stop feature is located (button/switch/cord)?			
3	Are guards in place and in good working order?			
4	Is the area around the centrifuge free of slip/trip hazards?			
5	Are flammable/combustible materials (i.e. paper) and degreasing, cleaning and spraying operations removed from the area?			
6	Has the debris/material from previous operations been removed?			
7	Is the centrifuge secure, level and balanced?			
8	Is the centrifuge free of defects, wear and cracks?			
9	Are the casting tongs, holders and torches free of defects, grease and oil?			
10	Is there a bucket of water nearby to plunge the flask in after casting?			
11	Is there a fire extinguisher in close proximity?			
12	Is the ventilation/fume hood turned on?			
13	Are you working as part of a team, each with your own known roles and responsibilities?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- a) Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- b) If you have any questions or uncertainties, please ask your studio technician before use.
- c) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- d) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- e) Ensure you know where the emergency stops for the equipment prior to use.
- f) Do not remove or render machine guarding ineffective in any way.
- g) Ensure the work area is both well-lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the Casting Centrifuge		
		<ul style="list-style-type: none"> a) Put on your PPE b) Be cautious of other people working in the proximity when transporting/pouring hot metal and using casting equipment. c) The centrifuge has an attachment plug and receptacle (plug/socket combination) for cord connection, which may be used to disable the machine in the event of an emergency.
2. Using the Casting Centrifuge		
	Picture 1	
	Picture 2	<ul style="list-style-type: none"> a) Using the tongs, place the crucible securely in to the centrifuge (see picture 1)-do not use your hands. b) Heat the crucible using the casting torch (see picture 2)-keep hands as far away as possible to prevent burn hazards. c) Carefully, pour the metal into the crucible from the flask. d) Using large tongs, remove the flask from the kiln and carefully and securely place it in to the centrifuges cradle (see picture 3) and close the gap between that and the crucible (see picture 4).
	Picture 3	<ul style="list-style-type: none"> e) Balance the centrifuge and tighten the nut. f) Melt the metal with the torch for a few minutes. g) Pour borax on to the metal to prevent fire scale. h) Sprinkle some charcoal on to the metal. i) Set the timer for the system and close the lid for the system to activate. j) Allow the centrifuge to spin for the amount of time required for it to force the metal into the mould.
	Picture 4	<ul style="list-style-type: none"> k) Once the centrifuge has stopped spinning, open the lid-ensure that the rotations of the centrifuge arm has come to a complete stop to prevent entanglement hazards. l) Remove the flask and place it in the annealing booth (see picture 5) for a few minutes until it stops glowing.
	Picture 5	

3. After using the Annealing Booth



- a) Using the tongs, plunge the flask in to the bucket of water to break apart the investment in the flask.
- b) Dispose of the bucket of water as toxic waste.
- c) Allow cooling period-do not touch hot parts to prevent burns.
- d) Clean the work area and sweep the floor.

4.1. LOTO Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Casting Centrifuge
	Equipment Location: Jewellery Studio
	Total # of Energy Isolation Devices/locks: 1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

IFbooth CANNOT BE LOCKED OUT OR IFbooth FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of frays and damage.	
Ensure that the area around the centrifuge is free of slip/trip hazards.	
Ensure that flammable/combustible materials (i.e. paper) and degreasing, cleaning and spraying operations removed from the immediate work area?	
Ensure that there is a fire extinguisher in close proximity.	
Ensure that debris/material from previous operations is removed.	
Ensure that the centrifuge is secure, level and balanced.	
Ensure that the centrifuge is free of defects, wear and cracks.	
Ensure that casting tongs, holders and torches are free of defects, grease and oil.	
Ensure that there is a bucket of water nearby to plunge the flask in after casting.	
Ensure that the ventilation/fume hood is operating properly.	
WEEKLY	✓
Check all connections and parts. Tighten loose connections with a wrench.	
MONTHLY	✓
Ensure that the tank does not have a leaky valve.	
Check for leaks by brushing a thick soap solution on all connections. Open valve and watch for bubbles to appear at points of leakage. Never use the flame to check for leaks.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Annealing/Casting Torch



Machine	Bench Shear Model: 14.165
Location	Jewellery
Manufacturer	Name: Grobet USA Address: 317 Attwell Drive, Toronto, Ontario M9W 5C1 Tel: (416) 293-2474
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask		
Respirator		
Ear Plugs / Ear Muffs		
Gloves		
Closed-Toe Foot Wear (no heels)	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is the area around the torch free of slip/trip hazards?			
2	Are flammable/combustible materials (i.e. paper) and degreasing, cleaning and spraying operations removed from the bench top?			
3	Is the torch free of defects, wear and cracks?			
4	Are the oxygen and fuel gas needle valves on the torch closed? (Both are kept closed until the oxygen pressure is set).			
5	Are the hose connectors on the torch properly connected to the oxygen valve outlet and to the fuel gas valve outlet?			
6	Is there a fire extinguisher in close proximity?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency shut off for your equipment is prior to use and within reach during operation.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the Casting Torch		
 A photograph of an annealing booth. The booth is a dark, enclosed space with a workbench in front. On the workbench, there are several pieces of metal, some of which are being heated. A casting torch is visible on the workbench, and hoses are connected to it. The booth is surrounded by a metal frame and has a white bucket and other equipment nearby.	Picture 1	<ol style="list-style-type: none">Put on your PPE.Arrange hoses to one side and away from you.The annealing/casting torch should be used in the annealing booth (picture 1)
2. Using the Casting Torch		
 A photograph showing a person's hand holding a casting torch. The torch is lit, and a bright flame is visible at the tip. The torch is being applied to a workpiece, which is partially visible in the background.	Picture 2	<ol style="list-style-type: none">Open the fuel gas needle valve on the torch minimally and light the torch with a friction (flint) lighter-ensure to light it away from your face to prevent injury.Open the oxygen needle valve on the torch until the desired flame intensity is obtained.Shorten or lengthen the length of the flame by increasing/decreasing the supply of oxygen and gas in proportionate amounts (via the two needle valves in the same direction on the torch).Do not put your face over the work area-flux and zinc fumes are toxic.Apply the torch to the work piece surface (see picture 2)Never lay the torch down or leave it unattended, unless it has been shut off and flame is out.
3. After using the Casting Torch		
		<ol style="list-style-type: none">Shut off oxygen first to avoid a 'pop' sound.Shut off the fuel gas at the torch valves.After flame burns out, close both torch valves.Close the main gas and oxygen valves when finished using the torchAllow cooling period-Clean the work area and sweep the annealing booth.

4.1. Lockout/Tagout (LOTO) Procedure:

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Casting Torch
	Equipment Location: Jewellery
	Total # of Energy Isolation Devices/locks: 2
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	
	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Gas	Gas Cylinder	Valve adaptor	Stop machine, install valve adaptor, lock and tag.	Attempt to start machine, visually confirm it will not start.
Gas	Button and Key	Push button lockout	Stop machine, install button lockout, lock and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2. Inspection Checklist

DAILY	✓
Ensure that the torch handle is secure.	
Ensure that the area around the torch is free of slip/trip hazards.	
Ensure that flammable/combustible materials (i.e. paper) and degreasing, cleaning and spraying operations removed from the immediate work area?	
Ensure that there is a fire extinguisher in close proximity.	
Ensure that the torch fittings and hoses are free of defects, wear and cracks.	
Ensure that the oxygen and fuel gas needle valves on the torch are closed. (Both are kept closed until the oxygen pressure is set).	
Ensure that the hose connectors on the torch are properly connected to the oxygen regulator and to the fuel gas regulator.	
Leak check regulator when replacing an empty tank with a new one.	
Ensure that an oxygen pressure regulator is being used on the oxygen tank.	
Ensure that there is a fire extinguisher in close proximity.	
Ensure that the hose connectors on the torch are seated properly-	
Ensure that the torch handle is secure.	
Ensure that the area around the torch is free of slip/trip hazards.	
Ensure that flammable/combustible materials (i.e. paper) and degreasing, cleaning and spraying operations removed from the immediate work area?	
Ensure that there is a fire extinguisher in close proximity.	
Ensure that the hose connectors on the torch are seated properly	
WEEKLY	✓
Check all connections and parts. Tighten loose connections with a wrench.	
MONTHLY	✓
Ensure that the tank does not have a leaky valve.	
Check for leaks by brushing a thick soap solution on all connections. Open valve and watch for bubbles to appear at points of leakage. Never use the flame to check for leaks.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	
Ensure that all gas lines are functioning and have been cleaned out.	

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Draw Bench



Machine	Draw Bench
Location	Jewellery
Manufacturer	Unknown
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians
 DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!	

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 		
Respirator 		
Ear Plugs / Ear Muffs 		
Gloves 		
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  		
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is the area around the machine free of slip/trip hazards?			
2	Are the bench, lever, die/plate and clamp free of defects?			
3	Does the lever and carriage move freely without obstruction?			
4	Are you using the correct work piece (e.g. wire) and thickness for the draw bench?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

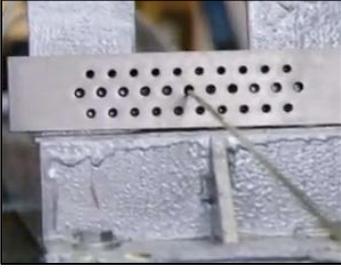
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Setting up the Work Piece		
	Picture 1	
	Picture 2	<ul style="list-style-type: none"> a) Put on your PPE. b) Lubricate the wire with beeswax before drawing it through each hole in the drawplate c) Insert the wire through the draw plate (plate with series of holes that decrease in diameter) for drawing down wire from thick to thin, be sure you are inserting the wire into the correct side of the drawplate (see picture 1). d) Seat the drawplate in the designated area (see picture 2). e) Clamp the wire end in the draw tongs (see picture 3)
	Picture 3	
2. Using the Draw bench		
		<ul style="list-style-type: none"> a) Firmly hold the lever and crank it so that the carriage moves along the bed with the work piece (see picture 4), forcing the wire to draw down-be careful when operating the lever to prevent entanglement hazards. b) Draw the wire all the way to the end of the bed and be aware that the wire may spring up when exiting the plate. c) Once drawn down, return the carriage to the original position-
3. After using the Draw bench		
		<ul style="list-style-type: none"> a) Remove the work piece b) Wash your hands

4.0 Maintenance and Repair

4.1. Inspection Checklist

DAILY	✓
Ensure machine is secured and balanced	
Ensure the area around the draw bench free of slip/trip hazards.	
Ensure that the bench, lever, die/plate and clamp are free of defects.	
Ensure that the lever and carriage move freely without obstruction.	
WEEKLY	✓
Ensure that the connections, nuts and bolts are tight.	
MONTHLY	✓
Clean the draw bench and lubricate moving parts.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

Any changes or updates to this document must be recorded and maintained.

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Drill Press



Machine	Drill Press Model: KC-108C (8" Drill Press)
Location	Jewellery
Manufacturer	Name: King Canada Address: 700 rue Meloche, Dorval, Québec, H9P 2Y4 Tel: (514) 636-5464
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 		
Respirator 		
Ear Plugs / Ear Muffs 	✓	
Gloves 		
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  		
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Do you know where the emergency stop feature is located (This machine uses an electrical cord that can be removed in case of an emergency)?			
2	Are guards in place and in good working order?			
3	Is the area around the drill press free of slip/trip hazards?			
4	Has the debris/material from previous operations been removed?			
5	Are the drill bits and chuck free of defects?			
6	Is the clamp or vise in good condition, suitable to secure the work piece?			
7	Do the feed handles move freely without obstruction?			
8	Are you using the correct spindle speed for the operation and material being used?			
9	Are lock handles free of defects and operating correctly?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

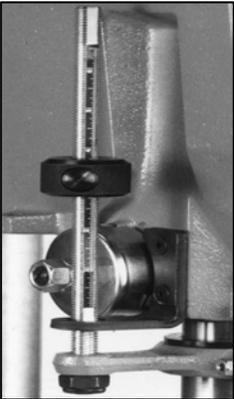
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Installing drill bit		
	Picture 1	<ol style="list-style-type: none">Put on your PPE. Do not wear gloves when operating the drill press to prevent injury from the entanglement hazard of the chuck.Insert the shank securely into the chuck far enough to obtain the maximum gripping of the jaws but not so far as the jaws touch the flutes (spiral grooves) of the bit.Ensure that the bit is centered to prevent wobbling.Tighten the chuck by hand (see picture 1).Use the chuck key (turn clockwise) to further secure the bit-REMOVE the chuck key before operating the drill press.
2. Before drilling		
	Picture 2	<ol style="list-style-type: none">Adjust the stop nuts to set the desired depth of the bit, if required (see picture 2) (view depth on the depth scale).Place the material, with a backing board beneath it, (to prevent drilling into the press bed)Secure the work piece to the table with a clamp/vise to prevent it from spinning. Don't work free hand (holding the work piece rather than supporting it on the table).Centre punch in the work piece, marking the area to be drilled.With the power off, line up the bit with the indentation.
3. Adjusting the table		
	Picture 3	<ol style="list-style-type: none">Tilt the table (between 0 and 45°) if required, by loosening the bevel lock bolt with an adjustable wrench, tilting the table while reading the bevel scale. Retighten bolt (see picture 3).Lock the table so that the drill tip is just a little above the top of the work piece.
4. Drilling		
	Picture 4	<ol style="list-style-type: none">Lubricate the drill with beeswax or cutting oil.Pull down the feed handles (which lowers the chuck) (see picture 5) with only enough effort to allow the drill to cut (not too slow or too fast-both could result in injury).Withdraw the bit frequently to clear the chips and lubricate the bit.Ease up on pressure as the bit starts to break through the work piece.If the drill binds in a hole, stop the machine and turn the spindle backwards by hand to release the bit.

3. After drilling

- | | |
|--|--|
| | <ul style="list-style-type: none">a) Turn off the machine when not in use.b) Let the spindle stop on its own accord after turning the power off. NEVER try to stop the spindle with your hand and DON'T touch the drill bit or workpiece immediately, as it may be hotc) Remove the chips from the bit and surrounding area with a brush, NEVER by hand.d) Loosen the clamp/vise and remove the work piece.e) Remove the bit using the chuck key (turn counterclockwise).f) Clean the table and work area. NEVER while it is in motion.g) Sweep the floor surrounding the drill press. |
|--|--|

4.1. LOTO Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Drill Press
	Equipment Location: Jewellery Studio
	Total # of Energy Isolation Devices/locks: 1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure that all guards are in place and in good working order	
Ensure that the area around the drill press is free of slip/trip hazards.	
Ensure that the chuck and jaws are free of defects and not worn.	
Ensure that the feed handles are clean, free from oil or grease and moves freely.	
Ensure that the clamp or vise is in good condition, securing the work piece.	
Ensure that lock handles are free of defects and operating correctly.	
Ensure that the quill and chuck assembly move smoothly via the feed handles and return to the start position easily and promptly.	
Ensure that the jaws close evenly.	
Ensure that the table is square to the head.	
WEEKLY	✓
Blow out dust that may have accumulated in the motor.	
Ensure that the belts are free of defects and tensioned correctly (the belt should deflect approximately ½” by applying finger pressure at the mid-point of the belt between the pulleys). Lift the guard, use the belt tension lock handle and move the motor.	
Ensure that the pulleys are running smoothly.	
MONTHLY	✓
Lubricate the spindle grooves and quill teeth. The ball bearings do not require lubrication.	
Apply a coat of paste wax to the table and the column.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Electric Kiln



Machine	Electric Kiln
Location	Jewellery
Manufacturer	Name: Mercedes
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 		
Respirator 		
Ear Plugs / Ear Muffs 		
Gloves 	✓	
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  	✓	
Other: Ensure that you are wearing long sleeves.	✓	



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is the area around the kiln free of slip/trip hazards?			
2	Is the kiln free of defects, wear and cracks?			
3	Does the kiln have small bricks inside for the flask to sit on?			
4	Are the casting tongs free of defects?			
5	Is there a fire extinguisher in close proximity?			
6	Are you working as part of a team, each with your own known roles and responsibilities?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the electric kiln		
		<ul style="list-style-type: none"> a) Put on your PPE. b) Ensure that you are wearing long sleeves. c) WARNING-Burn hazards!
2. Using the electric kiln		
	Picture 1	<ul style="list-style-type: none"> a) Remove the rubber base from the flask, place the flask sprue button down on three small pieces of fire brick (image 2). Ensure the flask is stable. b) Load smaller flasks at the back of the kiln and larger ones near the front. Leave a map in chalk on the kiln door indicating flask identification, casting weight and flask diameter. c) Secure the door and start the burnout cycle. d) When removing the flask for casting ensure you have the correct tongs for the flask diameter (picture 1), refer to the map on the door.
	Picture 2	<ul style="list-style-type: none"> e) Have a teammate open/close the kiln door-grasp the flask with the tongs as low as possible. Gently lift the flask from the kiln avoiding disturbing other flasks. f) Check the flask entrance hole for any potential obstructions. g) Gently place the flask into the cradle of the casting machine with the entrance hole towards the crucible. h) Follow casting process outlined in other SOP document
3. After using the electric kiln		
		<ul style="list-style-type: none"> a) Place the flask in the annealing booth to rest (picture 3) until the sprue button has cooled to grey. b) Grasp the flask with the tongs and plunge it into the designated quenching bucket. Ensure that the flask ends point away from you and is completely submerged to avoid steam escape and burns. c) When the flask has stopped bubbling it is safe to remove it from the quenching bucket. Scrape any remaining plaster out of the flask into the trash and clean the flask in the quenching bucket. d) Retrieve your casting. e) Clean the work area and wipe any water spilled on the floor. f) Replace the clean flask and put it in the proper spot in the flask cabinet.

4.1. Lockout/Tagout Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Electric Kiln
	Equipment Location: Jewellery Studio
	Total # of Energy Isolation Devices/locks: 1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	
	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure the area around the kiln is free of slip/trip hazards.	
Ensure that the kiln is secure and level.	
Ensure that the kiln is free of defects, wear and cracks.	
Ensure that the kiln has bricks inside for the flask to sit on.	
Ensure that the door is in good condition, opening, closing and connecting fully.	
Ensure that the large tongs are free of defects	
Ensure that there is a fire extinguisher in close proximity.	
WEEKLY	✓
Check all connections and parts. Tighten loose connections.	
MONTHLY	✓
Replace kiln stones if necessary	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Flexible Shaft Power Tool



Machine	Flexible Shaft Power Tool
Location	Jewellery
Manufacturer	Name: The Freedom Electric Company Address: 16 Stony Hill Rd., Bethel, CT 06801, USA Tel: (203) 792-8622
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask		
Respirator		
Ear Plugs / Ear Muffs		
Gloves		
Closed-Toe Foot Wear (no heels)		✓
Lab Coat / Protective Apron	 	✓
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Are the power cords free of frays and damage?			
2	Do you know where the emergency stop feature is located (This machine uses an electrical cord)?			
3	Is the work area free of slip/trip hazards?			
4	Are the tool and accessories free from defects?			
5	Is the tool in the off position before plugging it in?			
6	Is the motor hanger securely attached to the workbench?			
7	Is the motor securely attached to the motor hanger or work surface to prevent it from vibrating off the motor hanger?			
8	Is the shaft arranged so that it does not interfere with your line of work, to one side of you? Do not drape the flexible shaft across anything.			
9	Are the cords kept from trailing across walkways to prevent a trip and fall hazard?			
10	Is the outer sheath well attached to the flexible shaft? (never operate the shaft with this removed)			
11	Is the tool suitable for the workpiece?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before Using the Flexible Shaft Power Tool		
		<ul style="list-style-type: none">a) Put on your PPE.b) Insert the shank of the tool into the collet or chuck of the hand piece as far as possible in order to provide proper support and tighten the collet or chuck securely.
2. Using the Flexible Shaft Power Tool		
	Picture 1	
	Picture 2	<ul style="list-style-type: none">a) Hold the hand piece firmly (see picture 1).b) Control the speed with the foot control.c) Do not bend the flexible shaft too much at either the hand piece or motor shaft connections (see picture 2). A 4" or larger radius should be maintained for shafts on all motors.d) Lubricate cutting tools with beeswax if required.e) Apply the accessory to the work piece surface –Allow the speed of the tool do the work rather than applying heavy pressure to the accessory. Never use excessive side pressure, which may break the toolf) If motor, handpiece or flexible shaft becomes too hot after prolonged use, allow to cool.
3. After Using the Flexible Shaft Power Tool		
		<ul style="list-style-type: none">a) Allow cooling period.b) Clean the tool.c) Clean the work area and sweep the bench top.

4.1. LOTO Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Flexible Shaft Power Tool
	Equipment Location: Jewellery Studio
	Total # of Energy Isolation Devices/locks: 1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure that the work area is free of slip/trip hazards.	
Ensure that the tool and accessories are free of defects.	
Ensure that the tool in the off position.	
Ensure that the motor hanger is securely attached to the workbench.	
Ensure that the motor is securely attached to the motor hanger or work surface to prevent it from vibrating off the motor hanger.	
Ensure that the flexible shaft is maintained at a 4" or larger radius and not draped across anything.	
Ensure that the shaft and other cords are kept from trailing across walkways to prevent a trip and fall hazard.	
Ensure that the outer sheath is still attached to the flexible shaft.	
Ensure that only accessories rated for use at the maximum speed of the tool are being used.	
WEEKLY	✓
Expose the shaft by removing the hand piece and sheath. Apply a light film of grease along the entire length of the shaft. Hang and run the motor for about 10 minutes. Turn off motor, wipe off excess grease from the tip of the drive shaft and reconnect hand piece. Replace the sheath.	
Clean and lubricate the shaft.	
Clean the motor by blowing air through it to remove dust and conductive debris (metal filings and gold dust).	
Clean and lubricate the tool and hand piece.	
MONTHLY	✓
Check the brushes for wear (replace when worn down to ¼"), remove them and clean them.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Jeweller's Saw Frame



Machine	Jeweller's Saw Frame
Location	Jewellery
Manufacturer	Unknown
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians
 DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!	

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask		
Respirator		
Ear Plugs / Ear Muffs		
Gloves		
Closed-Toe Foot Wear (no heels)	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is the area surrounding the workbench free of slip/trip hazards?			
2	Adjust your chair to a comfortable seating height			
3	Are you using a workbench with a bench pin?			
4	Is the saw frame adjusted for the length of the blade? (use the adjusting nuts).			
5	Is the blade attached securely?			
6	Is the blade tensioned correctly? Loose blades break easily.			
7	Is the blade adequate for the thickness of material to be cut? Choose a finer blade for thin material and a course blade for thick material. Consult the text for recommendations.			
8	Is the blade fine enough to have at least two teeth within the thickness of the metal you are cutting?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before Sawing		
		<ul style="list-style-type: none">a) Put on your PPE.b) Mark the area to be cut.c) Lubricate the blade with beeswax.d) Take regular breaks to reduce fatigue and increase accuracy.
2. Positioning the Work Piece		
	Picture 1	<ul style="list-style-type: none">a) Place the work piece on the bench pin (see picture 1)b) Secure the work piece by pressing down firmly on it with your fingers (but do not hold the work piece with a finger in front the blade as this may result in injury).
3. After using the Draw bench		
	Picture 2	<ul style="list-style-type: none">a) Hold the frame firmly by the handle, at a right angle to your body (perpendicular to the work piece) (see picture 2).b) Sit straight, feet on the floor. Avoid bending and curving the back.c) The sawing motion should come from the elbow (not the wrist) to reduce strain on the wrist. The wrist should be locked, but the handgrip should be light; no white knuckles.

4. Sawing



Picture 3

- a) Ensure that the saw is in firm contact with the material, with little pressure-too much forward pressure may cause the blade to break
- b) Start sawing in long even strokes (for straight lines) or small even strokes (for curves), using a gentle, slow, up and down motion (see picture 3).
- c) Let the blade do the work-do not force it into the metal
- d) If cutting curves, turn the material to the saw instead of trying to maneuver the saw around the material (see picture 4)-do not force, pry or twist the tool.



Picture 4

- e) If cutting corners, do short up and down movements to prevent the blade from breaking,
- f) Lubricate the blade and blow away large volumes of dust every now and then if it is obscuring the marked line.
- g) Guide the blade back out of the cut slowly or release the end of the blade and remove it-be careful not to cut yourself.
- h) Be careful if removing the blade with your hands if it gets jammed.

5. After Sawing

- a) Clean the area upon completion of the task.
- b) Remove the dust from the surrounding area with a brush. Collect or dispose of it correctly.
- c) Sweep the floor surrounding the workbench.

4.0 Maintenance and Repair

4.1. Inspection Checklist

DAILY	✓
Ensure the area around the bench free of slip/trip hazards.	
Ensure that the workbench has a bench pin.	
Ensure that the handle is secure, dry and free from grease and oil.	
WEEKLY	✓
Clean the saw frame.	
MONTHLY	✓
Ensure that the saw frame is free of defects.	
ANNUALLY	✓
Inspect entire tool and perform maintenance as required.	

5.0 Document Control

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Kick Press



Machine	Kick Press (manual) Model: K-Press
Location	Jewellery
Manufacturer	Name: Northcott-Morris Machine Co., Div. of J. Northcott Industries Ltd. Address: PO Box 307 Stn Main, Milton, ON, L9T 4Y9 Tel: 905-854-2130
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask		
Respirator		
Ear Plugs / Ear Muffs		
Gloves		
Closed-Toe Foot Wear (no heels)	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is the area around the kickpress free of slip/trip hazards?			
2	Has the debris/material from previous operations been removed?			
3	Is the machine free of defects?			
4	Is the area under the foot pedal clear?			
5	Is the punching system aligning correctly?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the Kick Press		
		<ul style="list-style-type: none"> a) Put on your PPE. b) Identify the desired area(s) to be punched. c) Support long work pieces to be punched.
2. Using the Kick Press – Punching		
	Picture 1	<ul style="list-style-type: none"> a) Insure the punch and die are properly secured and aligned, consult a faculty or technician, misaligned or unsecure punches and dies can result in severe damage to the equipment. (picture 1) b) Adjust the depth nuts so the punch enters the die just slightly more than the thickness of metal being cut. c) Place the material to be punched on the female die. d) Grip the sides of the machine before putting your foot on the pedal insuring leverage and that your hands are away from the pinch point. e) Line up the punch over the work piece by slowly lowering the punch with the foot pedal and insure the proper position of the work piece. If properly positioned release the foot pedal. Secure the workpiece to the die with masking tape.
	Picture 2	<ul style="list-style-type: none"> f) Grip the sides of the machine before putting your foot on the pedal insuring leverage and that your hands are away from the pinch point. g) Step on the foot pedal sharply to operate the punching action (picture 2) h) Remove the skeleton from the punch and push the cut part through the die by adjusting the depth nut. Grip the sides of the machine before putting your foot on the pedal and gently push out the part. i) Do not punch material thicker than rated for the punch. Doing so can overload and break the punch, creating a hazard for injury.
3. After Using the Kick Press		
		<ul style="list-style-type: none"> a) Remove the punch and die from the kick press and return to technician. b) Clean the machine

4.0 Maintenance and Repair

4.1. Inspection Checklist

DAILY	✓
Ensure the work area is free of slip/trip hazards.	
Ensure that guards are in place and in good working order.	
Ensure that the punch and die have been removed after use.	
Ensure that the machine is free of defects.	
Ensure that the area under the foot pedal is clear.	
WEEKLY	✓
Ensure that the punching system is aligning correctly.	
MONTHLY	✓
Adjust and lubricate cutter any moving parts.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

Any changes or updates to this document must be recorded and maintained.

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Changes Made (<i>indicate sections</i>):	
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Mini Lathe



Machine	Miniature Lathe
Location	Jewellery
Manufacturer	Name: Sherline Products Inc. Address: 3235 Executive Ridge, Vista, CA, 92081-8527, USA Tel: (1760) 727-5857
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 		✓
Respirator 		
Ear Plugs / Ear Muffs 		✓
Gloves 		
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  		
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Do you know where the emergency stop feature is located (This machine uses an electrical cord that can be removed in case of an emergency)?			
2	Are guards in place and in good working order?			
3	Is the area around the lathe free of slip/trip hazards?			
4	Is the lathe secure on the workbench/base (to prevent the narrow base from tipping over) and level?			
5	Are the chuck and chuck jaws are in good condition?			
6	Are the cutting tools free of defects and sharp? Sharpen if required.			
7	Do the sliding surfaces move freely without obstruction?			
8	Is the tailstock aligned with the chuck?			
9	Are all holding, locking and driving devices tightened? (do not over tighten).			
10	Are you not using the lathe for grinding?			
11	Before mounting a chuck, faceplate or other attachment, are the mounting surfaces on the spindle nose and the attachment clean?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

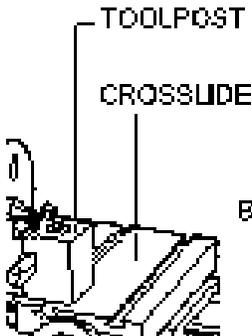
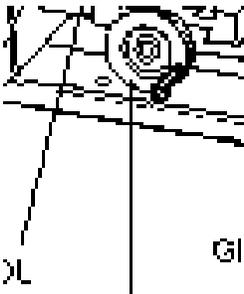
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

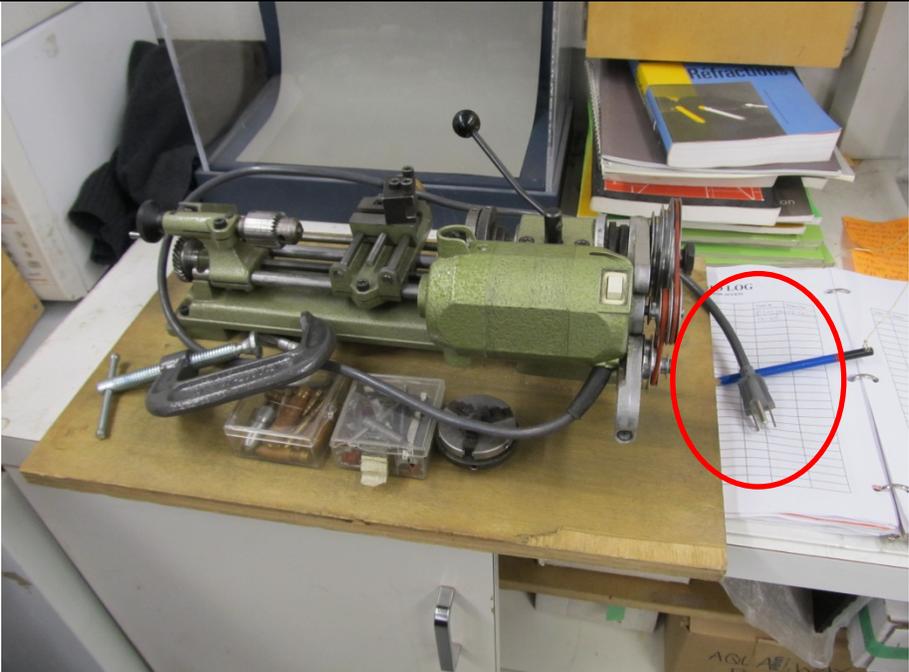
Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before operating the lathe		
	Picture 1	<ul style="list-style-type: none"> a) Mount the cutting tool securely in position in the tool post, (see picture 1) the cutting edge of the tool should be exactly level with the center height of the lathe; tighten the socket head screws. b) Try not to have the cutting edge protruding more than 10mm from the tool post.
2. Securing the work piece		
		<ul style="list-style-type: none"> a) Mount the attachment/faceplate onto the spindle nose and tighten-be careful of pinch points. b) Insert the work piece securely to prevent the possibility of the operator being struck by a thrown work piece. c) Do not let long, thin stock protrude from the back of the spindle-when turned at a high RPM, it can bend and whip around, causing injury. d) CAUTION: Do not turn on the motor with a 3-jaw chuck mounted if the jaws are not tightened on themselves or on a part. e) Turn the spindle by hand before turning the power on to ensure clearance.
3. Operating the Lathe		
	Picture 2	<ul style="list-style-type: none"> a) To operate the motor, turn the speed control knob counterclockwise as far as it will go. b) Turn the toggle switch to "on" and select RPM depending on the machine and material (If the spindle RPM drops noticeably when cutting, you are taking too heavy a cut). c) To establish tool position in relation to the work, bring the tool in, slowly to prevent thrown pieces and injury, until it starts to scribe a line in the work. d) Crank the tool towards the tailstock until it clears the end of the work. e) Advance the tool 0.25mm using the cross slide hand wheel (see picture 2). f) Using the tailstock hand wheel, move the tool slowly across the work towards the headstock-don't move the tool too fast to prevent injury. g) Do not place your hand on the work piece to slow down the speed or to check the smoothness of the finish.
4. After Operating the Lathe		
		<ul style="list-style-type: none"> a) Turn off the lathe when not in use. b) Clean the lathe-NEVER clean while it is in motion. c) Remove debris from the lathe with a brush/vacuum. d) Sweep the floor surrounding the lathe. e) Lubricate the sliding surfaces-use a light oil or grease on all points where there is a sliding contact and on threads immediately after cleanup. f) Remove the headstock/motor/speed control unit when transporting the tool.

4.1. Lockout/Tag out Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Mini Lathe
	Equipment Location: Jewellery Studio
	Total # of Energy Isolation Devices/locks: 1
NOTICE ⚠ BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	
	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

 IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure that all guards are in place and in good working order	
Ensure that the area around the lathe is free of slip/trip hazards.	
Ensure that the chuck and chuck jaws are in good condition.	
Ensure that the cutting tools are free of defects and sharp and correctly set up in the tool post.	
Ensure that the sliding surfaces move freely without obstruction.	
Ensure that the hand wheels move freely without play/obstruction.	
WEEKLY	✓
Clean the lathe and lubricate the sliding surfaces and threads.	
Ensure that the threads are free from metal chips; use an air hose or small brush to keep them clean.	
A few drops of light oil behind the hand wheel will reduce friction between the surfaces.	
Wind out the spindle as far as it will go and oil it with a light oil.	
MONTHLY	✓
Check the spindle; if it spins freely with a chuck on it then it is too loose. Adjust the preload nut until it turns only about one and a half revolutions when spun by hand.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Pickle Pot



Machine	Pickle Pot
Location	Jewellery Studio
Manufacturer	Unknown
Applicable Legislation	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 		✓
Respirator 		✓
Ear Plugs / Ear Muffs 		
Gloves 		
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is power cord free of frays and damage			
2	Are guards in place and in good working order?			
3	Is the area around the pickle pot free of slip/trip hazards?			
4	Does the pot have a cover?			
5	Is the pot clean? Remove contaminants if necessary.			
6	Are there copper tongs and baking soda nearby?			
7	Is your jewellery and tongs steel free?			
8	Is the pot sufficient for the size of the jewellery?			
9	Ensure that you are not quenching hot pieces in the pot			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for the equipment prior to use.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well-lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the pickle pot		
		<ul style="list-style-type: none"> a) Put on your PPE. b) The pickle contains warmed acid solution (sparex) - be careful of burns and splashes.
2. Filling the pickle pot		
		<ul style="list-style-type: none"> a) The pot has 10% Sodium Bisulphate (to remove the oxidation layer) - mix this with the water in the pot-use safe handling precautions. b) Allowing for the volume of the jewellery and solution, fill the pot with the solution. c) Add the solution to the pot-fill slowly to prevent overflow and splash back.
3. Using the pickle pot		
	Picture 1	<ul style="list-style-type: none"> a) Turn on the pickle pot. b) Allow the solution to heat-NOT to boil. Do not set the pot on high as it will boil dry. c) Use copper tongs (see picture 1) to gently set the jewellery into the pot-Remember to never use your hands to dip the jewellery into the pot-don't drop your material into the pot as it could result in splash back. d) Replace cover-do not use the pot without the cover. e) Do not touch the pot or solution while operating- it may be hot or may cause discomfort and possible skin irritation. f) Slowly remove the material from the pot using the steel-free tongs (never using your hands), hold the jewellery above the pot to allow excess solution to drain away. g) In case of skin/eye contact, wash immediately with water. h) Neutralize the jewellery by placing it in baking soda (see picture 2). i) Rinse the jewellery and tongs, and allow it to dry.
	Picture 2	
4. After using the pickle pot		
		<ul style="list-style-type: none"> a) Turn off the pot when not in use/cleaning. b) Discard spent pickle if required; add baking soda to it and let it bubble and then follow proper disposal procedures as used pickle is a contaminated solution-refill with new solution if required- be careful of splash back. c) Clean the inside and the outside of the pot to remove contaminants and dry it-do not immerse in water! NEVER clean while it's running. d) Clean the surrounding area from solution, which may have spilled over the brim.

4.0 Maintenance and Repair

4.1. Inspection Checklist

DAILY	✓
Ensure power cords are free of frays and damage.	
Ensure guards are in place and in good working order.	
Ensure that the area around the pickle pot is free of slip/trip hazards.	
Ensure that the pot is free of defects/cracks and are leak-free.	
Ensure that a cover is available for the pot.	
Ensure that the pot is clean and remove contaminants if necessary.	
Ensure that materials are removed from the bottom of the pot.	
Ensure that there are copper tongs and baking soda available.	
Ensure that the tongs are steel free.	
WEEKLY	✓
Change the solution if necessary-check pot for contamination.	
MONTHLY	✓
Change the solution if necessary-check pot for contamination.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Revisions Approved By:	Date of Approval:

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Polishing/Bench Lathe



Machine	Polishing/Buffering Bench Lathe Baldor Model: #276-L Foredom Model: MB-L
Location	Jewellery
Manufacturer	Name: Baldor Address: Fort Smith, Arkansas 72901, USA Tel: (501) 646-4711 Name: Foredom Electric Co. Address: 16 Stony Hill Rd, Bethel, CT USA 06801 Tel: (203) 792-8622
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 	✓	
Respirator 		✓
Ear Plugs / Ear Muffs 		✓
Gloves 		
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is power cord free of frays or damage?			
2	Do you know where the emergency stop feature is located (This machine uses an electrical cord that can be removed in case of an emergency)?			
3	Are guards in place and in good working order?			
4	Is the area around the lathe free of slip/trip hazards?			
5	Has the debris/material from previous operations been removed?			
6	Are the buffing wheel surfaces free of defects?			
7	Do the wheels move freely without obstruction?			
8	Are you using suitable material (no chain or wire), compound and brushes for the lathe? Wheels are made for polishing certain items only.			
9	Is the grinding wheel 2" or less in diameter or buff under 4"?			
10	Are you the only operator in the polishing room while operating?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

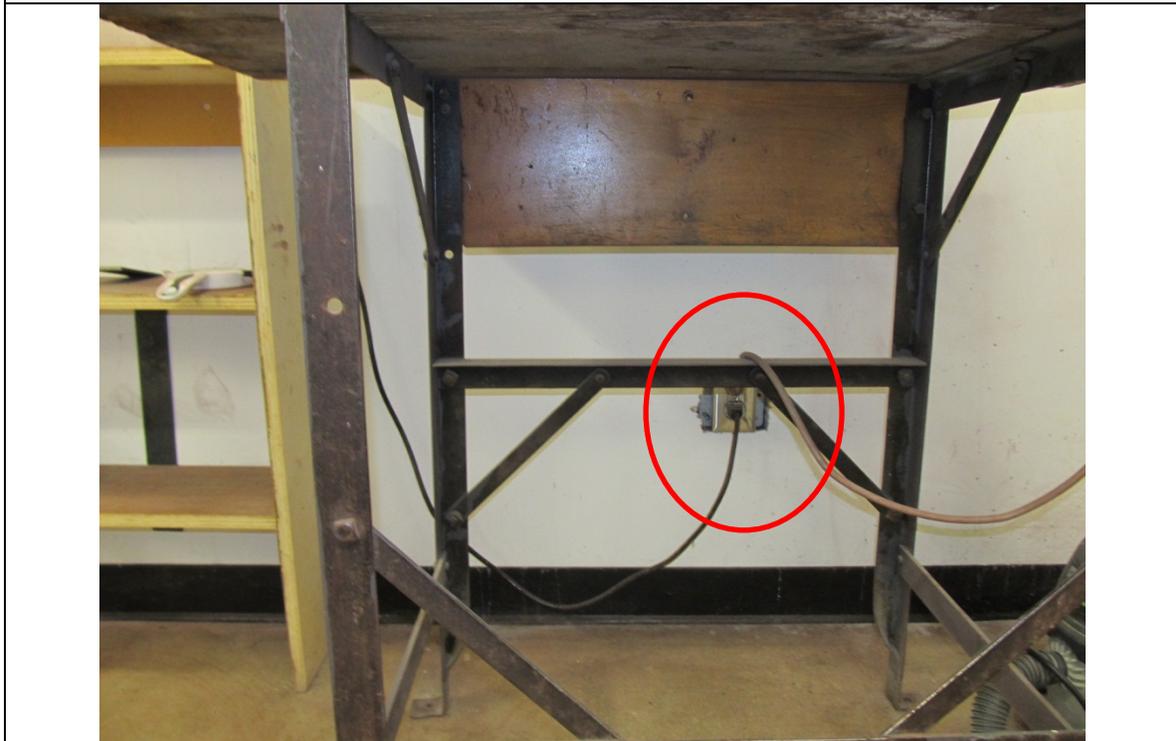
3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the Polishing Lathe	
	<p style="text-align: center;">Picture 1</p> <ol style="list-style-type: none"> a) Put on your PPE. Do not wear gloves as they may be an entanglement hazard b) Ensure that lathe is off while inserting the mandrel into the collet (or collet holder chuck or chuck arbor) as far as possible in order to provide proper support. Tighten securely. c) Select the buffing compound and wheel indicated for use with that compound(see picture 1). d) Line up the wheel with the spindle when mounting. e) Make sure that the wheel is not in contact with the work when you start the lathe. f) Stand to one side, turn the switch on and allow the motor to reach full speed. g) The lathe should come up to speed smoothly and without vibration. If not, shut lathe off immediately and contact technician. h) The polishing lathe has an attachment plug and receptacle (plug/socket combination) for cord connection, which may be used to disable the machine in the event of an emergency.
2. Using the Polishing Lathe	
	<p style="text-align: center;">Picture 2</p> <ol style="list-style-type: none"> a) Align arbor hole in the buff/polishing wheel with spindle threads (see picture 2). b) The buff/polishing wheel will self tighten as it travels up the threads. c) To remove, turn lathe off and manually unscrew your wheel or buff. d) Once the brush is at full speed, apply a some buffing/polishing compound, hold the compound firmly to prevent the wheel from taking it out of your hands.
	<p style="text-align: center;">Picture 3</p> <ol style="list-style-type: none"> e) Grip the work piece firmly and do not hook your hand through the work piece-use a holder when practical. f) Using both hands, apply the work piece firmly and slowly to the front/face, lower ¼ of the wheel (see picture 3)., If the work piece is caught by the wheel, the wheel will normally spin the piece to the back of the chamber. Do not present a leading edge to the wheel or it will take it out of your hands. g) Use as little pressure as possible on the material to complete the task. Too much pressure will burn the material and put the operator's hands and fingers at risk should the material get pulled from the grip of the operator. h) Move the work back and forth in slow, even strokes. i) If you notice the wheel is not balanced, turn off machine and report to technician.
4. After using the Polishing Lathe	
	<ol style="list-style-type: none"> a) Turn off the Lathe. b) Wait until the wheel has come to a complete stop - Never leave the machine unattended until it has come to a complete stop. c) Clean the Lathe area upon completion of the task. NEVER clean the machine while it is in motion. d) Sweep the floor surrounding the Lathe. e) Replace compounds and wheels. f) Wipe down polishing dust to prevent accumulation. g) Wash hands thoroughly.

4.1. Lockout/Tag out Procedure

LOCKOUT TAGOUT PROCEDURE		
Equipment Identification	Equipment Name/Description:	Polishing/Buffering Bench Lathe (Both machines)
	Equipment Location:	Jewellery Studio
	Total # of Energy Isolation Devices/locks:	1

NOTICE ⚠ **BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE**



Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

STOP IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure that all guards are in place and in good working order	
Ensure that the area around the lathe is free of slip/trip hazards.	
Ensure that the buffing wheels are free of defects.	
Ensure that the wheels move freely without obstruction and fit properly.	
Ensure that polishing dust is wiped down to prevent accumulation.	
WEEKLY	✓
Clean the lathe and filters	
Ensure that wheels marked for safe operations at or over the maximum RPM rating are being used on this lathe. Using a wheel rated at a lower RPM than that of the machine (i.e. 2400 RPM for Baldor and 7000 RPM for Freedom Lathe) can cause a hazardous condition.	
MONTHLY	✓
Check that all nuts, bolts and other fixings are properly tightened.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Revisions Approved By:	Date of Approval:

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Rotary Tumbler



Machine	Rotary Tumbler Model: Bench Top
Location	Jewellery
Manufacturer	Name: C&M / Topline Address: 5945 Daley Street, Goleta, CA, 93117 Tel: (800) 827-1333
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  		✓
Dust Mask		
Respirator		
Ear Plugs / Ear Muffs		✓
Gloves		
Closed-Toe Foot Wear (no heels)	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is the power cord free of fray or damage?			
2	Do you know where the emergency stop feature is located (This machine uses an electrical cord that can be removed in case of an emergency)?			
3	Is the area around the tumbler free of slip/trip hazards?			
4	Has the debris/material from previous operations been removed?			
5	Is the tumbler free of defects?			
6	Is the lid attached, closing with a tight seal?			
7	Is the tumbler and water clean?			
8	Is the tumbler a sufficient size for the work piece? (it needs to be big enough to run freely without the parts getting stuck)			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

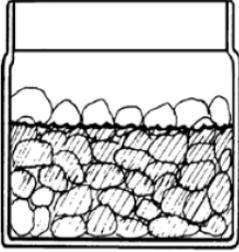
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the tumbler	
	<p style="text-align: center;">Picture 1</p> <ol style="list-style-type: none"> a) Put on your PPE b) Select media/compound package best suited for your job-keep in mind size of media so as to eliminate any lodging of parts and media. c) Open the barrel lid (see picture 1). d) The tumbler has an attachment plug which may be used to disable the machine in the event of an emergency.
2. Filling the tumbler – Deburr or Grind Cycle	
	<p style="text-align: center;">Picture 2</p> <ol style="list-style-type: none"> a) Use 50/60% load (parts & media) (see picture 2). b) Use 40/50% water level-fill slowly to ensure that it does not overflow. c) Use soap-1 to 2 oz. per gallon of water. d) Add cutting compound for faster deburring if desired.
3. Filling the tumbler – Polish or Clean-up Cycle	
	<ol style="list-style-type: none"> a) Use 50/60% load (parts & media). b) Use 60/70% water level-fill slowly to ensure that it does not overflow. c) Use soap-2 to 4 oz. per gallon of water. d) DO NOT add any cutting compound or grit for polish or lean-up.
4. Using the tumbler	
	<ol style="list-style-type: none"> a) Replace the cover b) Turn on the tumbler-be careful to prevent entanglement hazards of the rotating tumbler. c) Run the tumble on high speed for aggressive deburring and polishing-be aware of pinch point hazards of the rotating tumbler. d) Run the tumbler on slow speed for delicate or fragile parts. e) Check tumble load after 15 minutes running for any lodging or bending. f) Stop the tumbler if there are any leaks present or if there is excessive vibration. g) Do not touch the tumbler while operating. h) Do not try to stop the tumbler rotating while in operation.
5. After Using the tumbler	
	<ol style="list-style-type: none"> a) Turn off the tumbler when not in use. b) Retrieve small parts from the tumbler. c) Clean the tumbler and surrounding area. NEVER clean machine while running.

4.1. Lockout/Tag out Procedure

LOCKOUT TAGOUT PROCEDURE		
Equipment Identification	Equipment Name/Description:	Rotary Tumbler
	Equipment Location:	Jewellery Studio
	Total # of Energy Isolation Devices/locks:	1
NOTICE  BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE		
		

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

 IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure that all guards are in place and in good working order	
Ensure that the area around the tumbler is free of slip/trip hazards.	
Ensure that the tumbler barrel is secure on the base and on the bench top, in order to withstand vibration from the rotating mechanism.	
Ensure that the tumbler barrel and the base align correctly and are secure.	
Ensure that the tumbler is free of defects/cracks and leak-free.	
Ensure that the tumbler has a lid, which closes completely, with a tight seal.	
Ensure that the tumbler is clean-remove contaminants if necessary.	
Ensure that the water inside the tumbler is clean.	
WEEKLY	✓
Change the water and compounds-check tumbler for contamination.	
MONTHLY	✓
Ensure that the belt is correctly tensioned but not overly tight. Replace old belts if necessary.	
Lubricate shaft bearings.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

Any changes or updates to this document must be recorded and maintained.

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Steam Generator



Machine	Polishing/Buffering Bench Lathe Baldor Model: #276-L Foredom Model: MB-L
Location	Jewellery
Manufacturer	Name: Baldor Address: Fort Smith, Arkansas 72901, USA Tel: (501) 646-4711 Name: Foredom Electric Co. Address: 16 Stony Hill Rd, Bethel, CT USA 06801 Tel: (203) 792-8622
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask		
Respirator		
Ear Plugs / Ear Muffs		
Gloves	✓ 	
Closed-Toe Foot Wear (no heels)	✓ 	
Lab Coat / Protective Apron	✓  	
Other: Wear Sleeves	✓	



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is power cord free of frays or damage?			
2	Do you know where the emergency stop feature is located (This machine uses an electrical cord that can be removed in case of an emergency)?			
3	Are guards in place and in good working order?			
4	Is the area around the steamer free of slip/trip hazards?			
5	Are steamer parts; filling funnel, gauges, valves, electronic boiler control free of defects and leak free?			
6	When cleaning castings place a pan in the sink to insure plaster is not entering the drain.			
7	CAUTION: DO not adjust the pressure high-limit control marked "DO NOT ADJUST". This control is factory preset for safety purposes.			
8	Is the protective screen in place to separate the steamer from the sink area and is the sink area clear of workers?			
9	Fill with distilled water only, no tap water.			
10	Are you using material suitable for the steamer?			
11	Are you using the steam generator with supervision?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

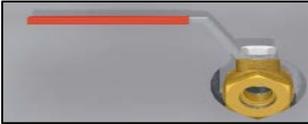
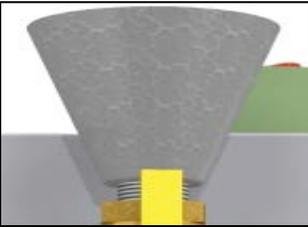
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before Using the Steam Generator		
	Picture 1	<ul style="list-style-type: none"> a) Put on your PPE. b) Stand clear of the safety valve (see picture 1) and scalding steam. c) The steamer has an attachment plug which may be used to disable the machine in the event of an emergency.
2. Using the Steam Generator		
	Picture 2	<ul style="list-style-type: none"> a) CAUTION: Valves and pipes are hot when under pressure – do not touch to prevent injury. b) Close blowdown valve (see picture 2). c) On the electronic boiler control (see picture 3), turn on the power switch. d) Open fill valve (see picture 4) and release air from unit by pressing foot switch . e) CAUTION: Do not place your hands or body over the fill funnel to prevent burns. f) Pour water in to funnel (see picture 5), slowly to prevent splash back, until it reaches the 'Max' level mark beside the gauge glass-do not overfill (water MUST be above 'Min' mark). g) Close fill valve (see picture 4-NEVER open the fill valve when the unit is under pressure. h) On the electronic boiler control (see picture 3), push the 'Low Water' manual reset switch. The heating light will stay on until the preset working pressure is reached. i) For safety, when the water level gets low, the unit will shut off automatically and the 'Low Water' alarm light will be lit. j) To refill, ensure to turn off the power switch first and allow the steam pressure to drop to zero. k) Hold the work piece to be cleaned with rubber tipped tweezers – NEVER hold the work piece with your hands. l) Clean the work piece under the steam (see picture 6).
	Picture 3	
	Picture 4	
	Picture 5	
	Picture 6	

3. After Using the Steam Generator

- a) Turn off the steamer when not in use.
- b) Allow the steamer and work piece to cool before touching.
- c) Drain the steamer.
- d) Move the foot control to a safe location to prevent accidental firing of the system.

4.1. Lockout/Tag out Procedure

LOCKOUT TAGOUT PROCEDURE		
Equipment Identification	Equipment Name/Description:	Steam Generator
	Equipment Location:	Jewellery Studio
	Total # of Energy Isolation Devices/locks:	1
<p>NOTICE  BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</p>		
		

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

 IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure that all guards are in place and in good working order	
Ensure that the area around the steamer is free of slip/trip hazards.	
Ensure that the steamer parts; filling funnel, gauges, valves, electronic boiler control are free of defects and leak free. To check for leaks, ensure that the boiler is cold, drained and has no pressure or electricity. Tighten leaking packing nut gently a quarter of a turn-do not over tighten. Fill boiler and operate normally. Observe. If the gauge glass fixtures are leaking, the two brass nuts at the top and bottom of gauge glass should be tightened until leakage stops.	
The safety valve is designed to discharge hot steam when the set pressure is exceeded – ensure that the discharge port is pointing toward the back of the unit away from the operator and any aisles.	
CAUTION: DO not adjust the pressure high-limit control marked “DO NOT ADJUST”. This control is factory preset for safety purposes.	
Ensure that the protective screen is in place to separate the steamer from the sink area.	
WEEKLY	✓
Perform boiler blowdown minimum once per week. CAUTION: stand clear of scalding water and steam	
Clean the steamer.	
MONTHLY	✓
Test the safety valve once per month at full operating pressure. CAUTION: Stand clear of safety valve and scalding steam. If discharge pipe is required, it should not be smaller than the valve outlet and must be rigidly supported.	
Ensure that the parts are not cracked or broken.	
ANNUALLY	✓
Replace the gauge glass minimum once per year-always install new rubber washers.	
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Ultrasonic Cleaner



Machine	Ultrasonic Cleaner Model: 2510 (Tabletop Ultrasonic Cleaner)
Location	Jewellery
Manufacturer	Name: Branson Address: P.O. Box 1961 Danbury, CT 06813-1961 Tel: (203) 796-0400
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 		
Respirator 		
Ear Plugs / Ear Muffs 		
Gloves 	✓	
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  	✓	
Other:		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Is power cord free of frays or damage?			
2	Do you know where the emergency stop feature is located (This machine uses an electrical cord that can be removed in case of an emergency)?			
3	Is the ultrasonic cleaner secure?			
4	Is the area around the ultrasonic cleaner free of slip/trip hazards?			
5	Is the cleaner free of defects/cracks and leak-free.			
6	Are you using the cleaner dry?			
7	Are parts or containers removed from the bottom of the tank? (use a tray or wire to suspend items).			
8	Is the fill level of solution adequate?			
9	Is the tank clean? Remove contaminants with a nonabrasive cloth and water before use if necessary.			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before using the ultrasonic cleaner	
	<ul style="list-style-type: none"> a) Put on your PPE.
2. Filling the ultrasonic cleaner	
	<ul style="list-style-type: none"> a) Never use solvents b) Free hydrogen may be released if solution comes on contact with reactive metals. c) Allowing for the volume of the jewellery and solution, fill tank with warm tap water to the 'operating level' line (1" from top). d) Add cleaning solution (if you have changed the solution, you must degas it). Maintain level within 3/8" of the 'operating level' line. Fill slowly to prevent overflow and splash-back.
3. Using the ultrasonic cleaner	
	<ul style="list-style-type: none"> a) Plug in and turn on the heater and ultrasonics. b) Set the timer to prevent over-use. c) Place the items in to a basket (see picture 1). d) Slowly lower the tray in to the tank. Do not allow items to contact the tank bottom. Do not stir the solution. e) Add the cover-do not cover vents on the cover. f) Allow the solution to heat-do not allow temperature to exceed 70 degrees C (max capacity is 60 degrees C). g) Do not touch the tank or solution while in operation, it may be hot. h) To stop Ultrasonic at any time, turn the timer to zero. i) When items are clean, slowly remove them from cleaner. j) If you remove heavy/bulky loads, the solution level may drop below the 'operating level' line-if so, replace lost solution and degas.
4. After Using the ultrasonic cleaner	
	<ul style="list-style-type: none"> a) Rinse the clean items with clean water to remove chemicals b) Turn off the cleaner a when not in use. c) Clean the surrounding area from solution, which may have spilled over the brim. NEVER clean machine while running.

4.1. Lockout/Tag out Procedure

LOCKOUT TAGOUT PROCEDURE		
Equipment Identification	Equipment Name/Description:	Ultrasonic Cleaner
	Equipment Location:	Jewellery Studio
	Total # of Energy Isolation Devices/locks:	1

NOTICE ⚠ **BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE**



Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

STOP IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
* LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Ensure that the area around the cleaner is free of slip/trip hazards.	
Ensure that the cleaner is free of defects/cracks and are leak-free.	
Ensure that the 'operating line' level is not blackened out.	
Ensure that the cleaner is clean and remove contaminants with a nonabrasive cloth and water.	
WEEKLY	✓
Change the solution-check tank for contamination.	
MONTHLY	✓
Ensure that the transducer is free of defects.	
ANNUALLY	✓
Test the level of activity of the ultrasonic cavitation.	
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Vacuum Cast



Machine	Vacuum Cast Model: #10
Location	Jewellery
Manufacturer	Name: ARBE Machine MFG., Inc Address: 54 Allen Blvd., Farmingdale, NY 11735 Tel: (631)756-2477
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery" CSA Z460-05 "Control of hazardous energy-lockout and other methods"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians



DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  	✓	
Dust Mask 	✓	
Respirator 		✓
Ear Plugs / Ear Muffs 		
Gloves 	✓	
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  	✓	
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Are the power cords free of frays and damage?			
2	Do you know where the emergency stop feature is located? The machine has an attachment plug and receptacle (plug/socket combination) and so it may be used to disable the machine in the event of an emergency.			
3	Is the area around the machine free of slip/trip hazards?			
4	Is the vacuum table secure and level?			
5	Are the vacuum table and vacuum bell free of defects and damage?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Make sure the power cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before Using the Vacuum Cast		
	Picture 1	<ul style="list-style-type: none">a) Put on your PPE.b) Select a flask and rubber base(see picture 1) suitable for the mould.
2. Mixing the Plaster Investment Compound		
	Picture 2	<ul style="list-style-type: none">a) The mixing procedures for investment plaster are extremely specific; review them before attempting the investment process!b) Pour the plaster into the room temp. water and mix together using a spatulac) Ensure that the wax pattern model is attached securely to the bottom of the flask (see picture 2).d) Pour the compound into the flask.
3. Using the Vacuum Cast		
		<ul style="list-style-type: none">a) Place the flask onto the bed of the vacuum table.b) Place the vacuum bell over the flask on the vacuum table and turn the valve handle to "investment" and start the vacuum pump.c) Agitate the flask by repeatedly gently tapping the table with your fist for several minutes.d) The vacuum will remove the air from the compound, a paper collar will prevent the expanding plaster from running over the edge of the flask.
4. After Using the Vacuum Cast		
		<ul style="list-style-type: none">a) Remove the flask from the vacuum table and allow it to cure for 1 hour.b) Ensure the mould is fully cured and remove the rubber base before placing it in the furnace.c) Clean the vacuum table castd) Clean the bowl, spatula and other utensils in the wash out bucket. Do not clean plaster in the sink.

4.1. Lockout/Tagout Procedure

LOCKOUT TAGOUT PROCEDURE		
Equipment Identification	Equipment Name/Description:	Vacuum Cast
	Equipment Location:	Jewellery Studio
	Total # of Energy Isolation Devices/locks:	1

NOTICE ⚠️ **BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE**



Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of damage.	
Machine is secured and balanced	
Ensure the area around the vacuum cast free of slip/trip hazards.	
Ensure that the vacuum pump and vacuum bell are free of defects and damage.	
WEEKLY	✓
Clean the machine	
MONTHLY	✓
Check all connections and parts. Tighten loose connections with a wrench.	
ANNUALLY	✓
Inspect entire machine and perform maintenance as required.	

5.0 Document Control

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Vulcanizer



Machine	Vulcanizer Model: 310
Location	Jewellery
Manufacturer	Name: Swest
Applicable Legislation	CAN/CSA-Z432-04 "Safeguarding of Machinery"
Sources	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians
 DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!	

1.0 Personal Protective Equipment (PPE) Requirements

PERSONAL PROTECTIVE EQUIPMENT (PPE)	REQUIRED	RECOMMENDED
Face Shield / Safety Glasses with side shields  		
Dust Mask		
Respirator		
Ear Plugs / Ear Muffs		
Gloves	✓	
Closed-Toe Foot Wear (no heels)	✓	
Lab Coat / Protective Apron  		
Other		



ALWAYS WEAR THE REQUIRED PPE WHEN USING THIS MACHINE!

2.0 Pre-use Inspection Checklist

	Check	Y	N	N/A
1	Are the power cords free of frays and damage?			
2	Do you know where the emergency stop feature is located (button/switch/cord)? The vulcanizer has an attachment plug and receptacle (which may be used to disable the machine in the event of an emergency).			
3	Is the vulcanizer secure and level?			
4	Is the work area free of slip/trip hazards?			
5	Are the vulcanizer and hand wheel free from defects?			
6	Does the hand wheel raise and lower the vulcanizer without obstruction?			
7	Is the work piece clean?			
	Comments/Corrective Action:			

3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

3.1 General Safety Guidelines

Before using the machine, perform the following general safety checks:

- Make sure you understand all of the instructional material before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- If you have any questions or uncertainties, please ask your studio technician before use.
- Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- Ensure you know where the emergency stops for your equipment are prior to use and within reach during operation. In the absence of an emergency stop, ensure that the power switch is within reach.
- Do not remove or render machine guarding ineffective in any way.
- Ensure the work area is both well lit and organized.

3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before Using the Vulcanizer		
		<ul style="list-style-type: none"> a) Put on your PPE. b) The vulcanizer has an attachment plug/socket combination for power, which may be used to disable the machine in the event of an emergency. c) CAUTION: Be careful to prevent burns from the platens that get hot, and to prevent crush hazards from the pressure exerted by the press.
2. Using the Vulcanizer		
	Picture 1	<ul style="list-style-type: none"> a) Turn on the vulcanizer. b) It is set to the appropriate temperature so do not adjust the temperature control. Allow it to preheat for a minimum of half an hour with the platens in contact. c) Making a rubber mould is a complex process insure you have reviewed all instructions prior to laying up your mould. d) To create your rubber mould, layer the rubber in the mould frame (see picture 1). e) Place your finished, clean piece of jewellery in to the center of the rubber pieces in the mould frame. f) Once the work piece and the rubber is in the mould, place two aluminum sheets on either side of the mould. g) Open the platens by turning the hand wheel (see picture 2). h) Place the mould centered between the platens (see picture 3)-be careful of burn, pinch point and crush hazards. i) Turn the hand wheel in the opposite direction to close the platens, keep fingers away while closing it. Close as tightly by hand as possible and retighten after 5 minutes. j) Vulcanize for appropriate amount of time depending on the thickness in the mould.
	Picture 2	
	Picture 3	
3. After Using the Vulcanizer		
		<ul style="list-style-type: none"> a) Turn off the vulcanizer when not in use. b) Remove the mould with a pair of tongs and cool with running water in the sink. c) Remove the mould from the frame and cut it open – be careful to prevent cuts from the blade.

4.1. LOTO Procedure

LOCKOUT TAGOUT PROCEDURE	
Equipment Identification	Equipment Name/Description: Vulcanizer
	Equipment Location: Jewellery Studio Room 217
	Total # of Energy Isolation Devices/locks: 1
NOTICE BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE	
	

Energy Source	Location	Type of EID/lock to be used	Steps for locking & tagging	Verification Procedure
Electrical	End of cord	Plastic clamshell and padlock	Stop machine, unplug cord, and install clamshell, lock, and tag.	Attempt to start machine, visually confirm it will not start.

IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP & CONTACT YOUR SUPERVISOR	
LOTO Procedure # A-xxxxxxx	Revision #:
Approved by:	Date:

4.2 Inspection Checklist

DAILY	✓
Ensure that the power cords are free of frays and damage.	
Ensure that guards are in place and in good working order.	
Ensure that the vulcanizer and accessory are secure with no loose connections.	
Ensure that the work area is free of slip/trip hazards and dry.	
Ensure that flammable/combustible materials and any degreasing, cleaning and spraying operations are removed from the immediate work area. If this is not possible, tightly cover with approved covers.	
Ensure that debris/material from previous operations is removed.	
Ensure that the vulcanizer and hand wheel are free of defects.	
Ensure that the hand wheel raises and lowers the platens without obstruction.	
WEEKLY	✓
Clean the vulcanizer	
MONTHLY	✓
Lubricate the vulcanizer	
ANNUALLY	✓
Inspect entire tool and perform maintenance as required.	

5.0 Document Control

Any changes or updates to this document must be recorded and maintained.

Initially Created By: The Office of Safety and Risk Management	Date: September 2011
Consultation: <ul style="list-style-type: none"> ▪ Studio Managers and Technicians ▪ Program Chairs and faculty 	Date: January-April 2013 April – May, 2013
Approval By: VPFA and VPA	Date: September, 2013
Review and Revisions Made By:	Date Revised:
Changes Made (<i>indicate sections</i>):	
Revisions Approved By:	Date of Approval:



Jewellery Studio

Office of Safety & Risk Management
Rosalie Sharpe Pavilion
115 McCaul
Room 2210



Chemical Matrix - Jewellery Studio

Product	Form / Phase	Key Composition	Key Hazardous Properties								Storage Location		Recommended Personal Protective Equipment								Disposal								
			Flash Point F	Strong Acid/Base	Strong Oxidizer / Reducer	Compressed Gas	Flammable/Explosive	Combustible	Potentially Sensitizing	High Toxicity	Flam Cabinet	Non-Flam Cabinet	Chained / Compressed Gas Carrier	Non-Flam Cupboard / Shelving / Counter	Face		Body		Hands	Respiratory Protection			Use in Fume Hood	Non-Haz Disposal	Haz Waste Disposal	Sanitary Drain			
															Chemical Safety Glasses	Face Shield	Flame Resistant Lab Coat	Chemical Splash Apron	Painter's Shirt and Pants or Coveralls	Chemical Protective Gloves per MSDS	Half Face Respirator with P100 Cartridge	Half Face Respirator with Organic Vapour Cartridge					Half Face Respirator with Acid / Caustic Cartridge	Disposable N95 Respirator	
STOP-OFF LACQUER	Liquid	Toluene, MEK, MIBK, etc.	0			X				X			X		X			X								X			
SUNLIGHT Dishwashing Liquid	Liquid											X		X															X
TARTARIC ACID	Powder			X		X				X			X		X			X				X	X						X
Top-Cote Aerosol Series	Aerosol	Isooctane, mineral spirits, butane, propane, isobutane	<0		X	X				X			X		X			X									X		
Tripoli A	Powder	98% crystalline silica										X	X	X		X		X					X					X	
Trisodium Phosphate (TSP)	Powder											X	X	X		X									X			X	
Turpentine	Liquid		95		X					X			X		X			X									X		X
Ultrasonic Cleaning Solution	Liquid	Reportedly not a WHMIS controlled product								X																			X
VACCUM PUMP OIL 265-1700	Liquid	High boiling mineral oil										X		X				X										X	
WD40	Liquid	50% Aliphatic hydrocarbon, 25% petroleum base oil	122							X			X					X										X	
WD-40 Aerosol	Aerosol	50% Aliphatic hydrocarbon, 25% petroleum base oil,	122							X			X					X										X	
Windex	Liquid	Water, isopropanol, ethylene glycol										X	X					X								X			X
Witch Hazel	Liquid	15% ethanol, 85% witch hazel extract	110					X		X			X					X									X		X
ZINC SULFATE	Powder									X			X		X			X				X	X				X		X

1. Screening procedures for Introducing new chemicals OCAD U

Purpose for this Procedure:

1. To define chemical products that are restricted and cannot be introduced to the facility without explicit permission of the Office of Safety and Risk Management.
2. To the extent practicable, avoid introducing to the facility any new products or chemicals that are:
 - a) highly hazardous to health, safety, the environment, or the property, or
 - b) require significant effort to maintain regulatory compliance.
3. To ensure that we comply with all applicable regulatory requirements and good safety practices in relation to any newly introduced products or chemicals.
4. Describe the information gathering activities and compliance actions that must be taken prior to or in connection with introducing and procuring chemicals and products.

Restricted Substances List:

1. No "new product" containing any substance on the OCAD U Restricted Substance List shall be purchased or brought onto OCAD U property unless prior written approval is obtained from the Office of Safety and Risk Management. A "new product" is one that was not listed on the OCAD U Master Chemical Inventory, as of December 2011.
2. "OCAD U Restricted Substances" are substances that are subject to significant health, safety or environmental regulatory compliance obligations, and / or may present significant hazards to health, safety or the environment. Approval to purchase or bring onto the property an OCAD U Restricted Substance shall only be granted if the compliance requirements identified in the list are complied with.
3. It is the responsibility of the "new product user" (i.e. the person wishing to obtain the new product, or his / her supervisor or manager) to ensure compliance with the requirements shown on the list.
4. For assistance and guidance in complying with any OCAD U Restricted Substances requirements, contact the Office of Safety and Risk Management.

List of OCAD U Restricted Substances

Restricted Substance	Reason for Restriction	Not Permitted on OCAD U Property	Designated Substance Assessment	Emergency Response Plan	Substance-Specific Safety Plan	Specific Regulatory Training	City of Toronto Pollution Prevention Plan
1,1,2,2-tetrachloroethane	City of Toronto Appendix 1 substance						√
1,2-dichlorobenzene	City of Toronto Appendix 1 substance						√
1,4-dichlorobenzene	City of Toronto Appendix 1 substance						√
3,3'-dichlorobenzidine	City of Toronto Appendix 1 substance						√
acrylonitrile (monomer)	Designated substance		√		√		
aldrin/dieldrin	City of Toronto Appendix 1 substance						√
alkylphenol ethoxylates	City of Toronto Appendix 1 substance						√
alkylphenols	City of Toronto Appendix 1 substance						√
ammonia (as a compressed gas)	Inherent hazard			√	√		
an ozone depleting substance (see Prohibited Substances list)	Federal and provincial environmental law prohibitions	√					
any radioisotope (unless contained within a consumer product)	Inherent hazard and regulatory control requirements	√					
arsenic as a salt or in solution	OHSA designated substance, and City of Toronto Appendix 1 substance		√		√		√
asbestos	OHSA designated substance		√				
benzene	OHSA designated substance, and City of Toronto Appendix 1 substance		√		√		√
bis (2-ethylhexyl) phthalate	City of Toronto Appendix 1 substance						√
carbon tetrachloride	Inherent hazard				√		
chlordane	City of Toronto Appendix 1 substance						√
chlorine (as a compressed gas)	Inherent hazard			√	√		
chloroform	City of Toronto Appendix 1 substance						√
chromium (in a metal, salt or in solution)	City of Toronto Appendix 1 substance				√		√
cis-1,2-dichloroethylene	City of Toronto Appendix 1 substance						√
cobalt	City of Toronto Appendix 1 substance						√
copper	City of Toronto Appendix 1 substance						√
DDT	City of Toronto Appendix 1 substance						√
di-n-butyl phthalate	City of Toronto Appendix 1 substance						√
ethyl benzene	City of Toronto Appendix 1 substance						√
ethylene oxide	OHSA designated substance		√		√		
hexachlorobenzene	City of Toronto Appendix 1 substance						√
hexachlorocyclohexane	City of Toronto Appendix 1 substance						√
hydrofluoric acid	Inherent hazard				√		
hydrogen (as a compressed gas)	Inherent hazard, Ontario Fire Code requirements				√	√	
isocyanates (any type of monomer)	OHSA designated substance		√		√		
lead	OHSA designated substance, and City of Toronto Appendix 1 substance		√		√		√

Restricted Substance	Reason for Restriction	Not Permitted on OCAD U Property	Designated Substance Assessment	Emergency Response Plan	Substance-Specific Safety Plan	Specific Regulatory Training	City of Toronto Pollution Prevention Plan
manganese (as a salt or in solution)	Toxicity				√		
mercury	OHSA designated substance, and City of Toronto Appendix 1 substance		√		√		√
methylene chloride	City of Toronto Appendix 1 substance						√
mirex	City of Toronto Appendix 1 substance						√
molybdenum	City of Toronto Appendix 1 substance						√
nickel (as a salt or in solution)	City of Toronto Appendix 1 substance				√		√
polychlorinated biphenyl	City of Toronto Appendix 1 substance, provincial and federal environmental law prohibitions	√					√
pentachlorophenol	City of Toronto Appendix 1 substance						√
picric acid	Inherent hazard	√					
propane	Inherent hazard, Ontario Fire Code requirements				√	√	√
selenium	City of Toronto Appendix 1 substance						√
silica (any crystalline form)	OHSA designated substance		√		√		
styrene (monomer)	Inherent hazard				√		
tetrachloroethylene	City of Toronto Appendix 1 substance						√
toluene	City of Toronto Appendix 1 substance						√
xylene	City of Toronto Appendix 1 substance						√
trans-1,3-dichloropropylene	City of Toronto Appendix 1 substance						√
trinitrotoluene ("TNT")	Inherent hazard	√					
vermiculite	Potential asbestos content, resultant OHSA regulatory controls	√					
vinyl chloride (monomer)	OHSA designated substance		√		√		
zinc	City of Toronto Appendix 1 substance						√

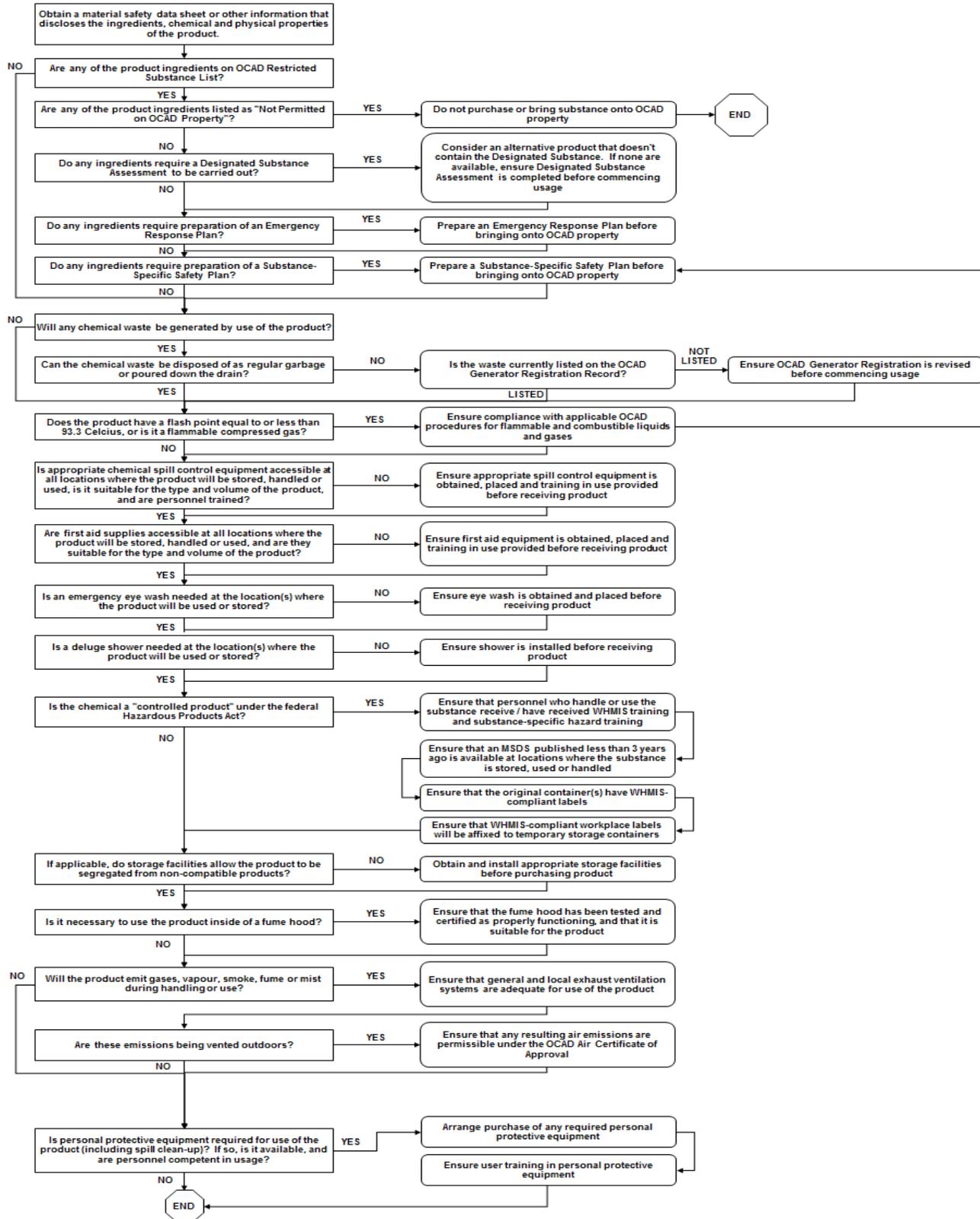
List of OCAD U Prohibited Substances

Environmental Protection Act Ozone Depleting Substances	
EPA, 718/94 and 717/94 Class 1 ODS	CFC-11, also known as fluorotrichloromethane
EPA, 718/94 and 717/94 Class 1 ODS	CFC-12, also known as dichlorodifluoromethane
718/94 and 717/94 Class 1 ODS	CFC-13, also known as chlorotrifluoromethane
718/94 and 717/94 Class 1 ODS	CFC-111, also known as pentachlorofluoroethane
718/94 and 717/94 Class 1 ODS	CFC-112, also known as tetrachlorodifluoroethane
EPA, 718/94 and 717/94 Class 1 ODS	CFC-113, also known as trichlorotrifluoroethane
EPA, 718/94 and 717/94 Class 1 ODS	CFC-114, also known as dichlorotetrafluoroethane
EPA, 718/94 and 717/94 Class 1 ODS	CFC-115, also known as monochloropentafluoroethane
718/94 and 717/94 Class 1 ODS	CFC-211, also known as fluoroheptachloropropane
718/94 and 717/94 Class 1 ODS	CFC-212, also known as difluorohexachloropropane
718/94 and 717/94 Class 1 ODS	CFC-213, also known as trifluoropentachloropropane
718/94 and 717/94 Class 1 ODS	CFC-214, also known as tetrafluorotetrachloropropane
718/94 and 717/94 Class 1 ODS	CFC-215, also known as pentafluorotrchloropropane
718/94 and 717/94 Class 1 ODS	CFC-216, also known as hexafluorodichloropropane
718/94 and 717/94 Class 1 ODS	CFC-217, also known as heptafluorochloropropane
EPA, 718/94 and 717/94 Class 1 ODS	Halon-1211, also known as bromochlorodifluoromethane
EPA, 718/94 and 717/94 Class 1 ODS	Halon-1301, also known as bromotrifluoromethane
EPA, 718/94 and 717/94 Class 1 ODS	Halon-2402, also known as dibromotetrafluoroethane
718/94 and 717/94 Class 1 ODS	carbon tetrachloride
718/94 and 717/94 Class 1 ODS	methyl chloroform, also known as 1,1,1 trichloroethane
718/94 and 717/94 Class 1 ODS	any hydrobromofluorocarbon
718/94 and 717/94 Class 1 ODS	any isomer of any 718/94 or 717/93 Class 1 ODS
718/94 Class 1 ODS	any hydrochlorofluorocarbon
717/94 Class 2 ODS	HCFC-21, also known as dichlorofluoromethane
717/94 Class 2 ODS	HCFC-22, also known as chlorodifluoromethane
717/94 Class 2 ODS	HCFC-31, also known as chlorofluoromethane
717/94 Class 2 ODS	HCFC-121, also known as tetrachlorofluoroethane
717/94 Class 2 ODS	HCFC-122, also known as trichlorodifluoroethane
717/94 Class 2 ODS	HCFC-123, also known as dichlorotrifluoroethane
717/94 Class 2 ODS	HCFC-124, also known as chlorotetrafluoroethane
717/94 Class 2 ODS	HCFC-131, also known as trichlorofluoroethane
717/94 Class 2 ODS	HCFC-132, also known as dichlorodifluoroethane
717/94 Class 2 ODS	HCFC-133, also known as chlorotrifluoroethane
717/94 Class 2 ODS	HCFC-141, also known as dichlorofluoroethane
717/94 Class 2 ODS	HCFC-142, also known as chlorodifluoroethane
717/94 Class 2 ODS	HCFC-151, also known as chlorofluoroethane
717/94 Class 2 ODS	HCFC-221, also known as hexachlorofluoropropane
717/94 Class 2 ODS	HCFC-222, also known as pentachlorodifluoropropane
717/94 Class 2 ODS	HCFC-223, also known as tetrachlorotrifluoropropane
717/94 Class 2 ODS	HCFC-224, also known as trichlorotetrafluoropropane
717/94 Class 2 ODS	HCFC-226, also known as chlorohexafluoropropane
717/94 Class 2 ODS	HCFC-231, also known as pentachlorofluoropropane
717/94 Class 2 ODS	HCFC-232, also known as tetrachlorodifluoropropane
717/94 Class 2 ODS	HCFC-233, also known as trichlorotrifluoropropane
717/94 Class 2 ODS	HCFC-234, also known as dichlorotetrafluoropropane
717/94 Class 2 ODS	HCFC-235, also known as chloropentafluoropropane

Environmental Protection Act Ozone Depleting Substances

717/94 Class 2 ODS	HCFC-241, also known as tetrachlorofluoropropane
717/94 Class 2 ODS	HCFC-242, also known as trichlorodifluoropropane
717/94 Class 2 ODS	HCFC-243, also known as dichlorotrifluoropropane
717/94 Class 2 ODS	HCFC-244, also known as chlorotetrafluoropropane
717/94 Class 2 ODS	HCFC-251, also known as trichlorofluoropropane
717/94 Class 2 ODS	HCFC-252, also known as dichlorodifluoropropane
717/94 Class 2 ODS	HCFC-253, also known as chlorotrifluoropropane
717/94 Class 2 ODS	HCFC-261, also known as dichlorofluoropropane
717/94 Class 2 ODS	HCFC-262, also known as chlorodifluoropropane
717/94 Class 2 ODS	HCFC-271, also known as chlorofluoropropane
717/94 Class 2 ODS	all other hydrochlorofluorocarbons not specifically named as 717/94 Class 2 ODS, other than HCFC-225, also known as dichloropentafluoropropane
717/94 Class 2 ODS	all mixtures containing any 717/94 Class 2 ODS
717/94 Class 3 ODS	HCFC-225, also known as dichloropentafluoropropane

Pre-Introduction Screening and Compliance Procedure Flow Diagram:



User Record Keeping Checklist

A checklist must be filled in to serve as a record of having completed all of the activities required by the screening and compliance process. The completed checklist must be provided to the responsible manager for verification and signature. The verified and signed checklist must be provided to the Office of Safety and Risk Management for final review and record keeping purposes.

User Record Keeping Checklist			
OCAD U Department / User:			
New Product / Substance:			
Proposed Use:			
Estimated Quantity to be Kept on Hand:			
Estimated Quantity Used per Month:			
Name of verifying Manager:			
Signature of verifying Manager:		Date:	
Step	Action	Completed On	Initials
1	Obtain a material safety data sheet or other information that discloses the ingredients, chemical and physical properties of the substance.		
2	Are any of the product ingredients on OCAD Restricted Substance List?		
3	Are any of the product ingredients listed as "Not Permitted on OCAD Property"?		
4	Are there any "designated substances" listed as ingredients in the product? If so, designated substance assessment must be carried out in conjunction with purchase.		
5	Do any ingredients require preparation of an Emergency Response Plan?		
6	Do any ingredients require preparation of a Substance-Specific Safety Plan?		
7	Will use of the product result in any chemical waste being generated?		
8	Can wastes be disposed of via the drain or in regular garbage, or are the wastes considered to be hazardous waste?		
9	If the waste is a hazardous waste, is that waste currently on the OCAD Generator Registration Record? If not, the Generator Registration Record must be updated.		
10	Is the chemical a liquid with a flash point under 93.3 Celsius, or a flammable compressed gas?		
11	Have provisions been made to ensure compliance with applicable OCAD procedures relating to the use of flammable and combustible liquids (as applicable)?		
12	Have provisions been made to ensure compliance with applicable OCAD procedures relating to flammable compressed gases?		
13	Is existing available spill response equipment at the site of storage and use adequate for the chemical type and volume?		
14	Are existing first aid supplies at the site of storage and use adequate for the chemical type and volume?		

Step	Action	Completed On	Initials
15	Do the locations of chemical storage and use require emergency eye wash and deluge shower? If so, are they present?		
16	Is the chemical a "controlled product" under the federal Hazardous Products Act?		
17	If the product is a "controlled product", have users received WHMIS training in the chemical?		
18	If the product is a "controlled product", ensure that a material safety data sheet published less than 3 years ago will be available at locations where the substance is stored, used or handled.		
19	If the product is a "controlled product", ensure that the original container(s) have WHMIS-compliant labels.		
20	If the product is a "controlled product", ensure that WHMIS-compliant workplace labels will be available if necessary to affix to temporary storage containers		
21	Where on-site will the chemical be stored by the user? Will it be stored beside other chemicals? Are the chemicals with which it will be stored compatible with the new chemical?		
22	Is the chemical one that can only be used inside a fume hood? Is one present? Has it been tested / certified to be functioning properly?		
24	If the chemical will emit gases, vapour, smoke, fume or mist during handling or use, how are these emissions being contained and vented outdoors?		
25	If any emitted gases, vapour, smoke, fume or mist is being released to the indoor atmosphere, is the current general ventilation system a suitable and adequate control measure?		
26	If the chemical will emit gases, vapour, smoke, fume or mist, does the existing OCAD Air Certificate of Approval cover these emissions?		
27	What personal protective equipment is required to be worn by users? Is it available and have users been trained in proper use?		
28	Who will be designated as having ultimate responsibility for compliance with safety requirements relating to the chemical?		

Screening Guidance Notes (corresponds with the table on the proceeding page)

The following table provides guidance on how to perform the various pre-introduction screening activities.

Screening Guidance Notes		
Step	Action	Guidance
1	Obtain a material safety data sheet or other information that discloses the ingredients, chemical and physical properties of the substance.	A material safety data sheet can be obtained from the proposed supplier / vendor. Many suppliers and vendors also make material safety data sheets available via their web sites.
2	Are any of the product ingredients on OCAD U Restricted Substance List?	Compare the ingredients listed on the material safety data sheet with the list of substances in Restricted Substances list.
3	Are any of the product ingredients listed as "Not Permitted on OCAD U Property"?	If "yes", then the product cannot be purchased.
4	Are there any "designated substances" listed as ingredients in the product? If so, designated substance assessment must be carried out in conjunction with purchase.	Restricted Substances list identifies the 11 "designated substances". It is necessary to perform a "designated substance assessment" if any of these substances are to be used.
5	Do any ingredients require preparation of an Emergency Response Plan?	Restricted Substances list identifies substances for which an Emergency Response Plan is required. Plans are required because of the potential for severe harm associated with spills or releases of these substances. Consult the procedure entitled "Preparation of Emergency Response Plans".
6	Do any ingredients require preparation of a Substance-Specific Safety Plan?	Restricted Substances list identifies substances for which a Substance-Specific Safety Plan is required. Plans are required because of the potential for severe harm associated with spills or releases of these substances.
7	Will use of the product result in any chemical waste being generated?	The product user is responsible for determining whether the use of the product will generate waste materials.
8	Can wastes be disposed of via the drain or in regular garbage, or are the wastes considered to be hazardous waste?	Consult the procedure entitled "Chemical Waste Disposal Procedures" to determine if the waste must be treated as hazardous waste, or whether it can be disposed via the drain or in regular garbage.
9	If the waste is a hazardous waste, is that waste currently on the OCAD U Generator Registration Record? If not, the Generator Registration Record must be updated.	Consult with Safety & Risk Management to determine whether the current Generator Registration Record permits OCAD to dispose of these substances. If not, the Generator Registration Record must be updated as a result of the introduction of the product.

Screening Guidance Notes		
Step	Action	Guidance
10	Is the chemical a liquid with a flash point under 93.3 Celcius, or a flammable compressed gas?	This information can be obtained from the material safety data sheet. If the chemical is a liquid and has a flash point between 37.8 C and 93.3 C, it is classed as a "combustible liquid" under the Ontario Fire Code. If the chemical is a liquid with a flash point less than 37.8 C, it is classed as a "flammable liquid" under the Ontario Fire Code. Substance-specific safety plans must be prepared for flammable or combustible liquids, and for flammable compressed gases, and these classes of substances are also subject to additional OCAD procedures that are intended to ensure compliance with Ontario Fire Code and Ontario Electrical Safety Code requirements.
11	Have provisions been made to ensure compliance with applicable OCAD procedures relating to the use of flammable and combustible liquids (as applicable)?	Determine occupancy classification for the proposed storage and usage locations, and ensure the occupancy complies with requirements of the Ontario Fire Code
12	Have provisions been made to ensure compliance with applicable OCAD procedures relating to flammable compressed gases?	Determine occupancy classification for the proposed storage and usage locations, and ensure the occupancy complies with requirements of the Ontario Fire Code
13	Is existing available spill response equipment at the site of storage and use adequate for the chemical type and volume?	Consult the procedure entitled "Chemical Emergency Response", and compare the requirements listed in Restricted Substances list of that procedure with the equipment that is present and available at or in the vicinity of the sites of planned storage and use.
14	Are existing first aid supplies at the site of storage and use adequate for the chemical type and volume?	Consult the procedure entitled " Chemical Emergency Response ", and compare the requirements listed in Restricted Substances list of that procedure with the equipment that is present and available at or in the vicinity of the sites of planned storage and use.
15	Do the locations of chemical storage and use require emergency eye wash and deluge shower? If so, are they present?	Consult the procedure entitled "Requirements for Chemical Emergency Response", and compare the requirements listed in Restricted Substances list of that procedure with the equipment that is present and available at or in the vicinity of the sites of planned storage and use.

Screening Guidance Notes		
Step	Action	Guidance
16	Is the chemical a "controlled product" under the federal Hazardous Products Act?	"Controlled product" is the term used for pure substances and products that possess chemical, physical, toxic, biohazardous or radioactive characteristics defined by the Controlled Products Regulations under the federal Hazardous Products Act. "Controlled products" are also often referred to as "WHMIS products", since those substances and products are subject to the Ontario Workplace Hazardous Materials Information System Regulation. If the material is a "controlled product", the material safety data sheet may specify the "WHMIS Class" or "Controlled Product Class" for the substance, which will be a number or number+letter combination, but it is not mandatory for this information to be on the material safety data sheet. It is also the case that many products that are not "controlled products" have material safety data sheets, despite the absence of a regulatory requirement for one. A sure way of determining if a substance is a "controlled product" is to examine the label. If it is a "controlled product", then the label will have one or more of the symbols shown in "Screening Procedures Prior to the Introduction of New Chemicals or Products to OCAD University" procedure.
17	If the product is a "controlled product", have users received WHMIS training in the chemical?	See the procedure entitled "Training of Personnel in Chemical Safety" for information on arranging this training.
18	If the product is a "controlled product", ensure that a material safety data sheet published less than 3 years ago will be available at locations where the substance is stored, used or handled.	The most practical way of doing so is to copy the material safety data sheet and place the copy into MSDS binders at the appropriate locations.
19	If the product is a "controlled product", ensure that the original container(s) have WHMIS-compliant labels.	It is a responsibility of the manufacturer and supplier to ensure compliant labelling.
20	If the product is a "controlled product", ensure that WHMIS-compliant workplace labels will be available if necessary to affix to temporary storage containers	See the procedure entitled "Requirements for Material Safety Data Sheet and Labels" for guidance on how to when workplace WHMIS labels are required for temporary containers, and how to prepare same.
21	Where on-site will the chemical be stored by the user? Will it be stored beside other chemicals? Are the chemicals with which it will be stored compatible with the new chemical?	Consult the procedure entitled "Chemical Storage Procedures" for advice on safe storage practices.

Screening Guidance Notes		
Step	Action	Guidance
22	Is the chemical one that can only be used inside a fume hood? Is one present? Has it been tested / certified to be functioning properly?	The determination of whether a chemical must be used in a fume hood is based on factors such as: (1) the potential for release of harmful airborne emissions; (2) potential for harmful spills; (3) potential for runaway reactions; (4) potential for explosions. If you are uncertain as to whether usage should be restricted to a fume hood, contact Studio Management or Studio Technician for assistance. If a fumehood is required and is available, it is necessary to verify that it has been tested and certified as functioning properly. If it has been certified, there will be a sticker affixed to the fume hood at a visible place indicating who performed the testing, when the certification occurred, and when it expires.
24	If the chemical will emit gases, vapour, smoke, fume or mist during handling or use, how are these emissions being contained and vented outdoors?	If the chemical is not being used in a fume hood or with other local exhaust ventilation, then any air emissions will be diluted in the general atmosphere inside the building, and will be partially exhausted and partially recirculated by the general ventilation system.
25	If any emitted gases, vapour, smoke, fume or mist is being released to the indoor atmosphere, is the current general ventilation system a suitable and adequate control measure?	Substances that can be emitted into the general atmosphere of the building without perceptible impacts include carbon dioxide, nitrogen, argon, helium, small quantities of low toxicity organic solvents, and residues from the evaporation of cleaning products. If you are uncertain as to the acceptability of emissions to the general atmosphere inside the building, or the adequacy of the general ventilation in the area where the emissions would occur, contact Facilities Planning & Management for assistance.
26	If the chemical will emit gases, vapour, smoke, fume or mist, does the existing OCAD Air Certificate of Approval cover these emissions?	The Office of Safety and Risk Management will make arrangements to add product on the CoA if required.
27	What personal protective equipment is required to be worn by users? Is it available and have users been trained in proper use?	The material safety data sheet for the product will specify the types of personal protective equipment recommended for use by the manufacturer. If you are concerned that additional or lesser protective measures are appropriate, contact Studio Management for assistance. Verify that proposed users have or will have the necessary protective equipment, and that they have been or will be trained in proper use. For guidance on training, see the procedure entitled "Training of Personnel in Chemical Safety" for information on arranging this training.
28	Who will be designated as having ultimate responsibility for compliance with safety requirements relating to the chemical?	This needs to be determined, and should be documented on the screening form. The person assigned should be competent to exercise the necessary responsibilities.

Verification of Implementation Compliance:

Following receipt of a "new product", the verifying manager shall examine the manner of product storage, handling, use and disposal, to verify the correctness of these practices.

2. Procedure for managing MSDS and labels

Purpose for this Procedure

1. To ensure that personnel have ready access to information for safe use of chemical products.
2. Comply with requirements of the *Workplace Hazardous Materials Information System ("WHMIS") Regulation*.
3. To specify the processes for obtaining and maintaining material safety data sheets ("MSDSs").
4. To provide instruction on when workplace labels are required, and their format and content.

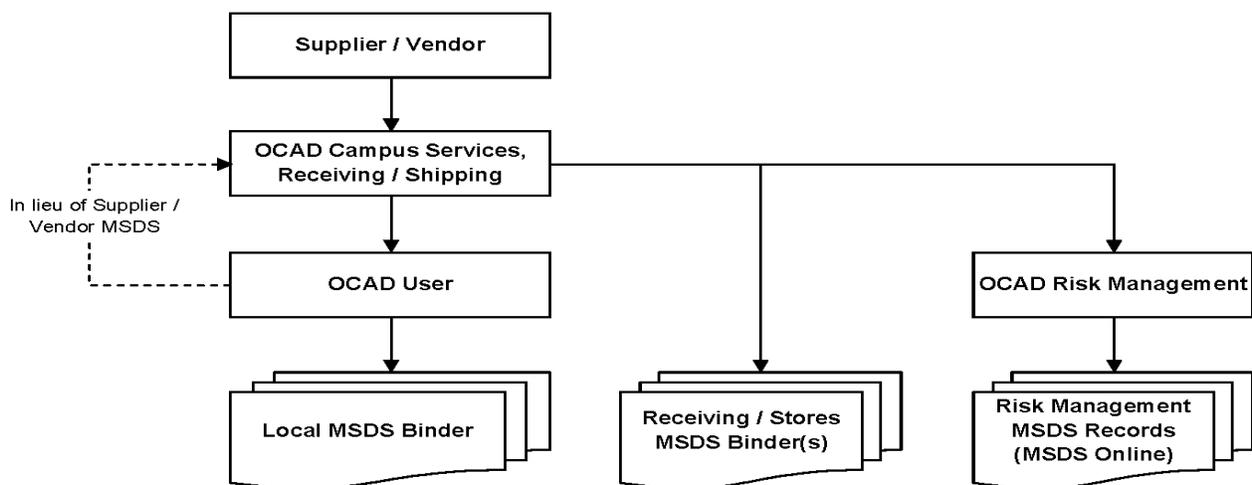
Regulatory Context

1. The *Workplace Hazardous Materials Information System Regulation – made under the Occupational Health and Safety Act*, requires employers to have and make readily available to employees material safety data sheets for all "controlled products".
2. It also requires employers to ensure that "workplace labels" are prepared and applied to any container into which a controlled product is decanted (i.e. a container other than the one in which the product was originally received from the supplier).

1. Material Safety Data Sheets (MSDS):

Obtaining Material Safety Data Sheets with Product Orders

1. OCAD University Purchase Order shall contain an instruction to vendors specifying that (a) a MSDS must accompany each shipment of a chemical substance or product, and (b) OCAD University reserves the right to decline to accept or reject any shipment or delivery of a chemical substance or product that is not accompanied by a MSDS.
2. OCAD University and the Campus Services Department will not release to any user any controlled chemical substance or product that has been received without being accompanied by a MSDS, unless the user provides the Office of Safety and Risk Management a current MSDS for the chemical substance or product prepared by the actual supplier.
3. In cases where a MSDS has not been received with a shipment or delivery, it is acceptable for an OCAD University user to download from the internet the supplier's MSDS for the chemical substance or product, and provide this to Studio Management.
4. The following diagram illustrates the flow of MSDSs:



Process for Maintaining Central Files of Material Safety Data Sheets

1. Studio Management will maintain a set of binders containing MSDSs for all products received or delivered.
2. Studio Management will provide the Office of Safety and Risk Management with an electronic copy of each MSDS received as described in 4. below.
3. The Office of Safety and Risk Management shall create a PDF file for every MSDS. PDF files shall be named as the name of the product, plus an abbreviation for the supplier, plus the MSDS creation date (in the format YYYYMMDD), each separated by a period (e.g. Acetone.JTBaker.090430).
4. The electronic directory of MSDS' shall be located on MSDS Online through the Office of Safety and Risk Management.

Process for Maintaining Binders of MSDSs at Work Locations

1. A white, 3-ring MSDS binder shall be kept in close proximity of locations where chemicals are stored.
2. The binder shall be labeled as follows:
 - a. Material Safety Data Sheets
 - b. Department Name
 - c. Location (Building, Floor, Room Number)
3. Each binder shall contain a set of "A" through "Z" alphabetic tab dividers. Products starting with numbers shall be filed before the "A" tab.
4. MSDSs shall be filed in the binder by product name, such that the MSDS is placed behind the tab corresponding to the first letter in the product name (e.g. acetone would be behind the "A" tab).
5. Where there are MSDSs for several products having names starting with the same letter, the MSDSs shall be filed in alphabetical order according to the subsequent letters in the product name (e.g. "acetone" would be filed behind "acetic acid").
6. A MSDS shall be added to the binder each time a new MSDS is received for a product.
7. When a MSDS is added to the binder,
 - a) the chemical inventory for the location must be updated (see "Chemical Inventory Record Keeping Requirements"),
 - b) any older version of the MSDS for the product shall be removed and disposed.
8. Should any alphanumeric tab divider be empty (due to there being no products having names beginning with that letter), a sheet shall be inserted that states "NO PRODUCTS IN THIS TAB".
9. At least once per year, at the time of reviewing and updating the location-specific inventory (see "Chemical Inventory Record Keeping Requirements"), the contents of the MSDS binder must be reconciled against the inventory, and any inconsistencies must be remedied, so that the contents of the MSDS binder match the up-to-date inventory.

2. Labels:

Supplier Container Labeling Obligations

It is a responsibility of the manufacturer and supplier to ensure WHMIS compliant labeling of every controlled product container.

Levels of compliance are typically high for Canadian and American suppliers. Should a user contemplate ordering a product from a supplier in another jurisdiction, verify that the containers will have WHMIS compliant labeling before placing the order.

Workplace Labeling Obligations for Decanted Products

1. If a controlled product is decanted or transferred from the original supplier container into a secondary or portable container, or mixed together with another controlled product or non-controlled product, the user must ensure that a WHMIS-compliant "workplace label" is affixed to the container, except in circumstances described in 3 below.
2. A workplace label can be hand-written, a pre-printed form, or downloaded from MSDS Online so long as the information described in 4. below is present.
3. A workplace label is not required to be affixed to a secondary or portable container if either of the following conditions apply:
 - a) the product will be used immediately in its entirety, or
 - b) the product is,
 - under the exclusive control of one person,
 - to be used exclusively use of one person,
 - to be used in its entirety during the course of the work shift, and
 - the product name is marked on the container.
4. Workplace labels for secondary containers must contain the following information:
 - a) The product / substance name (identical to that on the MSDS)
 - b) Safe handling information (a synopsis of key points from the supplier label)
 - c) A statement that an MSDS is available
5. Pre-printed workplace labels can be obtained online from MSDS Online as well as the Sharepoint link created for the Shops and Studio Technicians.

3. Procedures for transporting chemicals within OCAD U

Purpose for this Procedure

1. To ensure that chemical products are moved from place to place within the facility in a safe manner, and reduce the risk of spills or other incidents.

1. Compressed Gas Cylinders

a) Empty or Full Gas Cylinders – Nominal Height under 38 cm (Except Acetylene)

1. Gas cylinders having a nominal height (i.e. base to top of valve cap) under 38 cm are permitted to be manually carried from place to place by personnel, so long as the valve stem is protected by valve cap or other device that prevents leakage or release if the cylinder is dropped or damaged.
2. If it is impractical to manually carry cylinders of these sizes from place to place, you must use a small cylinder cart as shown here.
3. If necessary to transport between levels in the building, these cylinders may be taken onto elevators, but only outside of public access hours.



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b) Empty or Full Gas Cylinders – Nominal Height 38 cm or More (Except Acetylene)

1. Gas cylinders having a nominal height (i.e. base to top of valve cap) of 38 cm or more must be transported using a gas cylinder cart of the type shown in 2.1 above (for cylinders having diameters under 11 cm), or a dolly (for larger cylinders), as shown here.
2. When using the dolly for transporting large cylinders,
 - ensure that the cylinder is secured in position by the strap
 - ensure that the valve is fully closed and the valve cap is in place
 - never leave the dolly unattended
 - always keep the dolly in the upright or 4-wheel tilted position
 - never allow the dolly with a cylinder to rest with the cylinder “lying down” in horizontal position
3. If necessary to transport between levels in the building, large cylinders requiring dolly transport are not to be taken onto public usage elevators nor onto escalators, and can only be elevated using the service elevator(s)
4. Never transport large cylinders through public access areas during public access hours.



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c) Acetylene Cylinders

1. Acetylene cylinders must always be transported using a cart or dolly
2. When using the dolly for transporting large cylinders,
 - ensure that the cylinder is secured in position by the strap
 - ensure that the valve is fully closed and the valve cap is in place
 - never leave the dolly unattended
 - always keep the cylinder in the upright tilted position – this is particularly important for acetylene cylinders because they contain a liquid solvent
 - never allow the dolly with a cylinder to rest with the cylinder “lying down” in the horizontal position – this is particularly important for acetylene cylinders because they contain a liquid solvent
3. If necessary to transport between levels in the building, acetylene cylinders are not to be taken onto public usage elevators nor onto escalators, and can only be elevated using the service elevator(s).
4. Never transport acetylene cylinders through public access areas during public access hours.

2. Solids and Liquids in Supplier Containers or Secondary / Portable Containers **Supplier Boxed Shipments (Dock Area to User Storage Location)**

1. For hazardous chemicals delivered in boxes (e.g. plastic or glass container(s) inside of a packing box), or in bulk primary containers up to 20 liters, either of the following types of carrier should be used to transport the item(s) from the chemical storage room to the user’s storage location.
2. Chemical kits that are shipped by suppliers in a boxed or containerized format that is inherently protected and designed to contain spillage (may be transported by being manually carried, or in accordance with Section 3 (b)).
3. When using this type of carrier for transporting hazardous chemicals,
 - a) load the bottom shelf before loading the top shelf (be careful to avoid strains and sprains when lifting and bending)
 - b) make sure that the total weight of the load on the top shelf is not more than about half the weight of the load on the bottom shelf (this keeps the center of gravity low, making it easier to handle, and reducing risk of toppling over)
 - c) never pile objects on the top shelf at a height that obstructs your view when pushing the carrier
 - d) never stack boxes two high or higher on a shelf without securing the load using straps or heavy tape
 - e) never leave the carrier unattended while in transit
4. The carrier shown above must not be used for transporting any compressed gas.
5. If necessary to transport between levels in the building, these are not to be taken onto public usage elevators during public access hours, and can only be elevated using the service elevator(s) during public access hours. If it is not possible or practical to use service elevator(s) after public access hours, then public usage elevators or escalators may be used.
6. Never transport hazardous chemicals using these carriers through public access areas during public access hours.



3. Individual Bottles / Containers

1. Transporting individual containers of hazardous chemicals that are not held inside of a kit or other of secondary container should be avoided if possible.
2. If it is necessary to transport individual bottles or containers of hazardous chemicals, use either of types of carriers shown. If the cart for individual bottles and chemicals is used, ensure that the containers placed inside the drawers are secured against tipping over while in transit.



3. If using a carrier to transport two or more chemically incompatible or reactive materials that are not pre-packaged into kits, separate the incompatible items to reduce potential for mixing in the event of container leakage or breakage.

Hazardous Waste Materials

1. Containers with hazardous waste materials must be transported from their point of production to the chemical waste lock-up by Campus Services Staff using any of the carriers described above.
2. The choice of carrier must be made on the basis of the type of container holding the hazardous waste.

Markings on Carriers

1. Whenever a chemical container is transported inside of a tote or an enclosed carrier, the person responsible for transporting the material must ensure that a description of the non-visible contents is provided on the outside of the tote and or carrier.
2. Hand-written paper or cardboard temporary signs, affixed to the container with tape, are adequate, so long as they are legible and can be read at a distance of about 2 meters (e.g. write the contents in capital letters, using a dark magic marker on white paper or cardboard).

4. Procedure for storing chemicals

Principles and Rules Governing Storage Practices

1. Chemicals possess a variety of chemical and physical properties. Some of these properties are incompatible. If chemicals with incompatible properties are inadvertently or unexpectedly mixed together, dangerous reactions can occur, resulting in risks to health, safety, property or the environment.
2. For the reasons described above, it is important to store chemicals at locations, and in ways that reduce the potential for incompatible chemicals mixing together as a result of spills, leakage, container rupture, or fires.
3. Chemicals at OCAD University must be stored in accordance with rules contained in this procedure.

Determining Storage Requirements for a Substance

1. To determine the storage requirements for a chemical, consult the relevant sections of this procedure, and the Material Safety Data Sheet for the chemical.
2. In the event of any contradiction between this Procedure and Material Safety Data Sheets, contact the Office of Safety and Risk Management for instructions on proper storage procedures.

Standardized Signage and Markings for Storage Locations and Cabinets

1. Storage locations and cabinets for chemical products shall have signage and / or markings as described herein.

1. Flammable or Combustible Liquids

1. A “Flammable Liquid” is one having a flash point less than 37.8 C.
2. A “Combustible Liquid” is one having a flash point between 37.8 C and 93.3 C.

Approval Required to Increase Quantities of Flammable or Combustible Liquids Typically On-Hand

1. The list below presents a listing of flammable and combustible liquids contained in the most recent OCAD University inventory of hazardous materials.
2. Approval from the Office of Safety and Risk Management is required before any OCAD University user is allowed to increase the quantity of flammable or combustible liquids typically on-hand and under the control of the user.
3. The total quantity of all flammable and combustible liquids at OCAD University shall be kept at less than 500 L at all times. It is the responsibility of Studio Management to monitor quantities present on site and to take action to prevent accumulation of amounts in excess of 500 L.

Flammable and Combustible Liquids at OCAD University (as of February 2012)

Substance/Product Name	Phase	Site within OCAD U	Flammable / Explosive	Combustible	Flash Point	Typical Quantity on Hand	
						Q	Units
07730 MSA Varnish w/ UVLS (Gloss) A,B,C,H; 07735 MSA Varnish w/ UVLS (Satin) A,B,C,H,5; 07740 MSA Varnish w/ UVLS (Matte) A,B,C,H,5; 93300 MSA Gel A,B,C; 07742 Hard MSA Varnish w/ UVLS (Gloss) A,H; 07743 Hard MSA Varnish w/ UVLS (Satin) A,H,5; 07744 Hard	Liquid	Draw/Print	X		41		
3M SPRAY MOUNT ARTIST'S ADHESIVE (CANADA)	Liquid	Ind Design	X		-50		
Acetic Acid, Glacial	Liquid	Lithography	X		104		
Acetone	Liquid	Ceramics	X		-4		
Acetone	Liquid	Foundry	X		-4		
Acetone	Liquid	Ind Design	X		-4		
Acetone	Liquid	Jewellery	X		-4		
Acetone	Liquid	Lithography	X		-4		
Acetone	Liquid	Mouldmaking	X		-4		
Acetone	Liquid	Plastics	X		-4		
Acetone	Liquid	Sculpture	X		-4		
Acetylene	Gas	Jewellery	X				
Acetylene	Gas	Metals	X				
Air Tool Oil	Liquid	Foundry		X	128		
Air Tool Oil	Liquid	Sculpture		X	128		
Ball Paint Marker	Liquid in pen	Metals	X		88		
Blue Marking Ink Kleenscribe Layout Dye	Liquid	Metals	X		-4		
Boeshield T-9 Liquid	Aerosol	Ind Design		X	120		
Boeshield T-9 Liquid	Aerosol	Photography		X	120		
Boeshield T-9 Liquid	Aerosol	Woodworking		X	120		
Brasso	Liquid	Etching	X		105		
CASTALDO Jewelry Mold Release Spray	Aerosol	Jewellery	X				
Chalkboard paint	Liquid	Ceramics	X		205		
Chalkboard paint	Liquid	Plastics	X		205		
Champion Spraypaint	Aerosol	Woodworking	X		-5		
Charcoal powder / granular	Powder	Jewellery	X	X			
Citric Acid	Powder	Photography	X	X			
Clear Laqueur Thinner	Liquid	Lithography	X		3		
Clear Paste Wax	Paste	Sculpture		X			
Contact 2000	Liquid	Photography	X		45		
CORNSTARCH	Powder	Jewellery	X	X			
Crown Reliable Release Mold Releases - Aerosol, 3423 Reliable Release General Purpose Silicone Mold Release, 3445 Reliable Release Heavy Duty Silicone Mold Release, 3452 Reliable Release Lecithin Mold Release, 3460 Reliable Release Paintable Mold Release	Aerosol	Jewellery	X				
Danish oil	Liquid	Sculpture	X		41		
Danish Oil - Natural	Liquid	Woodworking	X		41		
Danish Oil - Walnut	Liquid	Woodworking	X		41		
DOW CORNING HS II THIXOTROPIC ADDITIVE	Liquid	Mouldmaking		X	153		

Substance/Product Name	Phase	Site within OCAD U	Flammable / Explosive	Combustible	Flash Point	Typical Quantity on Hand	
						Q	Units
Elmer's spray adhesive	Aerosol	Photography	X				
Ethyl Alcohol, 95% Denatured	Liquid	Photography	X		-173		
FLUORESCENT PAINT; Fluorescent - White (No. 5779), Fluorescent - Red (No. 5780), Fluorescent - Yellow (No. 5782), Fluorescent - Green (No. 5783), Fluorescent - Blue (No. 5784), Fluorescent - Invisible Blue (No. 5785), Fluorescent - Pink (No. 5786)	Aerosol	Ind Design	X		0		
GAMSOL	Liquid	Draw/Print	X		145		
HB PVC 40 GREY CEMENT	Liquid	Photography	X		-5		
Isopropyl Alcohol – 99%	Liquid	Lithography	X		535		
Isopropyl Alcohol	Liquid	Draw/Print	X		53		
Kerosene	Liquid	Sculpture	X		100		
Kerosene	Liquid	Foundry	X		100		
KODAK Farmer's Reducer, Part A	Powder	Photography	X				
KODAK Farmer's Reducer, Part B	Powder	Photography	X				
Krylon all purpose spray adhesive (No MSDS)	Aerosol	Ind Design	X		<0		
Krylon Clear Glaze	Aerosol	Woodworking	X		<0		
Krylon Grey Glaze	Aerosol	Woodworking	X		<0		
Krylon H2O Latex Aerosol Paint, White Primer	Aerosol	Photography	X		<0		
KRYLON Interior/Exterior Paint, Glossy White	Aerosol	Photography	X		<0		
Lepage - Thinner Rubber Cement	Liquid	Sculpture	X		-12		
LEPAGE CONTACT CEMENT THINNER/CLEANER	Liquid	Ind Design	X		-12		
LEPAGE CONTACT CEMENT THINNER/CLEANER	Liquid	Jewellery	X		-12		
Liberon Wax	Solid	Woodworking	X		100		
LIGHTER FLUID/CHARCOAL STARTER	Liquid	Metals	X		42		
LIQUID WRENCH PENETRATION OIL (Liquid)	Liquid	Metals		X	137		
Methanol (Methyl hydrate)	Liquid	Foundry	X		54		
Methanol (Methyl hydrate)	Liquid	Jewellery	X		54		
Methanol (Methyl hydrate)	Liquid	Mouldmaking	X		54		
Methanol (Methyl hydrate)	Liquid	Photography	X		54		
Methanol (Methyl hydrate)	Liquid	Sculpture	X		54		
Methanol (Methyl hydrate)	Liquid	Woodworking	X		54		
Methyl Hydrate	Liquid		X		51.8		
Mineral Spirits	Liquid	Draw/Print	X		100		
Minwax Wood Finish	Liquid	Sculpture	X		100		
Minwax Wood Finish	Liquid	Woodworking	X		100		
NGR Stain Reducer	Liquid	Woodworking	X		1		
NGR Stains - various colours	Liquid	Woodworking	X		0		
NGR Stains	Liquid	Mouldmaking	X		0		
OATEY CANADIAN PURPLE PRIMER/CLEANER	Liquid	Photography	X		14		
Odourless Mineral Spirits	Liquid	Lithography		X	104		
ORANGE GLO	Liquid	Ind Design		X	149		
Original Wood Finish (linseed oil)	Liquid	Woodworking	X		95		
Poly Super Strippa Paint Stripper	Liquid	Woodworking	X		100		

Substance/Product Name	Phase	Site within OCAD U	Flammable / Explosive	Combustible	Flash Point	Typical Quantity on Hand	
						Q	Units
Propane	Gas	Woodworking	X				
Propane	Gas	Foundry	X				
Renaissance Wax Polish	Solid	Foundry	X		100		
RICE FLOUR	Powder	Fibre	X	X			
SODIUM HYDROSULPHITE	Powder	Fibre	X				
Spray Paint – latex	Compressed Gas	Etching	X		< 0		
Spray Shellac	Aerosol	Ind Design	X		<0		
Spray Shellac	Aerosol	Mouldmaking	X		<0		
Starrett M-1 All Purpose Lubricant	Liquid	Woodworking		X	162		
STOP-OFF LACQUER	Liquid	Jewellery	X		0		
Stop-out Varnish	Liquid	Etching	X		54		
Strontium	Powder	Ceramics	X				
Strontium	Powder	Plastics	X				
Sucrose	Powder	Fibre	X	X			
Super Lube Spray	Aerosol	Woodworking	X		25		
Top-Cote Aerosol Series	Aerosol	Ind Design	X		<0		
Top-Cote Aerosol Series	Aerosol	Jewellery	X		<0		
Tremclad Gloss Black	Aerosol	Woodworking	X		<0		
Tremclad Real Orange	Aerosol	Woodworking	X		<0		
Tremclad Red Oxide Primer	Aerosol	Woodworking	X		<0		
Tremclad Rust Paint	Aerosol	Sculpture	X		<0		
Tremclad Rust paint	Aerosol	Woodworking	X		<0		
Turpentine	Liquid	Woodworking	X		95		
Turpentine	Liquid	Jewellery	X		95		
Universal Release (Liquid)	Liquid	Mouldmaking	X		-7		
Various spray paints	Aerosol	Sculpture	X		<0		
Varsol	Liquid	Foundry		X	140		
Varsol	Liquid	Photography		X	140		
VELVALITE CG35 COATING 32744	Liquid	Foundry	X		53		
VELVALITE SOLVENT 100	Liquid	Foundry		X	109		
WD40	Liquid	Metals		X	122		
WD40	Liquid	Sculpture		X	122		
WD40	Liquid	Woodworking		X	122		
WD-40 Aerosol	Aerosol	Metals		X	122		
WD-40 Aerosol	Aerosol	Photography		X	122		
Weld - on 16	Liquid	Ind Design	X		0		
White shellac	Liquid	Ceramics	X		54		
White shellac	Liquid	Plastics	X		54		
White shellac	Liquid	Woodworking	X		54		
Witch Hazel	Liquid	Jewellery		X	110		
Zinsser - Shellac	Liquid	Sculpture	X		60		

Restriction on Locations Where Flammable or Combustible Liquids Can be Stored and Used

1. Flammable or combustible liquids can only be stored at OCAD University at the locations shown below.

Permitted Storage Locations for Flammable or Combustible Liquids	
Site within OCAD	Permissible Storage Location
Printing Making	Flammable Storage Cabinet
Photography	Flammable Storage Cabinet
Metals	Flammable Storage Cabinet
Foundry	Flammable Storage Cabinet
Sculpture	Flammable Storage Cabinet
Jewellery	Flammable Storage Cabinet
Plastics	Flammable Storage Cabinet
Industrial Design	Flammable Storage Cabinet

2. Flammable or combustible liquids can only be used at OCAD University at the locations shown below.

Permitted Usage Locations for Flammable or Combustible Liquids
Printing Making
Photography
Metals
Foundry
Sculpture
Jewellery
Plastics
Industrial Design

Equipment Required for Flammable or Combustible Liquid Storage

1. Flammable or combustible liquids must be kept in flammable storage cabinets that,
 - a) conform to ULC-C1275, "Storage Cabinets for Flammable Liquid Containers", or
 - b) conform to ULI 1275, "Flammable Liquid Storage Cabinets", or
 - c) are Factory Mutual Research Approved, or
 - d) are listed as meeting NFPA 30.
2. The maximum quantity of flammable and combustible liquids stored in a cabinet shall be 500 L, of which not more than 250 L shall be "flammable liquids".
3. Flammable and combustible liquids stored in cabinets shall be in closed containers.
4. Cabinets for container storage shall be labeled in conspicuous lettering to indicate that the cabinet contains flammable materials and that open flames must be kept away.

5. If a flammable or combustible storage cabinets has ventilation openings,
 - a) the ventilation openings shall be sealed with materials providing fire protection at least equivalent to that required for the construction of the cabinet, or
 - b) the cabinet shall be vented outdoors using vent piping providing fire protection at least equivalent to that required in Clause a. for seals.
 - c) Containers for flammable or combustible liquids shall be kept closed when not in use.
6. Flammable or combustible liquids and storage cabinets must not be in or adjacent to exits, including exits to outdoors, elevators or principal routes that provide access to exits.
7. No other type of dangerous good shall be stored in the same cabinet as a flammable or combustible liquid.

Dispensing Practices

1. When any flammable liquid is dispensed from one a container into another,
 - a) if the container is made of metallic or electrically conducting material, the container must be electrically connected to the fill stem, or rest on a conductive floor that is electrically connected to the fill stem, or
 - b) if the container or storage tank is made of non-electrically conducting material, static can be controlled by making an electrical connection between the fluids in the source container and secondary container simply by dipping a thin copper or other metal wire into both liquids inside their containers (ensure that the liquid is compatible with the metal of the wire).

2. Compressed Gases

Restriction on Locations Where Compressed Gases Can be Stored

1. Cylinders containing compressed gas (i.e. not empty) may only be stored indoors at room locations shown below.

Permitted Locations for Storage of Cylinders Containing Compressed Gas		
Site within OSC	Permitted	Current Storage Location
Jewellery	Oxygen	
Wood Working	Propane	Workbench at location protected from damage and heat / ignition sources.
Ceramic	Propane	
Foundry	Argon	
Metal	Argon, Buleshield AL, Acetylene	

2. To the extent practicable, any location where flammable gas cylinders exceeding 100 L in expanded capacity should only be stored at rooms that are separated from the rest of the building by a 2 hour fire rating.
3. Compressed gas cylinders (whether full or empty) are not permitted to be stored outdoors on OCAD University property.

Facilities Required for Storage of Non-Flammable and Flammable Compressed Gas Cylinders

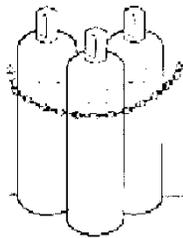
Indoor storage areas for compressed gas cylinders must be kept dry and ventilated.

a) Requirements for All Compressed Gas Cylinders Over 38 cm in Height (Measured from Base to Top of Valve Cap)

1. Cylinders containing compressed gas must be stored to hold them securely in place on racks, or by nesting, or in cages, as shown below.



Cylinder Rack



Nested and Chained Cylinders



Small Cylinder Cage



Tall Cylinder Cage

2. The valve connection on a cylinder must be unique for the type of gas in order to prevent creation of a hazard by inadvertent connection with a line containing another gas.
3. Gas cylinders must have a valve protection cap in position at all times when the cylinder is not in use.
4. Gas cylinders and valves must be located and /or physically guarded in order to prevent accidental physical damage by impact with other objects.

b) Requirements for Acetylene Compressed Gas Cylinders

Acetylene cylinders must always be stored in an upright position.

c) Requirements for Propane Compressed Gas Cylinders and Other Flammable Compressed Gases that are Heavier than Air

Cylinders of propane and other flammable compressed gas which are heavier than air must be stored in a flammable storage cabinet used solely for flammable compressed gases that:

- has a fire-resistance rating of at least $\frac{3}{4}$ hr,
- has an aggregate capacity that does not exceed 100 kg,
- contains no more than 3 cylinders, and
- is located in a room that has mechanical ventilation providing at least 1 air change per hour.

3. Corrosives and Oxidizers

1. Containers of acids, bases and oxidizers must be stored in safety cabinets designated for storage of these substances and none other.
2. Containers of acids and bases are to be stored apart on separate shelves, or if this is not possible separated by distance on the same shelf, in order to minimize potential for mixing in the event of leakage or spillage.
3. Containers shall be kept closed when not in use.

4. Other Hazardous Substances

1. Hazardous substances that are not flammable, combustible, corrosive or oxidizing do not require storage in designated safety cabinets, and can be stored in ordinary cupboards or other suitable storage cabinets.
2. Cupboards and storage cabinets used for these hazardous substances must have signage or other appropriate markings to indicate the contents therein.

Hazardous Chemical Wastes and Containers

1. Pending removal from site, hazardous chemical wastes shall be,
 - a) stored in containers suitable for the type of waste,
 - b) labeled as to the type of waste,
 - c) stored in accordance with rules described above for specific classes and properties of chemicals.
2. See the procedure entitled "Chemical Waste Disposal Procedures" for details on hazardous waste storage, labeling, handling and movement.

Hazardous Waste Storage Lock-Up Area by Campus Services

1. Hazardous wastes stored at the lock-up area by Campus Services must be kept segregated by placing incoming wastes into the appropriate storage cabinet or shelf, as follows:
 - a) flammable or combustible wastes must be stored in the flammable storage cabinet
 - b) corrosive wastes must be stored in the corrosives storage cabinet, placed on the appropriate shelf for acids, bases or oxidizers
 - c) toxic wastes that are not flammable, combustible or corrosive must be stored in the toxics storage cabinet
 - d) waste batteries in the battery tote
 - e) bags of fluorescent tube breakage waste in the fluorescent tube waste tote

5. Procedure for responding to chemical emergencies

Requisite Equipment and Supplies

The list identifies locations where the following equipment and supplies must be present and maintained:

- a) spill clean-up kits
- b) deluge showers
- c) eye wash stations
- d) first aid kits

Locations of Emergency Response Equipment

Location	Spill Kit	Fixed Eyewash Station	Portable Eyewash Station	Emergency Shower	First Aid Kit
Ceramics	✓	✓			<input checked="" type="checkbox"/>
Wood		<input checked="" type="checkbox"/>			✓
Sculpture		<input checked="" type="checkbox"/>			✓
Print Making				✓	✓
Photography					✓
Foundry					✓
Metal	✓				✓
Mold Making		<input checked="" type="checkbox"/>	✓		✓
Drawing and Painting	✓				<input checked="" type="checkbox"/>
Industrial Design	✓	✓			✓
Jewellery	✓	✓			✓
Plastics	<input checked="" type="checkbox"/>	✓			✓
Fibre			✓		<input checked="" type="checkbox"/>

✓ Indicates item is located in the location

Indicates item present nearby

1. The locations of fire extinguishers in the building are shown in the fire safety plan, which is posted at various locations in the facility.
2. Spill clean-up kits and first aid kits shall be inspected at least once every month to verify that contents are complete and in good condition. The Office of Safety and Risk Management is responsible for performing these inspections, recording findings on the inspection checklists contained with the kits, and advising Studio Management of any deficiencies. The Office of Safety and Risk Management is responsible for replenishing any supplies as necessary.
3. Deluge showers and eye wash stations must be tested to verify functionality at least once every year. The Office of Safety and Risk Management is responsible for performing these inspections, and advising Studio Management of any deficiencies. Studio Management is responsible for remedying any deficiencies.

Be Prepared in Advance

1. The chances for successfully dealing with a spill, accident or emergency involving a chemical are significantly increased by,
 - a) thinking before using the chemical about the types of things that could go wrong or cause a spill, accident, or other emergency,
 - b) planning the work in a manner that minimizes the risk of these scenarios,
 - c) ensuring that you understand the magnitude of the potential hazard that could result from a spill, accident or other emergency, should it occur,
 - d) ensuring that you or others know what to do in the event of a spill, accident or other emergency, and have the ability to rapidly and effectively respond to the emergency, in order to protect yourself and others, and
 - e) ensuring that any necessary emergency equipment and supplies are readily accessible for use if needed, and that the quantities available are sufficient for the potential magnitude of spill or emergency,
 - f) knowing the locations of the nearest eye wash, emergency shower, and washrooms, for use in case of a need to flush skin or eyes.
2. All chemical users and their supervisors are responsible for “knowing what to do” in case of an emergency involving a chemical under their control.

Actions to Take in Case of a Spill of any Hazardous Material

1. Have unnecessary personnel (employees and students) leave the area of potential danger.
2. If a corrosive chemical has been splashed onto a person’s skin or in their eyes, assist them in getting immediately to the nearest eye wash station, or emergency shower, or washroom, as appropriate, to flush their skin or eyes. Have another person call for first aid or emergency medical assistance, as appropriate, and continue flushing for at least 10 minutes in the case of minor contact or until emergency medical assistance arrives in the case of major contact.
3. If the substance that has spilled is flammable or combustible, eliminate any nearby sources of ignition, if possible. If the amount spilled is large enough to present a potential fire risk, smother the spilled material with the foam from an ABC fire extinguisher.
4. If the substance is not flammable, have one person obtain a spill control kit and any necessary additional personal protective equipment, while another person remains near the spill to keep persons out of harm’s way.
5. Once the spill kit arrives, use the appropriate materials to stop the spread of the spill, absorb it, and clean it up. Use the appropriate personal protective equipment while cleaning up the spill.
6. If the spilled material is flammable or combustible, have a person stand-by with a fire extinguisher while the spill is being cleaned up, ready to respond if the material catches fire.
7. Used spill clean-up materials must be handled in accordance with applicable procedures for on-site chemical waste transport, and waste storage and handling.

Internal Notifications

The Office of Safety and Risk Management and Campus Services shall be promptly advised of the occurrence of any chemical spill or inadvertent release.

External Notifications

Specific government agencies must be notified of certain kinds of incidents or emergencies involving chemicals, as described below.

a) Reporting Explosions

Explosions must be reported to the Technical Standards and Safety Authority (Telephone: 416-734-3327) where they have caused injury, damage to the equipment, or a fire by Facilities Management. Minor 'delayed ignitions' would not normally be considered to be reportable.

b) Reporting Liquid Petroleum Spills

1. Any spill of a petroleum product must be reported to the Ministry of Environment Spills Action Centre (Telephone: 1 (800) 268-6060, or (416) 325-3000) if the spill is in excess of:
 - 100 liters at sites restricted from public access
 - 25 liters at sites with public access
2. It is not mandatory to report spills of lesser quantities unless the spill would:
 - create a hazard to public health or safety
 - contaminate any fresh water source or waterway
 - interfere with the rights of any person, or
 - allow entry of product into a sewer system or underground stream or drainage system.

c) Discovery of a Petroleum Product that has escaped to the Environment or Inside a Building

The discovery of a petroleum product that has escaped to the environment or inside a building must be reported to the Ministry of Environment Spills Action Centre (Telephone: 1 (800) 268-6060, or (416) 325-3000) by the Office of Safety and Risk Management.

d) Reporting Spills to the Environment

1. Spills are defined as releases of pollutants into the natural environment originating from a structure, vehicle, or other container, and that are abnormal in light of all circumstances.
2. Spills must be reported immediately to the Ministry of Environment and to the municipality when they cause or are likely to cause any of the following:
 - impairment to the quality of the natural environment - air, water, or land;
 - injury or damage to property or animal life;
 - adverse health effects;
 - safety risk;
 - making property, plant, or animal life unfit for use;
 - loss of enjoyment of normal use of property; or
 - interference with the normal conduct of business.
3. Spills must be reported to the Ministry of Environment Spills Action Centre (Telephone 1-800-268-6060, or (416) 325-3000, Fax: (416) 325-3011) by the Office of Safety and Risk Management.

Posting this Procedure

This procedure must be posted in close proximity to locations where personnel store and use hazardous chemicals in a manner that presents risk of a hazardous spill, leak or release.

6. Safety Procedures for Chemical Users

Preparation for Use

1. Consult the current material safety data sheet and container label prior to using any chemical substance for the first time.
2. If the chemical is one for which a substance-specific emergency plan, safety plan, or designated substance assessment is required, consult the appropriate documents prior to use.
3. Ensure that you know the basic minimum personal protective equipment that must be used that it is available, and that you know how to use it.
4. Ensure that you know the types of harm that can result from overexposure to the chemical, leakage, or spills.
5. Ensure that you know the locations of emergency equipment and supplies (safety showers, emergency eye wash stations, first aid kits, spill kits, fire extinguishers), and that you know how to use and operate same.
6. Don't work alone or in isolation with chemicals that are flammable, combustible, or can cause serious injury from skin contact or inhalation. The idea is to ensure that someone is close enough to render help if necessary.
7. If you don't fully understand the hazards and safety requirements for a chemical, don't use it.
8. If you need further information on hazards and safety practices contact your Studio Managers.

Mandatory Personal Protective and Safety Equipment for Employees

The following table identifies the minimum personal protective and safety equipment requirements for employees when using hazardous chemicals.

Mandatory Minimum Personal Protective and Safety Equipment Use Requirements																
Hazard / Activity	Face			Body						Hands		Feet		Kit For Student Demonstrations		
	Chemical Safety Glasses	Face Shield	Welding Helmet and Lens	Flame Resistant Lab Coat	Chemical Splash Apron	Cryo- Apron	Long Pants, Worn Over Footwear	Painter's Shirt and Pants or Coveralls	Flame Resistant Shop Coat	Chemical Protective Gloves per MSDS	Cryo- Gloves	Closed Footwear	Safety Footwear	Fire Extinguisher within 5 m	First Aid Kit within 5 m	Spill kit within 5 m
Acids	√	√		√	√		√			√		√		√	√	√
Bases	√	√		√	√		√			√		√		√	√	√
Oxidizers	√	√		√	√		√			√		√		√	√	√
Flammable liquids	√			√			√			√		√		√	√	√
Combustible liquids	√			√			√			√		√		√	√	√
Flammable or ignitable solids	√			√			√			√		√		√	√	√
Toxics with none of the above properties	√			√			√			√		√		√	√	√
Cryogenic liquids, containers, piping	√	√		√		√	√			√		√		√	√	√
Using open flame				√							√			√	√	√
Welding			√					√				√				
Painting							√					√				

7. Chemical Waste Disposal Procedures

Substances that Can and Cannot be Disposed of via Sink Drains or in Regular Solid Refuse Containers

1. It is prohibited to pour down a sink or floor drain, or place into any regular solid refuse container, any of the following substances:
 - a) a solution with a pH less than 6.0 or greater than 11.5
 - b) a solution consisting of two or more separate liquid layers
 - c) any liquid with a temperature greater than 60 degrees Celsius
 - d) acute hazardous waste chemicals
 - e) flammable or combustible liquids (i.e. those having a flash point under 93.3 Celsius)
 - f) biomedical waste
 - g) fuels
 - h) ignitable wastes
 - i) hazardous waste chemicals
 - j) pathological waste
 - k) pesticides
 - l) reactive waste
 - m) severely toxic waste
 - n) waste radioactive substances
2. Wastes must not be intentionally mixed with any solid or liquid so that the waste's hazardous characteristics would be diluted below a regulatory level.
3. If you uncertain as to the proper manner for disposal of any particular substance, contact the Office of Safety and Risk Management for guidance.

Empty Containers of Hazardous Substances

1. Containers which formerly contained regulated (hazardous) substances must be empty to be classified as a non-hazardous waste. An empty container is defined as having < 2.5 cm of residue remaining at the bottom of the container or less than 3% of the original contents, whichever is the lesser amount.
2. Former hazardous substances containers that meet the condition described above must be labeled as shown prior to disposal:
3. Labels may be obtained from the Studio Management Office who is also responsible for maintaining stock of these labels.



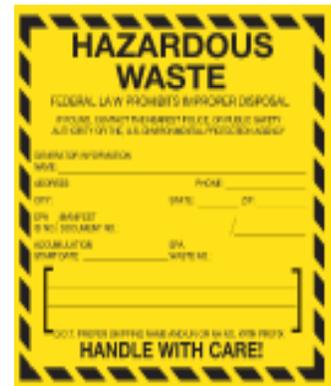
Locations Where Hazardous Waste Storage is Permitted and Prohibited

1. Hazardous wastes generated at a user's location are to be stored (pending removal to the hazardous waste storage area by Campus Service) in accordance with the procedure entitled "Chemical Storage Procedures".
2. Hazardous wastes shall not be stored at any location other than the chemical storage room.
3. As soon as practicable after generation, hazardous wastes must be taken to the hazardous waste storage lock-up area located near the Ceramics Studio. Hazardous wastes must be transported within the facility in accordance with the procedure entitled "Procedures for Transporting Hazardous Chemicals within OCAD University".

4. Once taken to the hazardous waste storage area located near the Ceramics Studio, the hazardous waste must be placed in the appropriate storage cabinet or container, as follows:
 - a) flammable or combustible wastes must be stored in the flammable storage cabinet
 - b) corrosive wastes must be stored in the corrosives storage cabinet, placed on the appropriate shelf for acids, bases or oxidizers
 - c) toxic wastes that are not flammable, combustible or corrosive must be stored in the toxics storage cabinet
 - d) waste batteries in the battery tote
 - e) bags of fluorescent tube breakage waste in the fluorescent tube waste tote

Segregation, Labeling and Interim Containment Requirements at User Locations

1. Hazardous wastes kept at a user location must be physically segregated from other hazardous materials according to their physical and chemical properties, in the manner described in the procedure entitled “Chemical Storage Procedures”.
2. Hazardous wastes must be held in containers that are suitable for the chemical and physical properties of the waste (e.g. corrosion resistant). If the hazardous waste has the same properties as the original substance, use a container comparable to the container in which the original substance was held.
3. If you are uncertain as to the proper type of container to use, contact the Office of Safety and Risk Management.
4. All hazardous waste containers must be labeled with the following information.
 - a) Location or activity that produced the waste.
 - b) Major chemical components or trade name of the waste.
 - c) Date the waste was produced.
 - d) Name of the OCAD University contact person.
 - e) When waste is being added to the container over a period of time, the initial START date as well as the FILLED date, should be written on the container. (This provides a mechanism to determine the storage time and potential need for a change in waste management practices.)
5. If you do not know some or all of the information in 4.a. through 4.e., contact Studio Management for assistance.
6. The following is an example of a commercially printed label that can be used for waste containers



Hazardous Waste Label

Users can obtain hazardous waste labels and packing supplies from Studio Management and Campus Services. Studio Management is responsible for maintaining these items in stock.

Time Limits for On-site Storage of Hazardous Wastes

1. Full hazardous wastes must be transported to the hazardous waste storage area located near the Ceramics Studio as soon as practicable after being filled.
2. Ontario regulations limit on-site storage of hazardous wastes to 90 days. To comply with this requirement, OCAD University has hazardous waste pick-ups from RPR Environmental occur every 90 days.

Reporting On-Site Storage In Excess of 90 Days

1. In the event that a hazardous waste has been stored on-site for more than 90 days, the following applies, the user responsible for producing the waste must advise the Office of Safety and Risk Management.
2. The Office of Safety and Risk Management must file a notice with the Ministry of Environmental Regional Director using the form below (form available from the Ministry of Environment web site).
3. The completed notice form must be retained on-file by the Office of Safety and Risk Management for a period of at least two years from the date that the waste is removed from the site.

		Notice of the Storage of Subject Waste Avis de stockage de déchets visés Revised Regulations of Ontario 1990, Regulation 347, Paragraph 3 of section 17.2 Paragraphe 3 de l'article 17.2 du Règlement 347, R.R.O. 1990								
Paragraph 3 of Section 17.2 of Regulation 347 states: The first time that subject waste is stored at the waste generation facility for more than 90 days, a notice must be given to the Regional Director, within five (5) business days after the 90th day of storage, that it describes, as accurately as possible, the nature, amount and location of the subject waste stored, or expected to be stored in the future, at the waste generation facility for more than 90 days, and it indicates how frequently subject wastes is expected to be stored in the future at the waste generation facility for more than 90 days. Note: One form for each subject waste.		Voici ce qui est stipulé au paragraphe 3 de l'article 17.2 du Règlement 347 (traduction non officielle): La première fois qu'un déchet visé est stocké durant plus de 90 jours aux installations ou producteurs de déchets, un avis doit être remis au directeur de la Direction régionale au plus tard cinq jours ouvrables après le 90 ^e jour de stockage. Il doit y être décrit, aussi inexactement que possible: i) la nature, la quantité et le lieu du déchet visé qui est stocké ou doit le stockage en plus tard durant plus de 90 jours aux installations du producteur de déchets; ii) la fréquence à laquelle il est prévu que le déchet visé sera stocké durant plus de 90 jours aux installations du producteur de déchets. Note: Il faut remettre un questionnaire pour chaque déchet visé.								
1. Name of generator/ Nom du producteur		2. Generator No./N° du producteur								
3. Address / Adresse		4. Postal code / Code postal								
5. Name of contact person / Nom de la personne-ressource		6. Telephone / Téléphone								
7. Waste description / Description des déchets		8. Primary characteristic / Caractéristique principale								
		9. Waste Class / Catégorie de déchet								
Description of storage procedures and area / Description de mode et de lieu d'entreposage										
10. Indicate container used / Conteneur	Tank/ Réservoirs	Drum/ Barils	Other/ Autre	<table border="1"> <thead> <tr> <th>Site / Bureau</th> <th>No. / Nombre</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Site / Bureau	No. / Nombre	Type			
Site / Bureau	No. / Nombre	Type								
11. Is waste stored in secure area? / Les déchets sont-ils entreposés en lieu sûr?		No / Non	Yes / Oui							
12. Is the waste storage drum(s) / tank(s) labelled? / Les conteneurs (réservoirs ou barils) sont-ils étiquetés?		No / Non	Yes / Oui							
13. Will a leak or spill be contained? / Une fuite ou un déversement pourrait-elle être contenue?		No / Non	Yes / Oui							
14. Is the storage area/facility routinely inspected? / Procède-t-on à des inspections régulières de lieu ou des installations d'entreposage?		No / Non	Yes / Oui							
15. Reason for retention of the waste / Raison de l'entreposage des déchets										
16. Will the amount of waste stored change over time? / La quantité stockée changera-t-elle?		No/Non	Amount of waste stored / Quantité stockée: _____ (kg)							
		Yes/Oui	Anticipated accumulation rate / Taux d'accumulation prévu _____ (kg/month / lg/mois) Maximum amount to be stored / Quantité maximale à être stockée: _____ (kg)							
17. Anticipated manner of disposal of the waste? / Comment ont-ils prévu d'éliminer le déchet?										
18. Anticipated time waste will be stored _____ (months)/(mois) Date prévue de stockage _____										
If the subject waste remains in storage for more than 24 months an application must be made to the ministry for a Certificate of Approval. / Si le déchet visé est stocké durant plus de 24 mois, une demande doit être présentée au ministère dans le but d'obtenir un certificat d'autorisation.										
19. Do you have a contingency plan in the event of a spill? / Existe-t-il un plan d'urgence en cas de déversement?		No/ Non	Yes / Oui							
20. Signature of Company Official / Signature du représentant de la compagnie		Print name / Imprimer nom	21. Date / Date							

Packing and Manifesting Hazardous Wastes for Pick-up

1. Prior to pick-up, it is necessary for (1) hazardous wastes in the lock-up area near the Ceramics Studio to be packed into labeled shipping containers, and (2) a manifest to be prepared.

2. Campus Services is responsible for removing containers of hazardous waste from the lock-up storage cabinets, placing the same classes of wastes into suitable designated shipping containers for the waste, and labeling the container with the shipping class information. The following provides information for this purpose.

Waste Information			Transportation (TDG Information)			
Common Waste Name	Manifest Required	Hazardous or Non-Hazardous?	Shipping Name	PIN	Class	Packing Group
Absorbents (Spent Socks, Pads)	YES	HAZ,	Waste Solids Containing Flammable Liquids, nos, (Technical Name)	UN 3175	4.1	II
Absorbents (Spent Socks, Pads) ~ Lube Oil	YES	HAZ	Waste Environmentally Hazardous Substances, Solid, nos, (Used Oil with Lead)	UN 3077	9	III
Acid Solutions	YES	HAZ	Waste Corrosive Liquids, nos, (Technical Name)	UN 1760	8	II
Activated Carbon ~ Spent	YES	Testing Required or assume HAZ	Waste Carbon, Activated	UN 1362	4.2	I
Aerosol Cans	YES	HAZ	Waste Aerosols, Flammable	UN 1950	2.1	
Batteries: Alkaline	YES	HAZ	Waste Batteries, Wet, Filled with Alkali, Electric Storage	UN 2795	8	III
Batteries: Lead Acid	YES	HAZ	Waste Batteries, Wet, Filled with Acid, Electric Storage	UN 2794	8	III
Batteries: NiCd	YES	HAZ	Waste Environmentally Hazardous Substances, Solid, nos, (NiCd Batteries)	UN 3077	9	III
Caustic Solutions	YES	HAZ	Waste Corrosive Liquids, nos, (Technical Name)	UN 1760	8	II
Compressed Gas Cylinders ~ Empty	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Construction and Demolition Material ~ Uncontaminated	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Contaminated Debris & Soil	YES	Testing Required	To be determined	-	-	-
Desiccants ~ Spent (All Types)	YES	Testing Required or assume HAZ	NHAZ ~ Not TDG Regulated (instrument air) HAZ~ Waste Water Reactive, Solid, nos, (Technical Name)	UN 2813	4.3	I
Empty Containers (Metal and Plastic Including Drums, Pails, Jugs, etc.) ~ (Refundable)	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Empty Containers (Metal and Plastic Including Drums, Pails, Jugs, etc.) ~ (Non Refundable)	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Filters ~ Glycols (EG/TEG)	YES	HAZ	Waste Environmentally Hazardous Substances, Solid, nos, (Technical Name)	UN 3077	9	III
Filters ~ Instrument Air	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Filters ~ Lube Oil (Drained)	YES	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Filters ~ Lube Oil	YES	HAZ	Waste Environmentally Hazardous Substances, Solid, nos, (Technical Name)	UN 3077	9	III
Filters ~ (Raw/Fuel Gas, NGL's, etc.)	YES	HAZ	Waste Solids Containing Flammable Liquids, nos, (Technical Name)	UN 3175	4.1	II
Fluorescent Tubes ~ Spent	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Garbage ~ Domestic Waste	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Gaskets (non-asbestos)	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a
Glycol Solutions (MEG/DEG/TEG) ~ Metals	YES	HAZ	Waste Environmentally Hazardous Substances, Liquid, nos, (Technical Name)	UN 3082	9	III
Glycol Solutions (MEG/DEG/TEG)	NO	HAZ	Not TDG Regulated	n/a	n/a	n/a
Grease Cartridges ~ Empty	NO	NHAZ	Not TDG Regulated	n/a	n/a	n/a

Waste Information			Transportation (TDG Information)			
Common Waste Name	Manifest Required	Hazardous or Non-Hazardous?	Shipping Name	PIN	Class	Packin g Group
Hydraulic and Transmission Oil (Vehicle and Equipment)	YES	HAZ	Waste Environmentally Hazardous Substances, Liquid, nos, (Technical Name)	UN 3082	9	III
Insulation/Refractory ~ Non Asbestos	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Ion Exchange Resin ~ Water Treatment	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Lab Chemicals	YES	HAZ	Waste Environmentally Hazardous Substances, Liquid, nos, (Technical Name)		-	-
Lubricating Oil	YES	HAZ	Waste Environmentally Hazardous Substances, Liquid, nos, (Technical Name)	UN 3082	9	III
Methanol	YES	HAZ	Waste Methanol	UN 1230	3(6.1)	II
Office Material (Paper)	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Paints (Cans, Drums and Pails)	YES	HAZ	Waste Paint Related Material	UN 1263	3	III
Paint Cans (Empty) and Brushes	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Pesticides/Herbicides Spent	YES	HAZ	Waste Pesticides, Liquid, Toxic, nos, (Technical Name)	UN 2902	6.1	II
Photo Copier / Laser Printer Toner	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Pipe Dope Containers and Brushes ~ Empty	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Pipe Dope/Grease ~ Lead Based	YES	HAS	Waste Environmentally Hazardous Substance, Solid, nos, (Technical Name)	UN 3077	9	III
Pipe Dope/Grease ~ Non Lead Based	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Rags ~ Oily	YES	HAZ	Waste Environmentally Hazardous Substance, Solid, nos, (Technical Name)	Un 3077	9	III
Sand Blasting Sand ~ Contaminated	YES	HAZ	Waste Environmentally Hazardous Substance, Solid, nos, (Technical Name)	Un 3077	9	III
Sand Blasting Sand ~ Uncontaminated	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Scale (Non-Radioactive)	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Scrap Metal (Galvanized, Aluminum, Stainless Steel, etc.)	NO	NHAZ	Not TDG regulated	n/a	n/a	n/a
Solvents (Non-Halogenated) ~ Spent	YES	HAZ	Waste Flammable Liquid, nos, (Technical Name)	UN 1993	3	II
Varsol	YES	NHAZ	Waste Flammable Liquid, nos, (Varsol)	UN 1993	3	II
Wash Fluids ~ Equipment Cleaning Operations	**SPECIFY PARTY	**SPECIFY PARTY	To be determined	-	-	-
Wash Fluids ~ Solvents	YES	HAZ	Waste Flammable Liquid, nos, (Technical Name)	UN 1993	3	II

Waste Manifesting, Disposal and Transportation Information

1. Campus Services is responsible for completing the shipping manifest for each outbound hazardous waste shipment. Manifests can be prepared on-line using the Ministry of Environment HWIN web site: <http://www.hwin.ca/hwin/index.jsp>.
2. When using an electronic manifest, OCAD University must provide the hazardous waste hauler with electronic access to the manifest to complete section B (Carrier) of the manifest.
3. When using the electronic manifest, a paper copy does not have to be returned to Ministry of Environment, nor is the generator required to retain a record.
4. Units to be utilized on the manifest are either L (liters) for liquid wastes or Kg (kilogram) for solid wastes. If waste density is unknown assume 1 L = 1 Kg

Pick-up of Hazardous Wastes by Licensed Hauler for Disposal

1. Campus Services is responsible for arranging pick-up and disposal of hazardous wastes by a licensed hazardous waste disposal company.
2. In order to ship hazardous wastes off-site via a Ministry of Environment licensed hazardous waste hauler, OCAD University must have a valid Generator Registration Number, covering the classes of waste.
3. The Generator Registration Numbers for OCAD University are:
 - a) 100 McCaul – ON0265000
 - b) 205 Richmond – ON3600802
 - c) 230/240 Richmond – ON6138736
 - d) 51 McCaul – ON 8963623
4. Below are the Active Waste Classes listed on OCAD University's Generator Registration profile. As of December, 2011, all hazardous wastes known to be generated at OCAD University were on this Profile. If any activities generate a class of hazardous waste not listed in the Generator Registration Record, it is necessary to advise the Office of Safety and Risk Management to initiate an updating of the Generator Registration Profile.

OCAD University Registered Waste Classes

114-T	Liquid	OTHER INORGANIC ACID WASTES
145-I	Liquid	PAINT/PIGMENT/COATING RESIDUES
145-L	Liquid	PAINT/PIGMENT/COATING RESIDUES
146-T	Solid	OTHER SPECIFIED INORGANICS
148-I	Liquid	INORGANIC LABORATORY CHEMICALS
148-I	Solid	INORGANIC LABORATORY CHEMICALS
148-B	Liquid	INORGANIC LABORATORY CHEMICALS
148-C	Liquid	INORGANIC LABORATORY CHEMICALS
148-C	Solid	INORGANIC LABORATORY CHEMICALS
213-I	Liquid	PETROLEUM DISTILLATES
252-L	Liquid	WASTE OILS & LUBRICANTS
263-I	Liquid	ORGANIC LABORATORY CHEMICALS
263-B	Liquid	ORGANIC LABORATORY CHEMICALS
264-I	Liquid	PHOTOPROCESSING WASTES
264-C	Liquid	PHOTOPROCESSING WASTES
312-P	Solid	PATHOLOGICAL WASTES
331-I	Gas	Compressed

Disposition of Empty Compressed Gas Cylinders

1. Empty compressed gas cylinders must be labeled, capped and marked "EMPTY".
2. Empty compressed gas cylinders are to be returned to the supplier – not disposed of.

Disposal of Compact Fluorescent Light Bulbs

1. Compact fluorescent light bulbs and tubes are a hazardous waste as they contain mercury (approximately 5 mg per 25W bulb).
2. Old fluorescent tubes should be stored in used tube boxes at a location protected from damage.
3. Contact Campus Services to arrange disposal.
4. If a compact fluorescent light bulb or tube breaks, sweep up all of the glass fragments and phosphor powder. DO NOT vacuum. Place in a plastic bag; wipe the area with a damp paper towel to pick up stray shards of glass or fine particles, and place the used towel in the plastic bag.

Disposal of Batteries

1. Spent or still usable batteries should be stored in a secure, dry place.
2. Waste batteries are classes as hazardous waste and must not be discarded or disposed of in regular garbage
3. All waste battery types will be collected for recycling or proper disposal