

Student Monitor Training Manual

# 1<sup>st</sup> Year Sculpture & Installation Studio

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

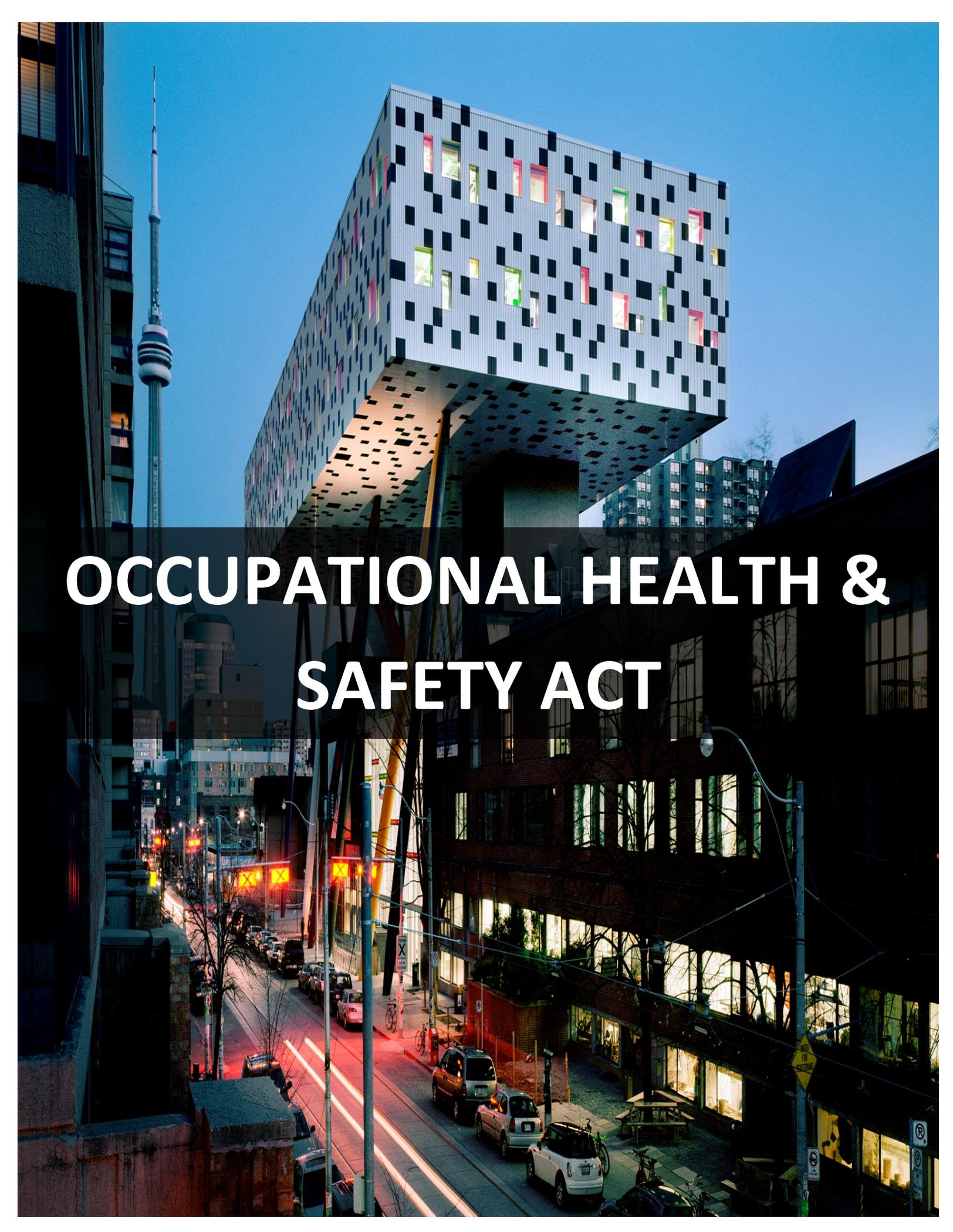




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A photograph of a modern building with a perforated facade and colorful windows, set against a city street at dusk with the CN Tower in the background. The building's facade is white with a grid of black squares, and some windows are illuminated with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

# 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.

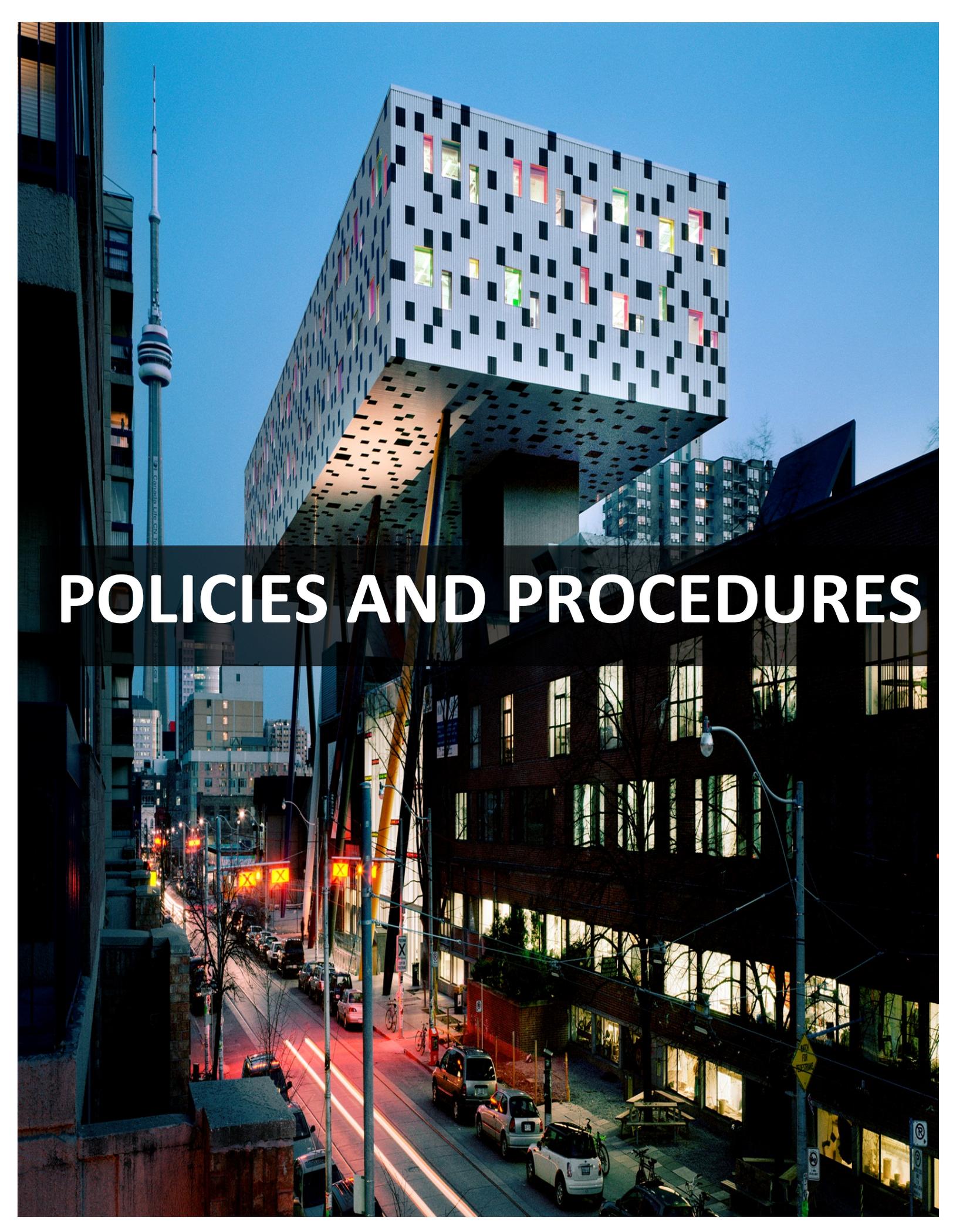


## SUPERVISOR RIGHTS & RESPONSIBILITIES

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](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](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

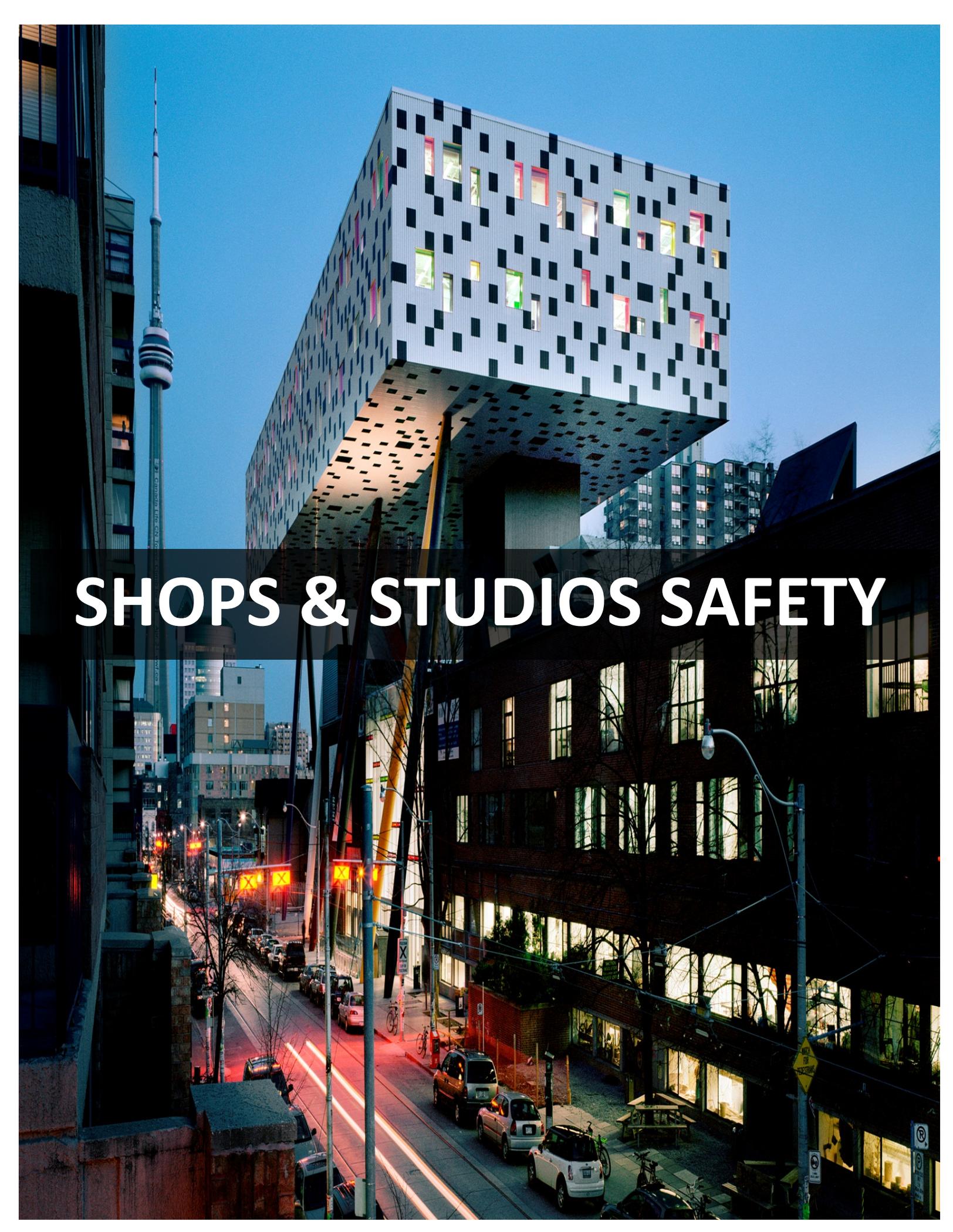
Incidents of a potentially violent or threatening nature but not presenting immediate or imminent danger should be reported immediately to:

- 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](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.

- a) **Wear sturdy and appropriate shoes:** e.g., sneakers, closed leather shoes or work boots - NOT open-toed sandals, flip-flops or high heels.
- b) **No bare midribs if exposure** to chemicals or tools/machinery is likely, wear an apron if necessary.
- c) 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.
- d) **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 Glasses
	Visitor Safety Glasses
	Clear Face shield
	Honeywell North Ratchet Head Gear (for above)
Gloves	Economy Fitters leather glove
Respirators	N95 Disposable Respirator
Hearing Protection	3M Ear Muff c/w Headband NRR24

# 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

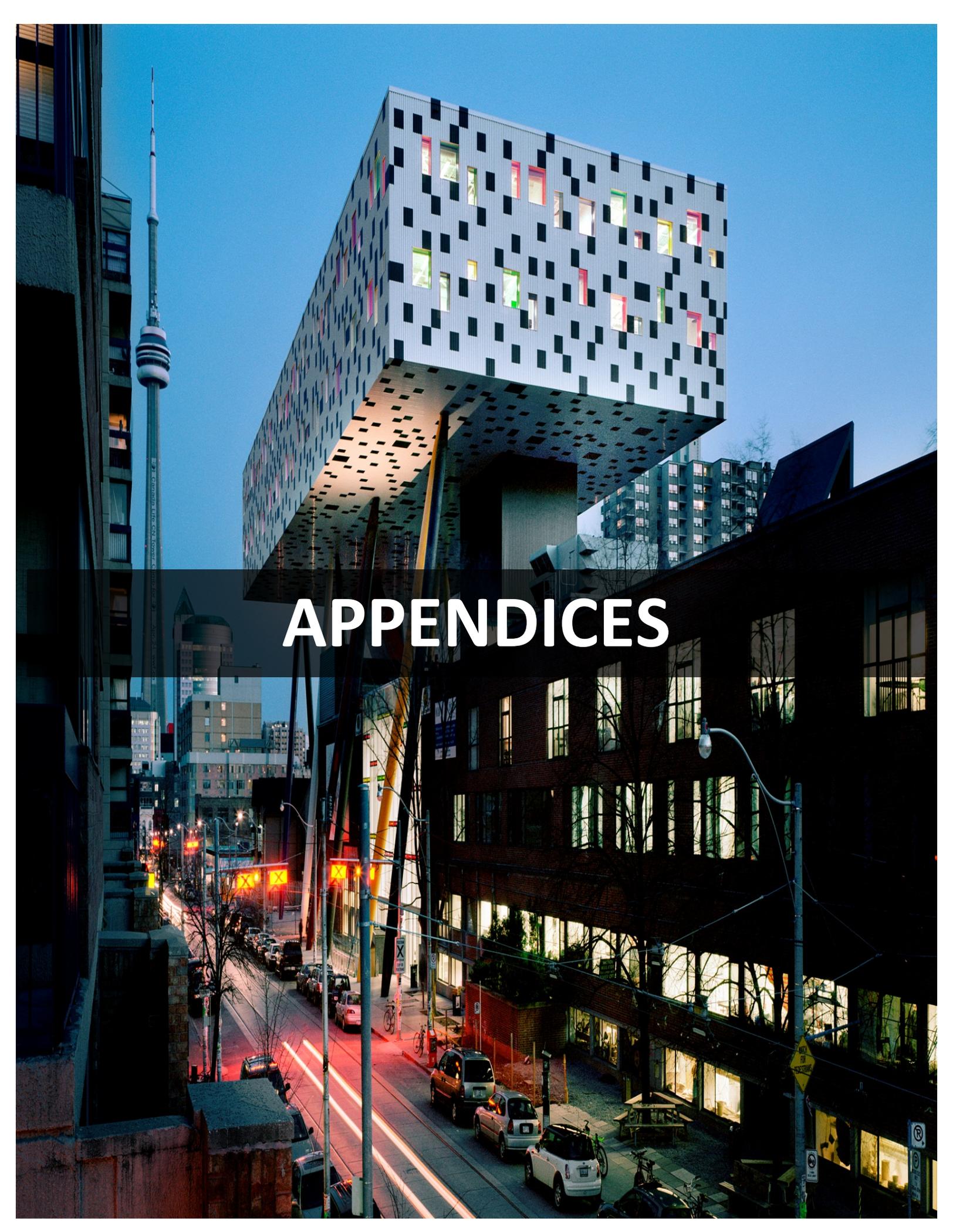
## 2. SCIN Studio SOPs

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

- a) Band Saw
- b) Belt Disc Sander
- c) Bench Grinder
- d) Drill Press
- e) Hand Shear
- f) Panel Saw
- g) Scroll Saw
- h) Sliding Compound Mitre Saw
- i) Spot Welder
- j) Spindle Sander



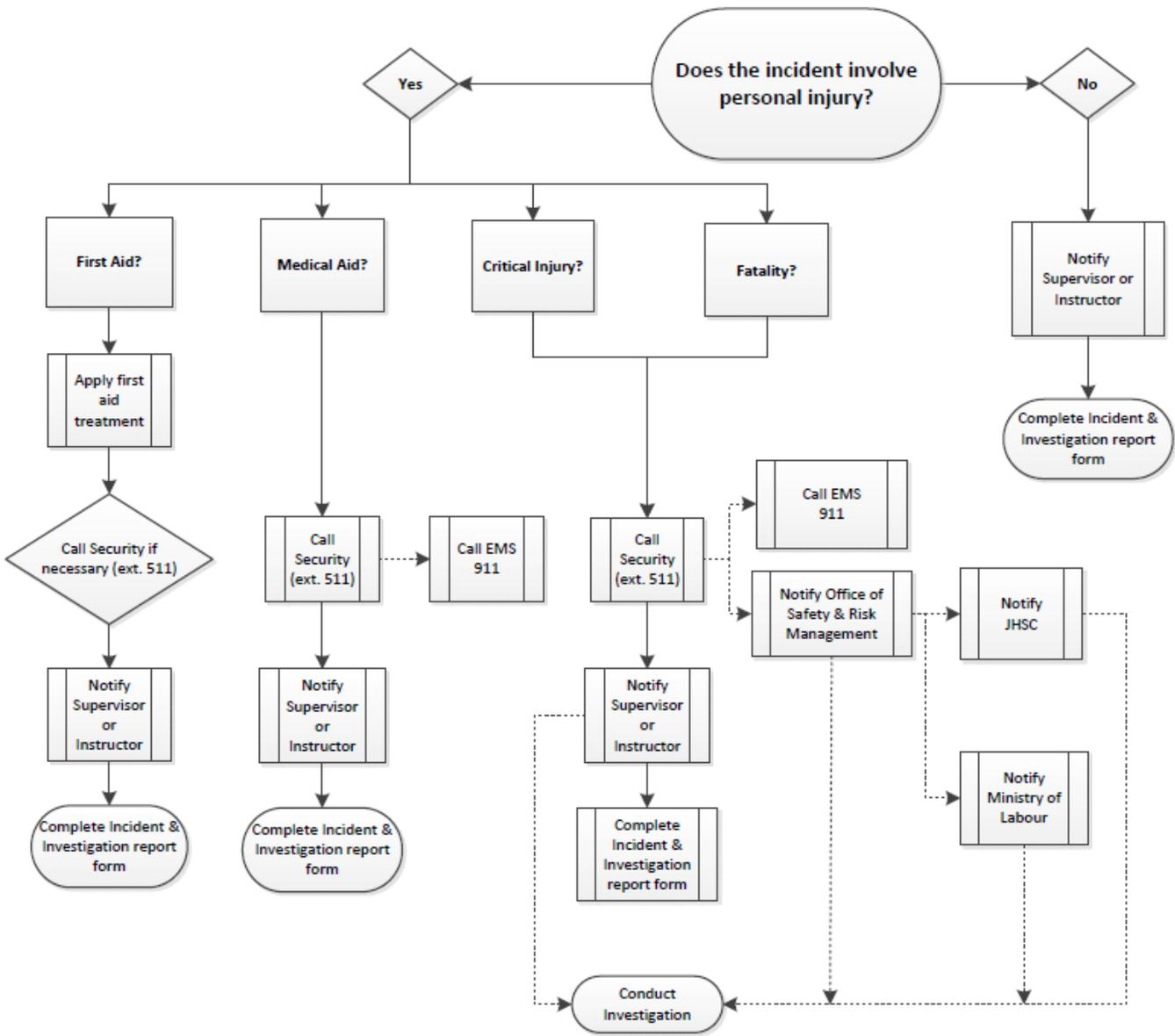




# APPENDICES



# 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**

- First Aid (immediate care)     Medical Aid (hospital or physician)     Loss Time (medical aid, missed work)  
 Near Miss (no injury, potential hazard)     Occupational Illness (skin, respiratory etc)     Property Damage  
 Critical Injury     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:**

- Cut     Overexertion     Fall from heights     Assault  
 Slip/Trip     Repetitive Strain     Harmful Substances     Fire/Explosion  
 Fall     Caught/Struck by     Burn     Motor vehicle  
 Other (specify): \_\_\_\_\_

**Body Part(s) Affected:**

- |                                 |                                  |                                     |  |  |  |  |
|---------------------------------|----------------------------------|-------------------------------------|--|--|--|--|
| <input type="checkbox"/> Head   | <input type="checkbox"/> Neck    | <input type="checkbox"/> Upper Back | Left <input type="checkbox"/> Right <input type="checkbox"/> |
| <input type="checkbox"/> Face   | <input type="checkbox"/> Chest   | <input type="checkbox"/> Lower 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"/> Eye(s) | <input type="checkbox"/> Abdomen |                                     | <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"/> Ear(s) | <input type="checkbox"/> Pelvis  |                                     | <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"/> Teeth  |                                  |                                     | <input type="checkbox"/> <input type="checkbox"/> Lower arm  |  | <input type="checkbox"/> <input type="checkbox"/> Lower Leg  |  |

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**

<b>SECTION A: WORKER INFORMATION (to be completed by employee)</b>	
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:

<b>SECTION B: SUPERVISOR INFORMATION (to be completed by Supervisor)</b>	
Supervisor Name:	Date & Time Notified of Work Refusal:
Immediate action taken (if any):	
<b>INVESTIGATION DETAILS: (STEP 1 - INTERNAL RESOLUTION)</b>	
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)

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

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

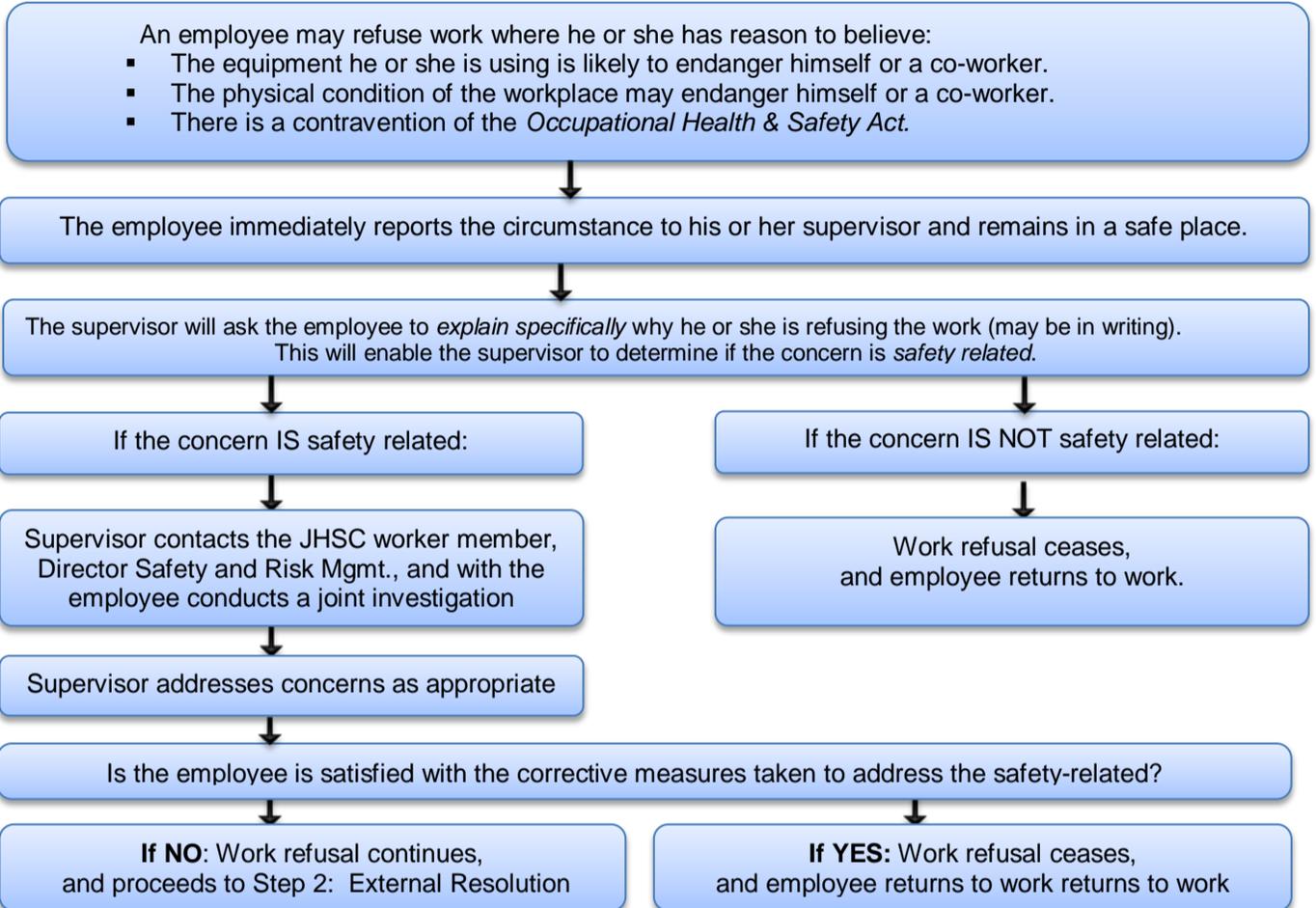
Explain why work refusal is not resolved:		
Date:	Time:	
Employee Signature:	JHSC Worker Member Signature:	
Supervisor Signature:	Safety and Risk Mgmt. Signature:	
<b>MINISTRY OF LABOUR INSPECTOR TO BE CONTACTED FOR INVESTIGATION &amp; DECISION 1-877-202-0008</b>		
Time MOL contacted:	Time MOL Inspector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

# Work Refusal Flow-Chart

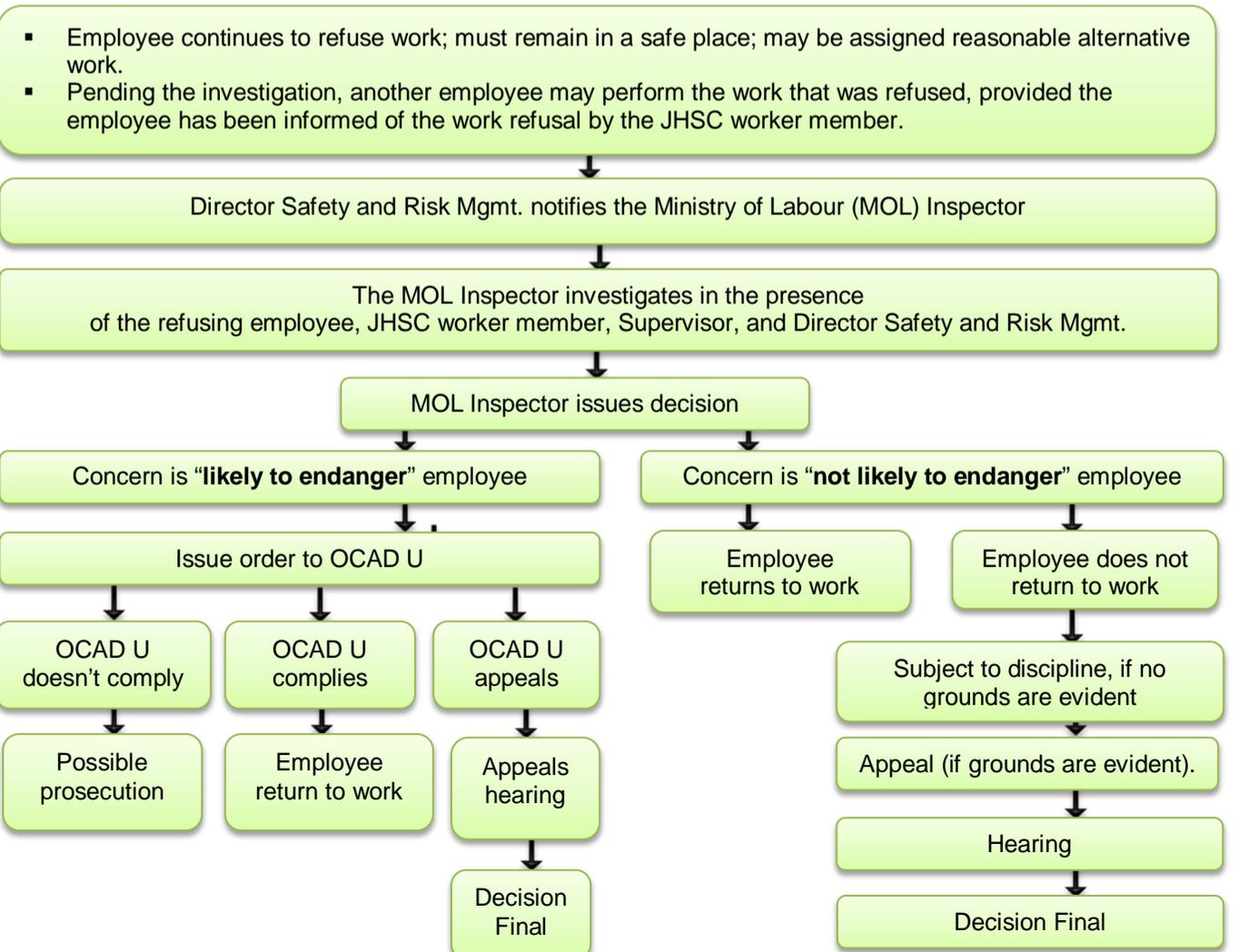
# Using your right to refuse unsafe work

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 <sup>nd</sup> floor	-	√		
	3 <sup>rd</sup> 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**



# 1<sup>st</sup> Year Sculpture & Installation Studio

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



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# Band saw



<b>Machine</b>	Band saw Model: 28-248 14" Wood Cutting Band Saw
<b>Location</b>	Sculpture & Installation/First Year Workshop – 159
<b>Manufacturer</b>	Name: Delta Machinery Address: 505 Southgate Drive, Guelph, ON, N1H 6M7 Tel: (1800) 463-3582
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"
<b>Sources</b>	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)?			
3	Are guards in place and in good working order and are the saw doors closed, the red safety switch in the fully out position and the foot brake in the fully up position?			
4	Is the saw secure and level?			
5	Is the area around the saw free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has the debris/material from previous operations been removed?			
8	Are all tools/wrenches removed from the table?			
9	Visually check that the blade and teeth free of defects?			
10	Is the blade centered?			
11	Visually check to ensure that the saw blade teeth point downwards towards the table?			
12	Are you using the proper size (93-1/2") and type (narrow for cutting as small curves, wider for straight cutting such as ripping) of blade?			
13	Does the work piece have a flat surface facing down, or a suitable support is being used?			
14	Are all adjusting and locking handles tight?			
15	Are the side guides parallel to the blade?			
16	Is the top blade and guard within 1/8" of the work piece?			
	<b>Comments/Corrective Action:</b>			

## 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) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

#### 1. Before sawing



Picture 1



Picture 2



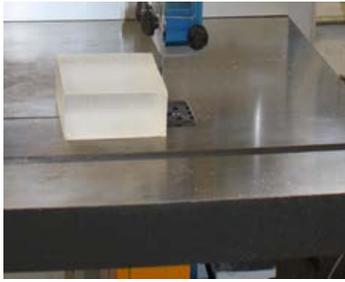
Picture 3



Picture 4

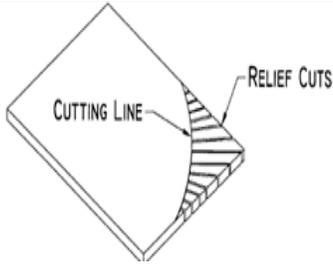
- a) Put on required PPE.
- b) Mark the desired area(s) to be sawed.
- c) **There is always danger of kickback when using the band saw.**
- d) Tilt the table to produce cuts at angle.
- e) Use the blade tension handle to alter the tension. Over-straining is a common cause of blade breakage and injury-release the tension once finished with the band saw. Narrow blades required less tension. Note: Technician should set blade tension.
- f) Use a fence (see picture 2) to reduce guesswork and to assist in parallel/repetitive cuts -adjust the fence for the drift of the blade and also for the thickness of the cut.
- g) Use a clamp for small or difficult to hold work pieces or use jigs or fixtures, which limit hand to blade distance, and minimize the possibility of injury.
- h) **Extreme caution must be exercised to prevent contact with part of the blade at the point of operation.** (see picture 3).
- i) Push the green start button (see picture 4) to turn on the band saw and allow the blade to reach full speed-do not feed work until the blade has reached full speed.

## 2. Hot Foil Stamping



Picture 5

- a) If sawing curve or thin pieces of veneer from thick stock, the band saw is most effective.
- b) It is unsafe to cut wood that is unsupported by the table and should never be attempted.
- c) Place the work piece on the table (see picture 5)-keep hands as far away as possible to prevent a drawing in/entanglement hazard between the blade and the work rest filler plate.
- d) Feed the work piece in to the blade at a moderate speed-make 'relief' cuts (see picture 6) prior to cutting long curves.



Picture 6

- e) If the material gets jammed, turn off the machine.
- f) Do not force the material against the blade.
- g) The guide blocks must not come in contact with the blade to prevent injury from blade breakage.
- h) Never track the blade while the machine is running.
- i) When cutting curves, turn the stock carefully so that the blade follows without twisting- don't force or twist a wide blade around a curve of short radius.



Picture 7

- j) When withdrawing the piece being cut, changing the cut, or for any other reason, be careful not to accidentally draw the blade off the wheels. In most cases, it is easier and safer to turn the stock and saw out through the waste material rather than try to withdraw the stock from the blade.
- k) Use the miter gauge for cross cutting or bevel cutting operations (see picture 7).
- l) Use a push stick/holding fixture (see picture 8) at the end of a cut to prevent blade contact when working with small or difficult work pieces-this is the most dangerous time because the cut is complete and the blade is exposed.

## 3. After Sawing

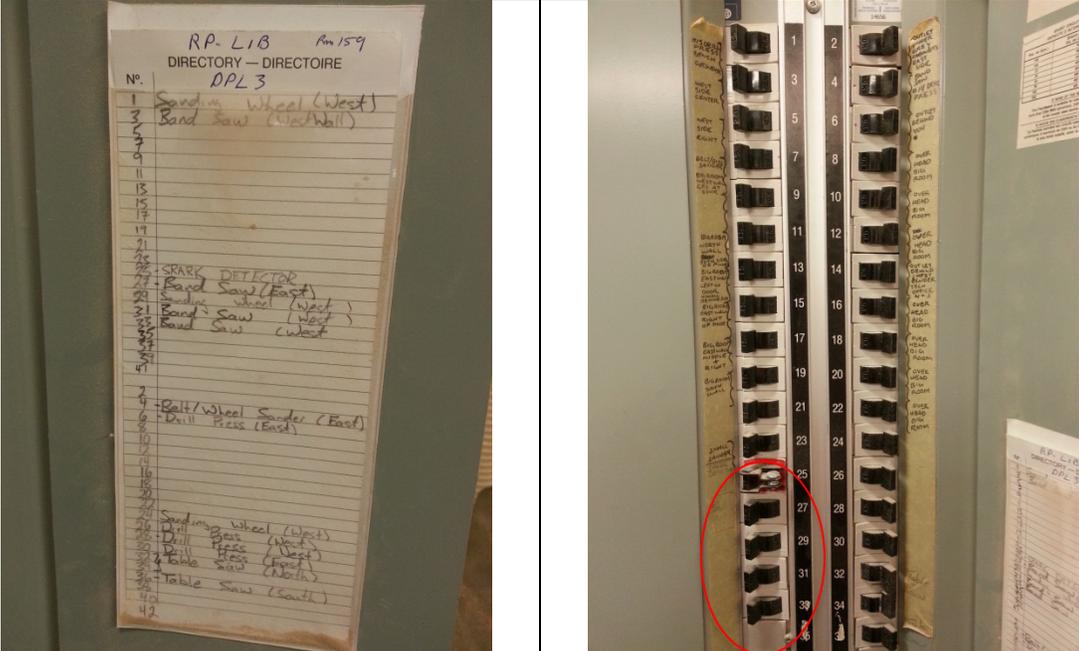


Picture 8

- a) Turn off the band saw when not in use.
- b) The blade continues to move after saw is switched off-let the saw stop on its own accord after turning the power off. NEVER try to stop the saw with your hand and don't leave it running unattended.
- c) Don't touch the sawed material immediately in case it is hot.
- d) Remove the chips from the surrounding area with a brush, NEVER by hand.
- e) Clean the band saw-use a rag of stiff brush to clean the blade to prevent injury-careful that the cloth does not hook on the teeth. NEVER clean the machine while it is in motion.
- f) Sweep the floor surrounding the saw.

## 4.0 Maintenance and Repair

### 4.1. LOTO Procedure

<b>LOCKOUT TAGOUT PROCEDURE</b>		
<b>Equipment Identification</b>	Equipment Name/Description:	Band Saw
	Equipment Location:	Sculpture & Installation/First Year Workshop
	Total # of Energy Isolation Devices/locks:	1
<b>NOTICE</b>  <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>		
		

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 and install plastic breaker adaptor, lock, and tag.	Attempt to start machine, visually confirm it will not start.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
Ensure that the power cords are free of frays and damage.	
Ensure that all guards are in place and in good working order, and that the foot break and red safety stitch are in the fully up and out position.	
Ensure that the saw is secure and level.	
Ensure that the area around the saw is free of slip/trip hazards.	
Ensure that the debris/material from previous operations are removed.	
Ensure that all tools/wrenches are removed from the table.	
Ensure that all adjusting and locking handles are tight.	
Ensure that the saw blade teeth point downwards towards the table.	
Ensure that the blade is properly tensioned-don't overly-tension, which could result in blade breakage and injury mid operation. Narrow blades required less tension.	
Ensure that the blade is centered and movement left/right/forward/back is kept to a minimum.	
Ensure that the blade is tracking in the correct position-if it is tracking too far forward or backward, adjust with the tracking adjustment knob.	
Ensure that blades are balanced on the center of the wheels.	
Ensure that the amount of blade exposed is kept to a minimum.	
Ensure that the blade and teeth are free of defects and dullness-replace if necessary-use gloves.	
Ensure that blade guides, wheels, pointer and support bearings are properly adjusted.	
<b>WEEKLY</b>	✓
Ensure that the blade tension lever is free of defects, oil and grease.	
Ensure that buildup is not occurring on the tires; especially on the lower wheel- clean the surface by sanding it with sand paper.	
Protect the table, extension table, fence bar and other work surfaces by coating with paste wax.	
Clean blades with a stiff fiber brush.	
Lubricate all moving non-painted parts with a Teflon based lubricant	
Apply WD-40 and polish table surface with a Scotch-Brite pad. Degrease and wax.	
Blow out air passages with dry compressed air.	
Clean all plastic parts with a soft damp cloth.	
<b>MONTHLY</b>	✓
Inspect the drive belts for cracks, cuts and wear-replace if necessary-never replace just one belt as this could cause vibration.	
Ensure that coolant levels are sufficient (if applicable).	
Ensure that the pulleys are aligned.	
Ensure that the work plate filler or insert has a clearance not greater than 1/8" on either side of the cutting tool.	
<b>ANNUALLY</b>	✓
Ensure that the body of the band saw is rigid as this takes the strain of the blade being tensioned.	
Redress the tire surface if hardened and glazed-over by sanding the wheel, exposing new rubber. Rotate the wheels by hand with the blade removed.	
Inspect entire machine and perform maintenance as required.	

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

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

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# Belt and Disc Sander



<b>Machine</b>	Belt and Disc Sander / Disc Sander	
<b>Location</b>	Sculpture & Installation/First Year Workshop – 159	
<b>Manufacturer</b>	Belt & Disc Sander Name: General International Model: 15-035 DC (6" X 48" Belt & 12" Disc Sander) Address: 8360, Champ-d'Eau, Montreal (Qc) H1P 1Y3 Tel: (514) 326-1161	Disc Sander Name: Delta Machinery Model: 12" 31-120 Address: 505 Southgate Drive Guelph, ON, N1H 6M7 Tel: (1800) 463-3582
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"	
<b>Sources</b>	Manufacturer's Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians	
 <b>DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!</b>		

**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)? If the sander has an attachment plug and receptacle (plug/socket combination) for cord connection, 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 sander secure and level?			
5	Is the area around the sander free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has the debris/material from previous operations been removed?			
8	Are all tools/wrenches removed from the table?			
9	Are the sanding surfaces free of defects? Examine the face of the belt and disc; ensure surfaces are not showing backing, nicks or cuts on the surface or edge, or damage due to ceasing or poor handling.			
10	Are all lock knobs and handles tight so they do not loosen during operation (caused by vibrations)?			
11	Is the dust collection system is on?			
12	If sanding small flat surfaces or convex edges, are you using the disc sander?			
	<b>Comments/Corrective Action:</b>			

## 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) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

		<b>1. Before sanding</b>
	Picture 1	<ul style="list-style-type: none"> <li>a) Put on required PPE. Never wear gloves while using a sander to prevent an entanglement hazard between the belt and machine frame.</li> <li>b) If angled edge or surface is desired, tilt the belt/disc sander table in a range between 20 and 45 downward and lock with the locking handle. NEVER adjust the table angle while sander is running.</li> <li>c) If belt sanding; position the belt sander arm vertically, horizontally (see picture 1) or angled. If you tilted the table, ensure the distance between the disc and the table (see picture 2) is kept to a maximum of 1/16 to prevent a pinch-point hazard.</li> </ul>
	Picture 2	<ul style="list-style-type: none"> <li>d) Turn on the power-Never turn it on with the work piece contacting the sander. Kickback and injury can occur.</li> <li>e) Check the sanders stability and rotation while running BEFORE sanding-ensure the belt/disc does not wobble and that it is moving downwards if vertical.</li> <li>f) The sander has a power cord and receptacle (plug/socket combination) for cord connection, it may be used to disable the machine in the event of an emergency.</li> </ul>
		<b>2. Belt Sanding - Vertically/Horizontally</b>
	Picture 3	<ul style="list-style-type: none"> <li>a) Wait for the belt to reach full speed before sanding-be cautious of 'drawing in' hazards between the belt and table.</li> <li>b) Hold the work piece firmly with both hands. Loss of control can result in injury.</li> <li>c) Hold the work piece against the belt, keeping hands as far away as possible to prevent pinch point and entanglement hazards between the belt and machine frame or drums and drawing in hazards between the disc and table or drums.</li> <li>d) If horizontal, place the material on the sander in a way to prevent kickback (see picture 3). Do not place the work piece in a position that may cause kickback (see picture 4).</li> <li>e) Let the material cool regularly.</li> </ul>
	Picture 4	<p><b>Using the miter gauge:</b> if sanding accurate angles, carefully place the work piece against the miter reference surface and slide it along the reference surface and in to the belt.</p> <p><b>Using the backstop:</b> to support and position the work piece. Place one end against the backstop and then apply it to the belt. Be careful when sanding thin work pieces!</p> <p><b>Sanding curved sides:</b> External curves must be sanded on the flat portion of the belt. Internal curves must be sanded on the drum portion of the belt.</p> <p><b>End sanding:</b> 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. Make sure the table is square with the belt.</p>

### 3. Disc Sanding



Picture 5

- a) Wait for the disc to reach full speed before sanding-be cautious of 'drawing hazard' between the disc and table.
- b) Hold the work piece firmly. Loss of control can result in injury.
- c) Hold small or thin pieces of stock in a jig or holding device to prevent injuries to the fingers or hands.
- d) Hold the work piece firmly flat on the table (see picture 5), to prevent throwing of the work piece, causing injury.
- e) Press the work piece up against the disc, keeping it flat in the table and hands as far away as possible to prevent pinch point and entanglement hazards between the disc and machine frame or drums.
- f) Let the material cool regularly so it will not melt.

### 4. After Sanding



Picture 8

- a) Turn off the sander when not in use.
- b) Allow the sanding surface to come to a complete stop-**NEVER** leave the sander running unattended.
- c) Clean the sander-**NEVER** clean while it is in motion.
- d) Remove accumulated debris from the sander.
- e) Sweep the floor surrounding the sander.
- f) The Delta 12" disc sander has a manual disc brake, which can be applied by pressing down on brake lever (see picture 8) after the switch has been turned off.

4.1. LOTO Procedure

<b>LOCKOUT TAGOUT PROCEDURE</b>		
<b>Equipment Identification</b>	Equipment Name/Description:	Disc and Belt Sander/Disc Sander
	Equipment Location:	1 <sup>st</sup> Year Sculpture & Installation Studio
	Total # of Energy Isolation Devices/locks:	1
<b>NOTICE</b> <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>		

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.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
Ensure that power cords are free of frays and damage.	
Ensure that guards are in place and in good working order.	
Ensure that the sander is secure and level.	
Ensure that the area around the sander free of slip/trip hazards.	
Ensure that debris/material from previous operations has been removed.	
Ensure that tools/wrenches are removed from the table.	
Ensure that the sanding surfaces are free of defects; not showing backing, curling, buckling, nicks or cuts, or damage due to ceasing or poor handling-replace 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" away from the table. When installing a new belt, check the tracking.	
Ensure that the belt moves downwards and the disc is rotating clockwise.	
Ensure that lock knobs and handles are tight.	
<b>WEEKLY</b>	✓
Lightly apply paste wax on the surfaces.	
Use regular soap, a mild solvent or kerosene to clean surfaces.	
Use a vacuum to clean the motor.	
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.	
Clean the dust collection bag.	
Clean the drive disc surface using naphtha or a similar non-flammable solvent that will dry film-free.	
Blow out all air passages with dry compressed air –use all required PPE.	
To clean cast iron tables of rust, apply WD-40 and polish the table surface with a medium Scotch-Brite Blending Hand Pad, degrease and apply wax.	
Check drums for scrolling, signs of wear, or looseness. Observe the tracking by turning the belt by hand-ensure it runs centered on the belt wheels. Tighten or replace parts as required.	
Lightly apply paste wax on the surfaces.	
<b>MONTHLY</b>	✓
Check the gap between the edge of the table and the face of the disc-it should be positioned at a maximum of 1/16 inch. Adjust if necessary to prevent pinch points.	
Check all bearings for excessive heat or loose shafts-replace if necessary.	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

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

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

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# Bench Grinder



<b>Machine</b>	Bench Grinder	
<b>Location</b>	Sculpture & Installation/First Year Workshop – 170	
<b>Manufacturer</b>	Name: TradeMASTER Tools & Machinery Ltd. Model: PR14206 6" Bench Grinder Address: 211 Shearson Crescent, P.O. Box 1328, Cambridge, ON, N1R 7G6 Tel: (519) 622-0510	Name: TradeMASTER Tools & Machinery Ltd. Model: PR14206 6" Bench Grinder Address: 211 Shearson Crescent, P.O. Box 1328, Cambridge, ON, N1R 7G6 Tel: (519) 622-0510
<b>Applicable Legislation</b>	Bench Grinder	
<b>Sources</b>	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	X	
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)?			
3	Are guards in place and in good working order?			
4	Is the grinder secure and level?			
5	Is the area around the grinder free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has the debris/material from previous operations been removed?			
8	Are all tools/wrenches removed from the table?			
9	Are the wheels free of defects? (Tears in the wheels can be very hazardous as they can propel debris towards the operator).			
10	Do the wheels move freely without obstruction? Turn the wheel by hand to make sure it does not touch the guard, spark deflectors or tool rests and runs freely.			
11	Is the work rest kept adjusted to within 1/8-inch (0.3175cm) of the wheel?			
12	Is the material you are grinding suitable for the grinder and wheel being used? Wheels are made only for grinding certain items. Do not grind rough forgings on a small precision grinding wheel.			
13	Is the material the correct size for the grinder being used? (Ensure the material is not too big or too small).			
14	Is there a water container nearby for cooling of the tool?			
	<b>Comments/Corrective Action:</b>			

## 3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

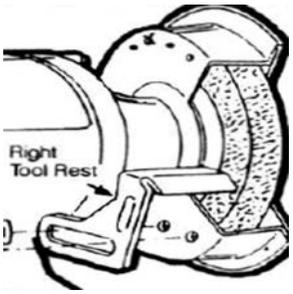
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

### 3.1 General Safety Guidelines

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

- a) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

### 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"><li>a) Put on your safety glasses/face shield to protect from sparks.</li><li>b) Be careful of the pinch point and entanglement hazards between the wheel and the tool rest (see picture 1).</li><li>c) Ensure that the wheel is not in contact with the work when you go to start the grinder, to prevent material from being thrown toward the operator.</li><li>d) Stand to one side, turn the power on by depressing the rocker switch and allow the motor to reach full speed.</li></ul>
2. When using the grinder		
	Picture 2	<ul style="list-style-type: none"><li>a) Once the wheel is at full speed, apply the material in a controlled and slow manner to the front, bottom ¼ of the wheel and not the sides (see picture 2), without bumping, which could cause the tool to shatter.</li><li>b) Apply gradual pressure to allow the wheel to warm up.</li><li>c) 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.</li><li>d) Move the work back and forth across the face of the wheel.</li><li>e) Keep the material moving in slow, even strokes. NEVER try to stop the grinder with your hands</li></ul>
3. After grinding		
		<ul style="list-style-type: none"><li>a) Remove the work piece from the grinder. Don't touch the tool immediately to prevent burns.</li><li>b) Turn off the power when not in use.</li><li>c) Wait until the wheel has come to a complete stop - Never leave the machine running unattended.</li><li>d) Clean the grinder. NEVER clean while it is in motion.</li><li>e) Use a brush or vacuum to remove debris.</li><li>f) Sweep the floor surrounding the grinder.</li><li>g) Do not leave wheels standing in liquids. This can cause balance problems.</li><li>h) Dispose of the water used for coolant.</li></ul>

## 4.0 Maintenance and Repair

### 4.1. LOTO Procedure

<b>LOCKOUT TAGOUT PROCEDURE</b>		
<b>Equipment Identification</b>	Equipment Name/Description:	Bench Grinder
	Equipment Location:	1 <sup>st</sup> Year Sculpture & Installation Studio
	Total # of Energy Isolation Devices/locks:	1
<b>NOTICE</b>  <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>		
		

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.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
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 grinder is secure and level.	
Ensure that the area around the grinder is free of slip/trip hazards.	
Ensure that flammable/combustible materials are removed from the immediate work area.	
Ensure that debris/material from previous operations has been removed.	
Ensure that tools/wrenches are removed from the table.	
Ensure that the wheels are free of defects (breaks/cracks in the wheels can be very hazardous as they can propel debris towards the operator). If replacing, inspect wheels before mounting. Don't use a wheel that has been dropped or doesn't fit properly. Don't use excessive force to tighten wheels. Test run a new wheel before use.	
Ensure that the wheels move freely without obstruction.	
<b>WEEKLY</b>	✓
Ensure that the adjustable tongue guard is kept to within 1/4-inch of the wheel.	
Ensure that the work rest is kept to within 1/16-inch of the wheel.	
Ensure that the spark breaker is kept within 1/16-inch of the wheel.	
Dress wheels-frequent, light dressings rather than one heavy dressing.	
<b>MONTHLY</b>	✓
Ensure that wheels have blotters on each side.	
Ensure that all nuts, bolts and other fixings are properly tightened-don't over tighten wheel nuts.	
Ensure that the wheels fit and don't overly vibrate. If loose, get another wheel.	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

## 5.0 Document Control

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<b>Initially Created By:</b> The Office of Safety and Risk Management	Date: September 2011
<b>Consultation:</b> <ul style="list-style-type: none"> <li>▪ Studio Managers and Technicians</li> <li>▪ Program Chairs and faculty</li> </ul>	Date: January-April 2013 April – May, 2013
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<b>Revisions Approved By:</b>	Date of Approval:

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# Drill Press



<b>Machine</b>	Drill Press Model: 15-630 / 17-901 / 15-602L
<b>Location</b>	Sculpture & Installation/First Year Workshop - 159
<b>Manufacturer</b>	Name: Delta Rockwell Address: 505 Southgate Drive, Guelph, ON, N1H 6M7 Tel: (1800) 463-3582
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"
<b>Sources</b>	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)?			
3	Are guards in place and in good working order?			
4	Is the drill press secure and level?			
5	Is the area around the drill press free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has the debris/material from previous operations been removed?			
8	Are all tools/wrenches removed from the table?			
9	Are the drill bits and chuck free of defects?			
10	Does the table adjustment setting and pinion handle move freely without obstruction?			
11	Is the clamp or vise in good condition, suitable to secure the work piece?			
	<b>Comments/Corrective Action:</b>			

## 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:

- Notify the studio technician/class assistant or faculty that you are operating this machine.
- Make sure you understand all of the instructional material and/or faculty and technician instruction 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 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.
- Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Installing drill bit		
	Picture 1	<ul style="list-style-type: none"><li>a) <b>Do not</b> wear gloves when operating the drill press to prevent injury from the entanglement hazard of the bit holding chuck.</li><li>b) Insert the drill bit shank securely into the chuck and tighten the chuck by hand (see picture 1). Use a correctly ground drill bit for the material being drilled – use only drill bits that have shanks of ½” in diameter or less.</li><li>c) Use the chuck key to further secure the drill bit.</li><li>d) Ensure the chuck safety guard is in place.</li><li>e) <b>REMOVE</b> the chuck key before operating the drill press.</li></ul>
2. Before drilling		
	Picture 2	<ul style="list-style-type: none"><li>a) Adjust the depth stop to set the desired depth of the drill bit (see picture 2) e.g. if you want only 1 inch of the material to be drilled.</li><li>b) Mark the area to be drilled.</li><li>c) Clean the drill shank/drill sleeve and spindle hole before mounting.</li><li>d) Place a backing board beneath the work piece on the table to prevent splintering of the material/bit or table damage.</li></ul>
	Picture 3	<ul style="list-style-type: none"><li>e) Use a clamp/vise (see picture 3) to secure the material to the table to prevent the work piece from spinning-<b>NEVER</b> work free hand.</li><li>f) Ensure that the longest dimension of the work piece is to the left of your body, so that if it comes loose it can be stopped from spinning a complete revolution. (Drill presses turn clockwise when cutting; the material has a tendency to spin clockwise as well).</li><li>g) Lower the bit on to the desired area(s), holding it there for a couple of seconds so that it digs in to the work material slightly.</li></ul>

### 3. Adjusting table height



Picture 4

- a) The table can be raised/lowered on the drill press column by loosening the table clamp handle and turning the table raising and lowering handle (see picture 4).
- b) After the table is at the desired height, tighten handle to prevent it moving mid operation.

### 4. Drilling



Picture 5

- a) Turn on the power.
- b) Rotate the pilot wheel (which lowers the spindle) (see picture 6), downwards slowly to drill-be careful when using this spring-loaded wheel that it does not come in contact with you if accidentally released.
- c) If drilling a large hole, withdraw the drill bit frequently to clear the chips and lubricate the bit if necessary
- d) Ease up on drilling pressure as the drill starts to break through the work piece.
- e) If the drill binds in a hole, stop the machine and turn the spindle backwards by hand to release the bit.
- f) Raise the pilot wheel to the starting position to stop drilling.

### 5. After Drilling

- a) Turn off the drill press when not in use.
- b) Allow the spindle to stop on its own accord after turning the power off. **NEVER** try to stop the spindle with your hand.
- c) Loosen the clamp/vise and remove the work piece.
- d) Remove the drill bit from the chuck. **DO NOT** touch the bit immediately, as it is hot.
- e) Clean the drill press table. **NEVER** clean while it is in motion.
- f) Remove the chips from the drill bit and surrounding area with a brush, **NEVER** by hand.
- g) Sweep the floor surrounding the drill press.

4.0 Maintenance and Repair

4.1 LOTO Procedure

LOCKOUT TAGOUT PROCEDURE		
<b>Equipment Identification</b>	Equipment Name/Description:	Drill Press
	Equipment Location:	1 <sup>st</sup> Year Sculpture & Installation Studio Room 159
	Total # of Energy Isolation Devices/locks:	1
<b>NOTICE</b> ⚠ <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>		

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 to the off position, install plastic breaker adaptor, lock, and tag.	Attempt to start machine, visually confirm it will not start.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
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 drill press is secure and level.	
Ensure that the area around the drill press is free of slip/trip hazards.	
Ensure that flammable/combustible materials are removed from the immediate work area.	
Ensure that debris/material from previous operations is removed.	
Ensure that tools/wrenches are removed from the table.	
Ensure that the drill bits and chuck are free of defects; ensure that the teeth are not worn down, since this may restrict tightening and securing of the work piece. Check the fingers [pieces] that come in contact with the drill bit, to ensure that there are no cracks and that they close evenly. Replace the chuck if necessary.	
Ensure that the table adjustment setting and pinion handle move freely without obstruction.	
Ensure that the quill and chuck assembly move smoothly via the pinion handles and return to the start position easily and promptly.	
Ensure that the clamp or vise is available, in good condition, suitable to secure the work piece.	
Ensure that drill bits are clean and sharp.	
Ensure use of proper cutting fluid (if applicable) for the material being drilled.	
<b>WEEKLY</b>	✓
Lubricate if necessary.	
Ensure that the levers on the tabletop and the column are free from defects (stripped levers or bolts). Replace or adjust if necessary.	
Grease all points.	
<b>MONTHLY</b>	✓
Ensure that the belts are not cracked or broken. If necessary replace.	
The pulleys have closed bearings - ensure that they are running smoothly.	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

## 5.0 Document Control

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

<b>Initially Created By:</b> The Office of Safety and Risk Management	Date: September 2011
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<b>Changes Made</b> (indicate sections):	
<b>Revisions Approved By:</b>	Date of Approval:

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# Hand Shear



<b>Machine</b>	Hand Shear Model: 37"X16GA
<b>Location</b>	Sculpture & Installation/First Year Workshop – 170
<b>Manufacturer</b>	Name: Unknown
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"
<b>Sources</b>	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 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 all tools/wrenches removed from the table?			
6	Is the blade free of defects?			
7	Is the shear sufficient for the material being sheared? Do not shear wire.			
8	Is the handle free from defects/damage/grease/oil and kept dry?			
9	Is the work piece over ½"?			
	<b>Comments/Corrective Action:</b>			

## 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 and/or faculty and technician instruction 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.
- Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before shearing		
		<ul style="list-style-type: none"><li>a) Put on required PPE.</li><li>b) Identify the desired area(s) to be sheared.</li><li>c) Support long pieces to be sheared.</li><li>d) Ensure the area is clear prior to shearing, to avoid possible injury to bystanders from thrown pieces.</li></ul>
2. Shearing		
	Picture 1	<ul style="list-style-type: none"><li>a) Keep fingers away from the reach of the blade.</li><li>b) Insert the material to be sheared in the designated area-careful of pinch points.</li><li>c) Pull the lever to operate the shear (see picture 2) – careful to prevent it coming in contact with your body.</li><li>d) Cut materials straight across - keep the material being cut at right angles to the cutting edges.</li><li>e) Be cautious of flying materials.</li><li>f) Do not pry or twist with work piece when cutting.</li><li>g) NEVER try to stop the blade with your hand.</li></ul>
3. After Shearing		
		<ul style="list-style-type: none"><li>a) Remove the sheared material-careful when handling not to injure your hands.</li><li>b) Remove the chips from the surrounding area with a brush, NEVER by hand.</li><li>c) Clean the shear-NEVER clean the blade while in motion.</li><li>d) Sweep the floor surrounding the shear.</li></ul>

## 4.0 Maintenance and Repair

### 4.1 Inspection Checklist

<b>DAILY</b>	✓
Ensure that guards are in place and in good working order.	
Ensure that the shear is secure and level.	
Ensure that the area around the shear is free of slip/trip hazards.	
Ensure that debris/material from previous operations is removed.	
Ensure that tools/wrenches are removed from the worktop.	
Ensure that the blade is free of defects.	
Ensure that the handle free is from defects/damage/grease/oil and kept dry	
<b>WEEKLY</b>	✓
Lubricate the blade	
<b>MONTHLY</b>	✓
Ensure that the protective guards clearance is kept to a minimum – just enough to feed material. Adjust if necessary.	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

## 5.0 Document Control

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

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

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# Panel Saw



<b>Machine</b>	Panel saw Model: 6480-20 Heavy Duty 8" Panel Saw
<b>Location</b>	Sculpture & Installation/First Year Workshop – 170
<b>Manufacturer</b>	Name: Milwaukee Tools Address: 755 Progress Avenue, Scarborough, ON, M1H 2W7 Tel: (416) 439-4181
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"
<b>Sources</b>	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**

	<b>Check</b>	<b>Y</b>	<b>N</b>	<b>N/A</b>
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 saw's power cord 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 saw secure and level?			
5	Is the area around the saw free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has the debris/material from previous operations been removed?			
8	Is the saw free of defects, debris and dullness?			
9	Are the material rollers are smooth and clean?			
10	Is the material being sawed suitable for the panel saw? (Never cut work pieces with a width smaller than that of the saw carriage).			
11	If ripping (horizontal cuts), does the work piece have a minimum length of 2-1/2' (work supported by 4 rollers?) and maximum 8'?			
12	Is the work piece free of defects, nails or other foreign materials which could kickback mid operation, resulting in injury.			
	<b>Comments/Corrective Action:</b>			

## 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) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

		<b>1. Before sawing</b>
	Picture 1	<ul style="list-style-type: none"><li>a) Put on required PPE.</li><li>b) Mark the desired area(s) to be cut.</li><li>c) Use the adjustable measuring indicators and stop block to set desired lengths for the material being cut. This is important to prevent the material falling out the other side, causing injury.</li><li>d) Rotate the saw (see picture 1) to vertical/horizontal cutting.</li><li>e) Lock the saw in desired position (for crosscutting or ripping).</li><li>f) Proper support for the work piece must be maintained to ensure safety (material should not be narrower than the carriage).</li><li>g) The saw's power cord may be used to disable the machine in the event of an emergency.</li></ul>
		<b>2. Cross-Cutting (Vertical Cuts)</b>
	Picture 2	<ul style="list-style-type: none"><li>a) Do not hold handrails when making a cut and don't place hands near the blades to prevent injury from pinch point and laceration hazards of the blade.</li><li>b) Place the work piece on the rollers-don't drop the material on to the rollers.</li><li>c) Slide the work piece to the desired position using the crosscut ruler as a measure.</li><li>d) Turn on the power to the saw-allow it to reach full speed.</li><li>e) Slowly pull the saw motor down through the work piece toward the bottom of the machine, keeping your hand on the handle (see picture 2).</li><li>f) Do not place hands on or under saw carriage or in the path of the blade-Do not attempt to retrieve a piece of material that is cut off.</li><li>g) If the saw starts binding, turn the switch off and notify a technician-never attempt to remove the saw from the work or pull the saw backward while the blade is in motion and don't force the blade to prevent impact hazards from ejected material or blade fragments.</li><li>h) Turn off the saw and wait for the blade to come to a complete stop before retracting.</li><li>i) Raise the saw motor and allow it to return to the top of the guide tubes.</li><li>j) Tighten the carriage lock.</li><li>k) Always wait for the blade to stop completely before changing position of the carriage.</li></ul>

### 3. Ripping (Horizontal Cuts)



Picture 3

- a) Select the ripping direction based on preference – from the left or right?
- b) **Don't** hold handrails when making a cut and don't place hands near the cutting insert.
- c) Select the saw height, based on the work piece, following the measure on the rip ruler.
- d) Tighten the carriage lock.
- e) Turn on the power to the saw-allow it to reach full speed.
- f) Place the work piece on the rollers-don't drop the material on to the rollers.
- g) Push the material through the saw slowly, in the direction of the arrow on the saw motor (see picture 3). **Do not** use push sticks which could kickback, causing injury.
- h) If the saw starts binding, turn the switch off and notify a technician-never attempt to remove the saw from the work or pull the saw backward while the blade is in motion or kickback can occur, causing injury.
- i) Do not place hands on or under saw carriage or in the path of the blade-Don't attempt to retrieve material that is cut off.
- j) Do not look directly down the line of cut because dust and debris are generated during operation.
- k) Turn off the saw and wait for the blade to come to a complete stop before retracting.
- l) Raise the saw motor and allow it to return to the top of the guide tubes.
- m) **Always wait for the blade to stop completely before changing position of the carriage.**

### 4. After Sawing

- a) Turn off the panel saw when not in use.
- b) Allow the saw to stop completely. **NEVER** leave it running unattended. **NEVER** try to stop the saw with your hand.
- c) **Do not** touch the cut material immediately, as it is hot.
- d) The saw carriage should be raised in the uppermost position on the guide tubes and locked in to position with the carriage lock whenever the tool is not in use.
- e) Tighten the carriage lock.
- f) Remove the chips from the surrounding area with a brush, **NEVER** by hand.
- g) Clean the saw. **NEVER** clean while it is in motion.
- h) Sweep the floor surrounding the saw.

**4.0 Maintenance and Repair**

**4.1 LOTO Procedure**

<b>LOCKOUT TAGOUT PROCEDURE</b>	
<b>Equipment Identification</b>	Equipment Name/Description: Panel Saw
	Equipment Location: 1 <sup>st</sup> Year Sculpture & Installation Studio Room 170
	Total # of Energy Isolation Devices/locks: 1
<b>NOTICE</b> <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>	
	

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.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
Ensure that the power cords are free of frays and damage.	
Ensure that all guards are in place and in good working order.	
Ensure that the panel saw is secure and level.	
Ensure that the area around the panel saw is free of slip/trip hazards.	
Ensure that the debris/material from previous operations are removed.	
Ensure that all tools/wrenches are removed from the area.	
Ensure that all adjusting and locking handles are tight.	
Ensure that the saw is free of defects/debris/damage and kept centered.	
Ensure that the guide tubes are perpendicular to the rollers.	
Ensure that handles are clean and free from defects, grease and oil.	
Ensure that the material rollers are smooth and clean	
<b>WEEKLY</b>	✓
Ensure that buildup is not occurring on the rollers and that they are aligned and secure.	
<b>MONTHLY</b>	✓
Clean the guides with a solvent and then lubricate with a Teflon-based lubricant.	
Clean sliding parts with a damp cloth and mild soap. Lubricate if necessary.	
Clean dust and debris from vents.	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

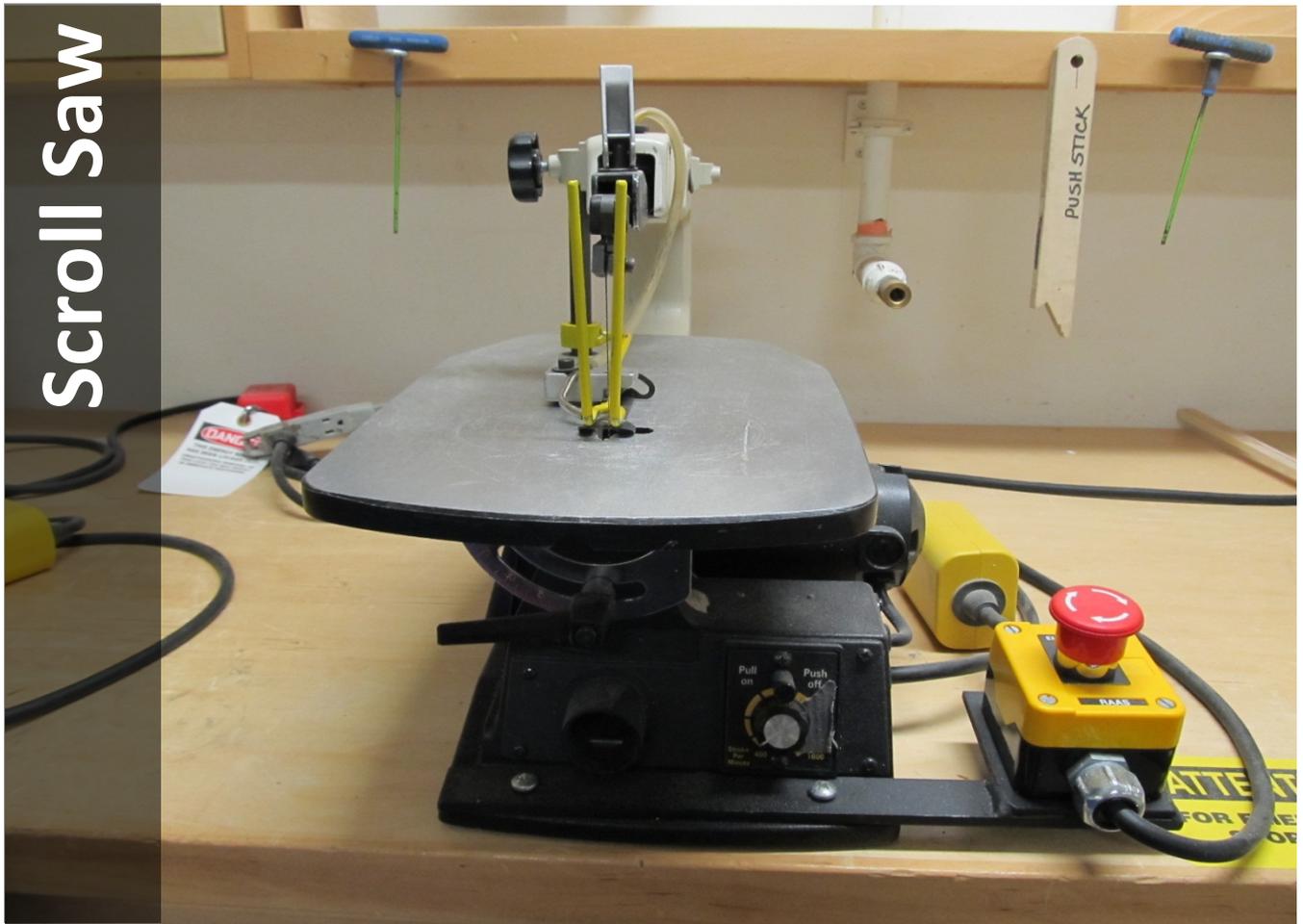
## 5.0 Document Control

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

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# Scroll Saw



<b>Machine</b>	Scroll Saw Model: SJ401
<b>Location</b>	Sculpture & Installation/First Year Workshop – 159
<b>Manufacturer</b>	Name: Makita Address: 1950 Forbes Street, Whitby, Ontario, L1N 7B7 Tel: 1(800) 263-3734
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"
<b>Sources</b>	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 saw has an attachment plug and receptacle (plug/socket combination) for cord connection 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 saw secure?			
5	Is the area around the saw free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has the debris/material from previous operations been removed?			
8	Are all tools/wrenches removed from the table?			
9	Is the blade free of defects and correctly positioned in the holders?			
10	Do the saw blade teeth point downwards towards the table?			
11	Are you using the proper size (narrow for thin wood, wider for wood over ¼" thick) and type (5" long pin or plain end type) of blade?			
12	Is the blade tensioned correctly (using the blade tension lever) to avoid breakage? Narrow blades require less tension. Don't overly-tension, which could result in blade breakage and injury mid operation.			
13	Is the dust blower tube adjusted to direct air to the most effective point on the cutting line, but not overly tight?			
14	Is the speed control knob set accordingly?			
15	Is the work piece free from nails, wires and other foreign objects?			
16	Does the work piece have a flat surface facing down, or a suitable support is being used?			
17	Are you cutting only one work piece at a time?			
	<b>Comments/Corrective Action:</b>			

## 3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

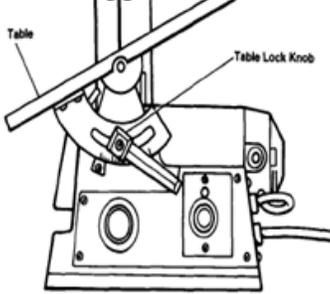
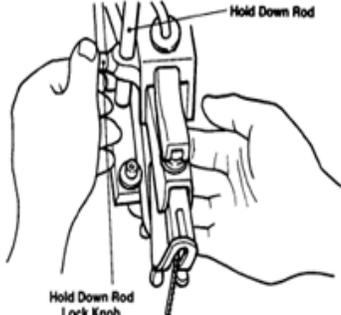
### 3.1 General Safety Guidelines

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

- a) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

#### 1. Before sawing

	Picture 1	
	Picture 2	<ul style="list-style-type: none"><li>a) Put on required PPE.</li><li>b) Mark the desired area(s) to be sawed.</li><li>c) There is always danger of kickback.</li><li>d) Tilt the table (up to 45°) if desired, and secure it in place using the table lock knob. Refer to the degree scale (see picture 1).</li><li>e) Tilt the hold down so that it's parallel to table (see picture 2).</li><li>f) Extreme caution must be exercised to avoid laceration and pinch point hazards from the blade (see picture 3).</li><li>g) Adjust the hold down foot until it just rests on top of the work piece to prevent work piece from lifting, but not so much that the work piece drags. Adjust foot with the adjusting knob.</li><li>h) When cutting irregularly shaped work pieces, plan your work so it will not pinch the blade.</li><li>i) Plan the way you will hold the work piece from start to finish.</li><li>j) Do not hand-hold pieces so small that your fingers will go under the work hold-down. Use jigs or fixtures to hold the work and keep your hands away from the blade.</li></ul>
	Picture 3	<ul style="list-style-type: none"><li>k) The saw has a power cord and receptacle (plug/socket combination) for cord connection and so it may be used to disable the machine in the event of an emergency.</li></ul>

## 2. Sawing

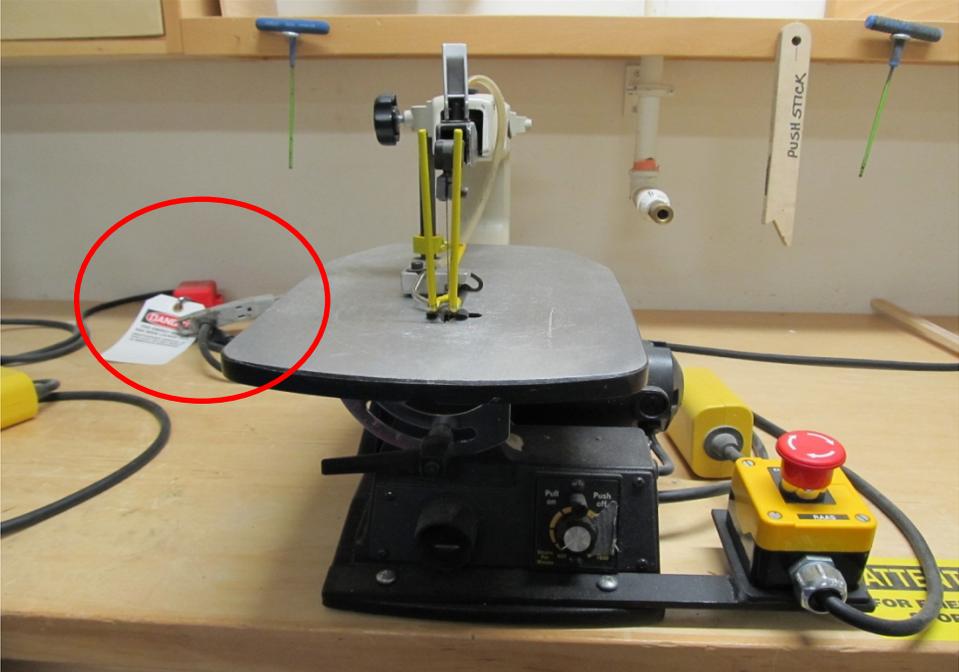
- a) **It is unsafe to cut wood that is unsupported by the table and should never be attempted. Never use a person as a substitute for a table extension.**
- b) Place the work piece firmly against the table-do not feed work until the blade has reached full speed.
- c) Ensure there is a firm grip on the work piece to prevent it lifting due to reciprocating action of the blade.
- d) Feed the work piece (without forcing it) in to the blade slowly, as the teeth are very small (more slowly when sawing wood more than an inch thick and take extra care not to bend/twist the blade).
- e) Use caution when cutting off round material such as dowel rods, or tubing. They have a tendency to roll while being cut causing the blade to bite. Use a **V** block to control the piece.
- f) Use caution when cutting off material which is irregular in cross section and could pinch the blade before the cut is completed.
- g) Use caution when cutting curves; turn the stock carefully so that the blade follows without twisting
- h) When backing the blade out of the work piece, it is safer to turn the stock and saw out through the waste material rather than try to withdraw the stock from the blade.
- i) The blade may bind in the cut-usually caused by sawdust clogging up the cut. Turn off the saw, unplug, wedge open the cut and back the blade out.
- j) Be careful not to accidentally draw the blade off the holders.

## 3. After Sawing

- a) Turn off the scroll saw when not in use.
- b) Do not leave the saw running unattended.
- c) **NEVER** try to stop the saw with your hand and **don't** touch the cut material immediately, as it is hot.
- d) Over-straining is a common cause of blade breakage-release the tension once finished with the scroll saw.
- e) Push the speed control knob to the off position.
- f) Remove the chips from the surrounding area with a brush, **NEVER** by hand.
- g) Clean the area upon completion of the task-use a brush to clean the blade. **NEVER** clean the machine while it is in motion.
- h) Sweep the floor surrounding the saw.

4.0 Maintenance and Repair

4.1. LOTO Procedure

<b>LOCKOUT TAGOUT PROCEDURE</b>	
<b>Equipment Identification</b>	Equipment Name/Description: Scroll saw
	Equipment Location: 1 <sup>st</sup> Year Sculpture & Installation Room 159
	Total # of Energy Isolation Devices/locks: 1
<b>NOTICE</b>  <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>	
	

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.

 <b>IF SYSTEM CANNOT BE LOCKED OUT OR IF SYSTEM FAILS VERIFICATION PROCEDURE, STOP &amp; CONTACT YOUR SUPERVISOR</b>	
* LOTO Procedure # A-xxxxxxx	Revision #: 0
Approved by:	Date: 01-26-2012

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
Ensure that the power cords are free of frays and damage.	
Ensure that all guards are in place and in good working order.	
Ensure that the saw is secure.	
Ensure that the area around the saw is free of slip/trip hazards.	
Ensure that the debris/material from previous operations are removed.	
Ensure that all tools/wrenches are removed from the table.	
Is the blade free of defects and dullness and correctly positioned in the holders? Replace if necessary-use gloves. Scroll saw blades only stay sharp for ½ hour to 2 hours.	
Ensure that the blade teeth point downwards towards the table.	
Ensure that the blade is tensioned correctly (using the blade tension lever) to avoid breakage. Narrow blades require less tension. Don't overly-tension, which could result in blade breakage and injury mid operation.	
Ensure that the dust blower tube is adjusted to direct air to the most effective point on the cutting line, but is not overly tight.	
Ensure that the speed control on/off knob is set to 'off' when not in use. This feature helps prevent unauthorized use.	
<b>WEEKLY</b>	✓
Clean blades with a brush.	
Re-oil the arm bearings after every 50 hours of use or whenever there is squeak coming from the bearings.	
Do not attempt to oil the motor bearings or service the motor internal parts.	
<b>MONTHLY</b>	✓
An occasional coat of paste wax on the table will allow the wood being cut to glide smoothly across the work surface.	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

## 5.0 Document Control

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

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# Sliding Compound Mitre Saw



<b>Machine</b>	Sliding Compound Mitre Saw Model: C 10FSH
<b>Location</b>	Sculpture & Installation/ First Year Workshop – 159
<b>Manufacturer</b>	Name: Hitachi, Ltd. Address: 5750 Explorer Drive Suite 301, Mississauga, Ontario, Canada L4W 0A9 Tel: (905) 629-9300
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 “Safeguarding of Machinery” 2. CAN/CSA Z460-05 “Control of hazardous energy-lockout and other methods”
<b>Sources</b>	Manufacturer’s Manual Safe Work BC, CCOHS, and IAPA resources REA Engineer Specifications Studio Technicians
 <b>DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!</b>	

**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 saw's power cord may be used to disable the machine in the event of an emergency.			
3	Are guards and safety covers in place and in good working order?			
4	Is the saw secure and level?			
5	Is the area around the saw free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has debris/material from previous operations been removed?			
8	Are tools/wrenches removed from the table?			
9	Is the saw free of defects and damage?			
10	Is the handle free from defects, grease/oil and kept clean and dry?			
11	Is the bed extension/outboard stand secure for long work pieces?			
12	Has the blade been visually inspected for defects, damage and debris?			
13	Is the work piece free of nails or other foreign objects? (to prevent personal injury from material being thrown at high speed).			
14	Is the cutting bed free from defects/damage? (to prevent binding of the blade or fragmenting of the material and injury). If so, do not operate on machine until it is replaced.			
	<b>Comments/Corrective Action:</b>			

### 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

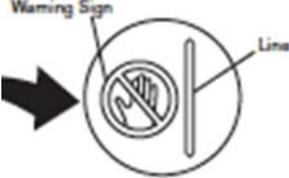
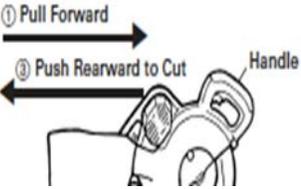
Before using the machine, perform the following general safety checks:

- a) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

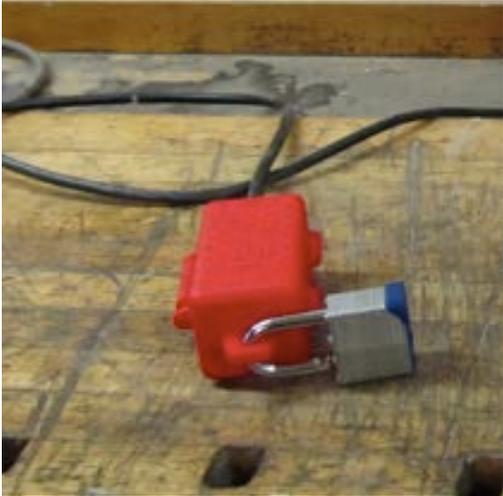
### 3.2 Equipment Specific Safe Operating Procedure (SOP)

<b>1. Before sawing</b>		
	Picture 1	<ul style="list-style-type: none"> <li>a) Put on required PPE.</li> <li>b) Mark the desired area(s) to be sawed.</li> <li>c) There is always danger of kickback when using the slide compound saw.</li> <li>d) Adjust the cutting angle with the miter scale, indicator and positive stops.</li> <li>e) Place the work piece on the table-don't cut multiple stock at once.</li> <li>f) If cutting long pieces, place it on the bed extension/outboard stand (see picture 1). Don't saw stock that is too long for the bed/stand.</li> <li>g) Ensure the stock is tight against the fence.</li> <li>h) Clamp/vise the stock to the fence (see picture 2) to prevent impact hazards from ejected material-ensure the clamp/vise is not in the blades line of movement, which could result in impact injury from blade fragments. Never work freehand.</li> <li>i) Put a stop in for repeated cuts.</li> <li>j) Extreme caution must be exercised to avoid injury from the blade's pinch point and laceration hazards (see picture 3).</li> <li>k) The saw's power cord may be used to disable the machine in the event of an emergency.</li> </ul>
	Picture 2	
	Picture 3	
<b>2. Using the Laser Line</b>		
	Picture 4	<ul style="list-style-type: none"> <li>a) Turn on the laser switch (see picture 4).</li> <li>b) Adjust the laser light-align the laser line with the left side of the blade, and then align the ink line with the laser line.</li> </ul>
<b>3. Using the sub-fence.</b>		
		<ul style="list-style-type: none"> <li>a) In the case of <i>direct angle cutting</i> and <i>right bevel angle cutting</i>, use the sub fence, if applicable.</li> <li>b) In the case of <i>right bevel cutting</i>, remove the sub fence, to prevent it contacting the blade or tool, causing injury.</li> <li>c) In the case of <i>left bevel cutting</i>, turn the sub fence counterclockwise. Unless it is turned counterclockwise, the blade may contact the sub fence, resulting in injury.</li> </ul>

#### 4. Sawing

	Picture 5	<p>a) <b>It is unsafe to cut material that is unsupported/not clamped and should never be attempted.</b></p> <p>b) Turn on the power to the saw.</p> <p>c) Hold the operator handle (see picture 5), pressing the trigger-don't try to force the handle-increased pressure on the handle does not increase the cutting speed.</p> <p>d) <b>DON'T place your hand anywhere on the table/stock or near the blade-especially not inside the line next to the warning sign (see picture 6).</b></p>
	Picture 6	<p>e) Push the handle down carefully until the blade approaches the work piece.</p> <p>f) The 'interlocked awareness barrier' rises as the saw is lowered. <b>CAUTION;</b> this guard <b>does not</b> completely enclose the hazard zone-be careful when operating the saw to prevent a laceration hazard.</p> <p>g) Never put your hand on the side handle during cutting because the blade comes close to the side handle when the motor head is lowered.</p> <p>h) Once the blade contacts the work piece, push the handle down gradually to cut in to the work piece.</p> <p>i) <b>Never</b> lift the safety cover while the blade is rotating.</p> <p>j) If the material gets jammed, turn off the machine.</p>
	Picture 7	<p>k) Release the trigger on the handle but leave the blade down on the work piece until it stops rotating-if the handle is raised while the blade is rotating, the cut-off piece may become jammed against the blade causing fragments to scatter about dangerously.</p> <p>l) Always return the carriage to the full rear position after each crosscut operation in order to reduce the risk of injury.</p> <p>m) Continued cutting can result in overheating – if the motor is hot, stop cutting and rest machine for 10 minutes or so.</p> <p>n) In <i>slide cutting</i>, gently push the handle back (rearwards) in a single, smooth operation.</p> <p>o) If <i>compound cutting</i>, it is very dangerous to rotate the turntable to the left because the blade may come in to contact with the hand that is securing the work piece.</p> <p>p) If <i>forward slide cutting</i> for cutting wide stock (pulling saw toward you and back again-see picture 7) – be careful, as it is <b>very dangerous</b>; the blade could kick upward from the stock, causing injury</p>
<h4>4. After Sawing</h4>		
		<p>a) Turn off the chop saw and disconnect when not in use.</p> <p>b) Ensure that the blade has stopped rotating-never leave the saw running unattended-<b>NEVER</b> try to stop the saw with your hand and <b>don't</b> touch the sawed wood immediately, as it is hot.</p> <p>c) Turn off the trigger switch.</p> <p>d) Remove the chips from the surrounding area with a brush, <b>NEVER</b> by hand.</p> <p>e) Clean the chop saw area upon completion of the task- <b>NEVER</b> clean the machine while it is in motion.</p> <p>f) Sweep the floor surrounding the saw.</p>

4.1. LOTO Procedure

<b>LOCKOUT TAGOUT PROCEDURE</b>		
<b>Equipment Identification</b>	Equipment Name/Description:	Slide Compound Saw
	Equipment Location:	1 <sup>st</sup> Year Sculpture & Installation Studio Room 159
	Total # of Energy Isolation Devices/locks:	1
<b>NOTICE</b> <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>		
		

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.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
Ensure that the power cords are free of frays and damage.	
Ensure that all guards and safety covers are in place and in good working order.	
Ensure that the saw is secure and level.	
Ensure that the area around the saw is free of slip/trip hazards.	
Ensure that the debris/material from previous operations are removed.	
Ensure that all tools/wrenches are removed from the table.	
Ensure that the angle lock knob is in good working condition and not loose.	
Ensure that the handle is free from grease/oil and kept clean and dry.	
Ensure that the blade is centered and tracking in the correct position.	
Ensure that the cutting bed is free from defects/damage (to prevent binding of the blade or fragmenting of the material and injury). Replace if necessary.	
Ensure that the blade and teeth are free of defects/dullness-replace if necessary. Ensure that the rpm rating of the new blade is correct for use on this tool. After installing, ensure that the spindle lock is returned to the retract position, adjust the blade lower limit position, ensure that the rotation indicator mark on the blade and the rotation direction of the gear case are matched. <b>Always</b> install blades that are 10" or less in diameter.	
Ensure that the trigger switch is turned off when the saw is not in use.	
Ensure that the lock-off button is removed from the handle when saw is not in use.	
<b>WEEKLY</b>	✓
Ensure that the miter gauge and the indicator tip are aligned.	
Check the dust bag and empty it to prevent the duct and safety cover becoming clogged (check more often during bevel cutting operations).	
Ensure that parts have not become loose due to vibration.	
Clean the carbon brushes located in the motor-replace if excessively worn.	
Ensure that the bolts are sufficiently tightened to prevent the blade coming off, the safety cover getting damaged and injury-use the 10mm box wrench to tighten if necessary.	
Inspect the laser line-if invisible from chips etc., wipe and clean the window of the laser marker's light emitting section with a dry cloth or soft cloth moistened with soapy water.	
Clean the inside of the safety cover with a damp, soapy cloth.	
Clean exterior with a soft cloth moistened with soapy water and dry	
<b>MONTHLY</b>	✓
Ensure that the saw blade can be lowered from 13/32" to 7/16" (10mm to 11mm) below the table insert.	
For precise cutting, rotate the saw blade and check for deflection to confirm that the blade is not noticeably unstable; otherwise vibrations might occur and cause an accident.	
Ensure that the belt is in good condition-replace if required.	
Lubricate the rotary portion of; hinge, vise assembly and holder.	
Remove accumulated dust from the motor.	
<b>ANNUALLY</b>	✓
Check if the blade slot in the guard has widened; if so, replace guard with a new one. After replacing, make a groove on it.	
Ensure that the position of the laser line is in order (check alignment with an ink line)-the deviation should be less than 0.5mm.	
Inspect entire machine and perform maintenance as required.	

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

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

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# Resistance Spot Welder



<b>Machine</b>	Resistance Spot Welder Model: 251
<b>Location</b>	Sculpture & Installation/ First Year Workshop - 159/170
<b>Manufacturer</b>	Name: Miller Electric Manufacturing Co. Address: 1635 W. Spencer St. P.O. Box 1079 Appleton, WI 54912- 1079 Tel: 920-734-9821
<b>Applicable Legislation</b>	1. CAN/CSA-Z432-04 "Safeguarding of Machinery" 2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"
<b>Sources</b>	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)?			
3	Is the welder secure and level?			
4	Is the area around the welder free of slip/trip hazards and dry?			
5	Are flammable/combustible materials and any degreasing, cleaning and spraying operations removed from the immediate work area? If this is not possible, are they tightly covered with approved covers?			
6	Has the debris/material from previous operations been removed?			
7	Are the welding tips and tongs free of defects?			
8	Do the tips align (to reduce splatter)?			
9	Are you using tips with correct diameter?			
10	Is the coating removed from the metal work piece?			
11	Do not weld a compressed gas or pressurized container			
12	Is the ventilation unit on? Vaporized zinc can pose a significant health problem			
13	Is there a fire extinguisher in close proximity?			
14	Confirm that you do not have a pacemaker (magnetic fields affects pacemakers).			
	<b>Comments/Corrective Action:</b>			

## 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) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

1. Before Spot Welding		
		<ul style="list-style-type: none"><li>a) Wear gauntlet style welding gloves, welding jacket, face shield and /respirator to reduce fume inhalation.</li><li>b) Prepare the work pieces – do not exceed the maximum material thickness in which the machine can weld – ask the studio technician if unsure.</li><li>c) Ensure the work pieces are kept flat to avoid sparks.</li><li>d) Remain alert – flying sparks can go through small cracks and openings, resulting in burns.</li></ul>
2. Spot Welding		
	Picture 1	<ul style="list-style-type: none"><li>a) Turn on power</li><li>b) Keep hands away from moving parts, tongs, tips, linkages and pinch points to prevent burns and other injury.</li><li>c) Place the material flat in between the tips (see picture 1) – do not use the tongs and tips as force clamps to pull work pieces together - parts should be in contact BEFORE pressure is applied.</li><li>d) Don not weld the material for too long to reduce the possibility of splatter</li><li>e) Do not touch the welded area immediately, as it is hot.</li><li>f) Do not overuse the welder to prevent overheating.</li></ul>
3. After Spot Welding		
		<ul style="list-style-type: none"><li>a) Allow tongs, tips and work piece to cool before touching.</li><li>b) Wash your hands.</li><li>c) Clean the work area – NEVER clean the machine while it is in motion.</li><li>d) Ensure that the area is free of sparks, glowing embers and flames.</li><li>e) Disconnect the equipment when not in use.</li></ul>

**4.0 Maintenance and Repair**

**4.1. LOTO Procedure**

<b>LOCKOUT TAGOUT PROCEDURE</b>		
<b>Equipment Identification</b>	Equipment Name/Description:	Resistance Spot Welder
	Equipment Location:	1 <sup>st</sup> Year Sculpture & Installation Studio
	Total # of Energy Isolation Devices/locks:	1
<b>NOTICE</b> <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b>		
		

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.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
Ensure that the power cords are free of frays and damage.	
Ensure that the welder is secure and level.	
Ensure that the area around the welder 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 welding tips and tongs are free of defects.	
Ensure that the tips align (to reduce splatter) correctly- dress tips so that they align and are flat on the material.	
Ensure that tips with correct diameter are being used.	
Ensure that there is a fire extinguisher in close proximity.	
Ensure that the tong power setting is adequate - disconnect the primary power cord to change tong power settings.	
<b>WEEKLY</b>	✓
Clean the welder tips (to prevent the alloying of the lower melting materials with the copper tips) and tongs.	
<b>MONTHLY</b>	✓
During heavy use, maintain the welder monthly	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

## 5.0 Document Control

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

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# Vertical Oscillating Spindle Sander



<b>Machine</b>	Vertical Oscillating Spindle Sander Model: 15-020
<b>Location</b>	Sculpture & Installation/ First Year – 159
<b>Manufacturer</b>	Name: General International Address: 8360, Champ-d'Eau, Montreal (Qc) Canada, H1P 1Y3 Tel: (514) 326-1161
<b>Applicable Legislation</b>	<ol style="list-style-type: none"> <li>1. CAN/CSA-Z432-04 "Safeguarding of Machinery"</li> <li>2. CAN/CSA Z460-05 "Control of hazardous energy-lockout and other methods"</li> </ol>
<b>Sources</b>	<p>Manufacturer's Manual            Safe Work BC, CCOHS, and IAPA resources            REA Engineer Specifications            Studio Technicians</p>
 <b>DO NOT USE THIS MACHINE UNLESS YOU ARE TRAINED IN ITS SAFE USE!</b>	

**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 	X	
Closed-Toe Foot Wear (no heels) 	✓	
Lab Coat / Protective Apron  	X	
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 sander has a power cord and receptacle (plug/socket combination) which 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 sander secure and level?			
5	Is the area around the sander free of slip/trip hazards?			
6	Are flammable/combustible materials removed from the immediate work area?			
7	Has the debris/material from previous operations been removed?			
8	Are all tools/wrenches removed from the table?			
9	Ensure the spindle surfaces are free of defects; 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 if necessary.			
10	Is the spindle stable, hand-tight and properly positioned?			
11	Are you using the correct spindle size for material being sanded? (Smaller than the size of the curve of the work piece).			
12	Is the table set to the correct angle?			
13	Is the dust collection system on?			
	<b>Comments/Corrective Action:</b>			

## 3.0 Safe Operating Procedure (SOP)

This procedure is outlined as follows:

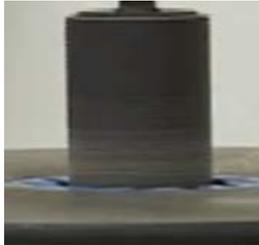
- General Safety Guidelines
- Equipment Specific Safety Operating Procedure

### 3.1 General Safety Guidelines

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

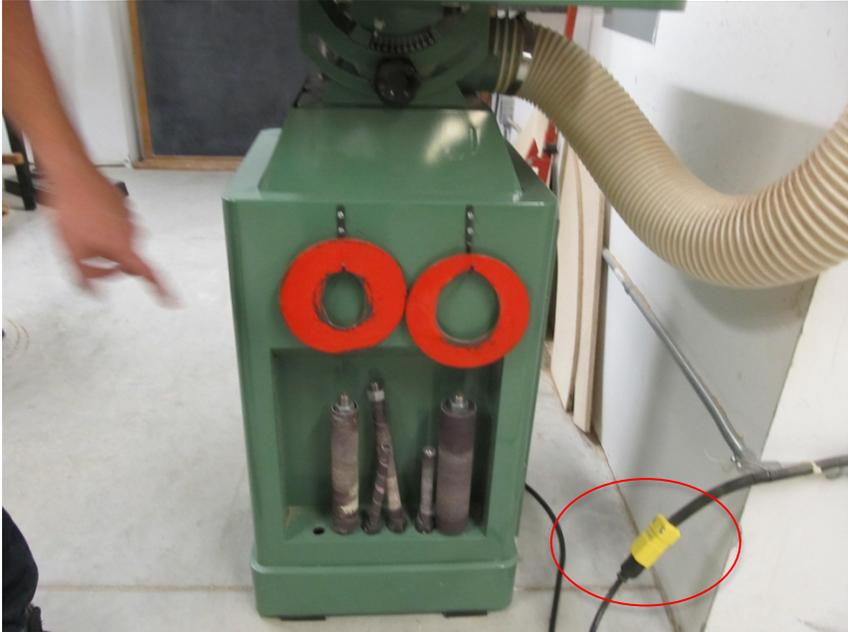
- a) Notify the studio technician/class assistant or faculty that you are operating this machine.
- b) Make sure you understand all of the instructional material and/or faculty and technician instruction before operating this equipment. Failure to follow safety instruction and warnings may result in serious personal injury, fire or property damage.
- c) If you have any questions or uncertainties, please ask your studio technician before use.
- d) Long hair, scarves, loose clothing, jewellery and ties pose an entanglement hazard. Please make sure these are all constrained prior to operating the equipment.
- e) Make sure the cord is kept away from heat, oil, sharp edges or moving parts and does not pose a trip hazard.
- f) Do not conduct any maintenance or repairs on this equipment. In case of a defect, contact your technician.
- g) 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.
- h) Do not remove or render machine guarding ineffective in any way.
- i) Ensure the work area is both well-lit and organized.
- j) Never operate under the influence of drugs, alcohol or medication.

### 3.2 Equipment Specific Safe Operating Procedure (SOP)

<b>1. Before sanding</b>		
	Picture 1	<ul style="list-style-type: none"> <li>a) Put on required PPE. Never wear gloves while using a spindle sander to prevent an entanglement hazard.</li> <li>b) Mark the work piece area to be moulded.</li> <li>c) Select the correct spindle (see picture 1) for the material being sanded.</li> <li>d) Select an insert plate that comes closest to the spindle without touching it.</li> <li>e) Clean the sanding arbor and the main shaft hole before inserting the sanding arbor into the shaft.</li> </ul>
	Picture 2	<ul style="list-style-type: none"> <li>f) Tighten the spindle by hand, not using a wrench.</li> <li>g) Tilt the table to the correct angle (see picture 2) for the material being sanded (if at any angle other than 90 degrees, position the work piece over the center line as shown on the table surface). Don't force the table if not tilting properly.</li> <li>h) To prevent movement mid-operation, lock the table with the hand nut for setting angles and lock the tilting gear shaft.</li> <li>i) The sander has a power cord and receptacle (plug/socket combination) which may be used to disable the machine in the event of an emergency.</li> </ul>
<b>2. Sanding</b>		
	Picture 3	<ul style="list-style-type: none"> <li>a) Turn on the power.</li> <li>b) Be careful of fast spindle rotation (see picture 3).</li> <li>c) Wait for the spindle to reach full speed before sanding.</li> <li>d) Don't force a work piece on the spindle.</li> <li>e) Use a backing board if sanding thin work pieces or hold it in a jig or holding device to prevent injuries.</li> </ul>
	Picture 4	<ul style="list-style-type: none"> <li>f) Firmly hold the work piece with both hands; keep fingers as far away from the spindle as possible, to prevent injury.</li> <li>g) Present the work piece to the spindle while holding the work piece flat on the table (see picture 4), to prevent throwing of the work piece off the wheel causing injury.</li> <li>h) Don't apply too much pressure-apply only enough pressure so that the sanding spindle removes the material.</li> <li>i) Let the wood cool regularly.</li> </ul>
<b>3. After Sanding</b>		
		<ul style="list-style-type: none"> <li>a) Turn off the sander when not in use.</li> <li>b) Clean the sander and the workspace.</li> <li>c) <b>NEVER</b> clean the machine while it is in motion.</li> <li>d) Readjust table to 90 degrees.</li> <li>e) Sweep the floor surrounding the sander.</li> </ul>

**4.0 Maintenance and Repair**

**4.1. LOTO Procedure**

<b>LOCKOUT TAGOUT PROCEDURE</b>		
<b>Equipment Identification</b>	Equipment Name/Description:	Vertical Oscillating Spindle Sander
	Equipment Location:	1 <sup>st</sup> Year Sculpture & Installation Studio Room 159
	Total # of Energy Isolation Devices/locks:	1
<p><b>NOTICE</b>  <b>BEFORE SERVICING THIS MACHINE , NOTIFY AFFECTED PERSONNEL. ONLY PROPERLY TRAINED AND AUTHORIZED PERSONNEL SHALL PERFORM LOCKOUT TAGOUT PROCEDURE</b></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.

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

## 4.2 Inspection Checklist

<b>DAILY</b>	✓
Ensure power cords are free of frays and damage.	
Ensure guards are in place and in good working order.	
Ensure the sander is secure.	
Ensure the area around the sander free of slip/trip hazards.	
Ensure the debris/material from previous operations has been removed.	
Ensure all tools/wrenches are removed from the table.	
Ensure that the spindle surfaces are free of defects; 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 if necessary.	
Ensure that the spindle is stable, properly positioned and hand-tight.	
Ensure that the table set to a 90 degree angle.	
Ensure that bent sleeves are straightened.	
Clean machine and attachments.	
Clean tapered sleeves and tapered sockets to protect spindle sleeves.	
Clean the dust chute to avoid major accumulation of dust.	
<b>WEEKLY</b>	✓
Lightly apply wax paste on the table surface to prevent rusting.	
Ensure that the gearbox has proper oil level (approx. ¼" up on sight glass).	
Clean all rust protected surfaces with a mild solvent or kerosene.	
<b>MONTHLY</b>	✓
Apply a small amount of grease to the table tilting screw.	
<b>ANNUALLY</b>	✓
Inspect entire machine and perform maintenance as required.	

## 5.0 Document Control

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



**Chemical Specific  
Safe Operating Procedures**



# 1<sup>st</sup> Year Sculpture & Installation Studio

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





# Chemical Matrix - Sculpture & Installation

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	Flammable Cabinet	Non-Flam Cabinet	Non-Flam Cupboard / Shelving / Counter	Face Chemical Safety Glasses	Body Flame Resistant Shop Coat Chemical Splash Apron Long Pants, Worn Over Footwear	Hand Nitrile Gloves	Respiratory Protection Disposable N95 Respirator	Non-Haz Disposal	Haz Waste Disposal
3-IN-ONE Multi-Purpose Oil	Liquid	Naptha	305						X			X	X	X			X		
Acetone	Liquid		-4				X		X			X	X	X			X		
Air Tool Oil	Liquid	Mineral Spirits, Naphtha	128					X				X	X	X			X		
Autoclad Motor Oil	Liquid								X			X	X	X			X		
Baking Soda	Powder										X				X	X		X	
BRASSO Metal Polish	Liquid	Petroleum distillate, crystalline silica, kaolin							X			X	X	X			X		
Cleaneze	Liquid	Surfactant									X				X			X	
Clear Paste Wax	Paste	Petroleum distillate 7% and wax					X			X			X		X		X		
Contact Cement	Paste	Naphtha, acetone, toluene							X						X		X		
Danish oil	Liquid	Petroleum Naphtha	41				X		X			X	X	X			X		
Elmer Woodglue	Liquid										X				X		X		
Elmer's spray adhesive	Aerosol	Acetone and variety of other VOCs with resin	<0			X	X		X			X	X		X	X	X		
Grand & Toy Compressed Air	Gas	Air				X						X	X		X		X		
Javex Bleach	Liquid	Chlorine aqueous			X					X		X	X	X				X	
Kerosene	Liquid		100				X		X			X	X	X			X		
Lepage - Thinner Rubber Cement	Liquid	Solvent naphtha, toluene, acetone	-12				X		X			X	X	X			X		
Lepage Bondfast White Glue	Liquid	Not a WHMIS controlled product									X				X		X		
Lineco Adhesive	Paste	Polyvinyl acetate									X				X		X		
Linseed oil	Liquid							X	X			X	X	X			X		
Methanol (Methyl hydrate)	Liquid		54				X		X			X	X	X			X		
Minmax - water based	Liquid	Polyurethane, large molecular weight water soluble organics, water							X			X	X	X			X		
Minwax Wood Finish	Liquid	Mineral spirits and naphtha with resin	100				X		X			X	X	X			X		
No More Nails	Liquid	Reportedly no WHMIS controlled products except 1% silica filler									X			X	X		X		
Plasters - powder form	Powder	Plaster of paris									X	X	X	X	X	X	X		
Plastodont	Powder	Modelling wax								X		X	X	X			X		
Poly Lens															X			X	
Poly Stick Flash															X			X	
Premier Egg Shell paint	Liquid	Alkyd water based paint									X							X	
Rubber cement	Liquid	Natural rubber dissolved in isopropanol and heptane	-10					X	X			X	X	X			X		
Sakrete Fast Set Cement	Powder	Cement, contains crystalline silica									X	X		X	X	X	X		
SOS pads	Solid										X				X		X		
Strait Line Bluc	Powder	Calcium carbonate, sodium alumino, sulphosicate, magnesium, silica-crystalline-quartz (0.01-3%)									X				X		X		
Titebond Wood Glue	Liquid	Aliphatic water based resin									X				X		X		
Tremclad Rust Paint	Aerosol	40% acetone, 40% LPG, 10% xylene, 10% butyl acetate, 0.1 - 1% crystalline silica	<0			X	X		X			X	X	X	X		X		
Trisodium Phosphate (TSP)	Powder										X	X	X	X			X		
Varathane	Liquid	Polyurethane							X			X	X	X	X		X		
Various Acrylic paints	Liquid	Acrylic paints									X			X	X	X		X	
Various spray paints	Aerosol		<0			X	X		X			X	X	X			X		
Various wall paints	Liquid	Latex									X				X		X		
WD40	Liquid	50% Aliphatic hydrocarbon, 25% petroleum base oil	122					X	X			X			X		X		
Weather Latex - latex caulking	Paste	Latex									X				X		X		
Windex	Liquid	Water, isopropanol, ethylene glycol									X				X		X		
Worm Drive Saw Lubricant	Liquid	Petroleum lubricating oil	550						X			X			X		X		
Zinsser - Shellac	Liquid	Shellac dissolved in Ethanol, Isopropanol, MEK	60				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						√

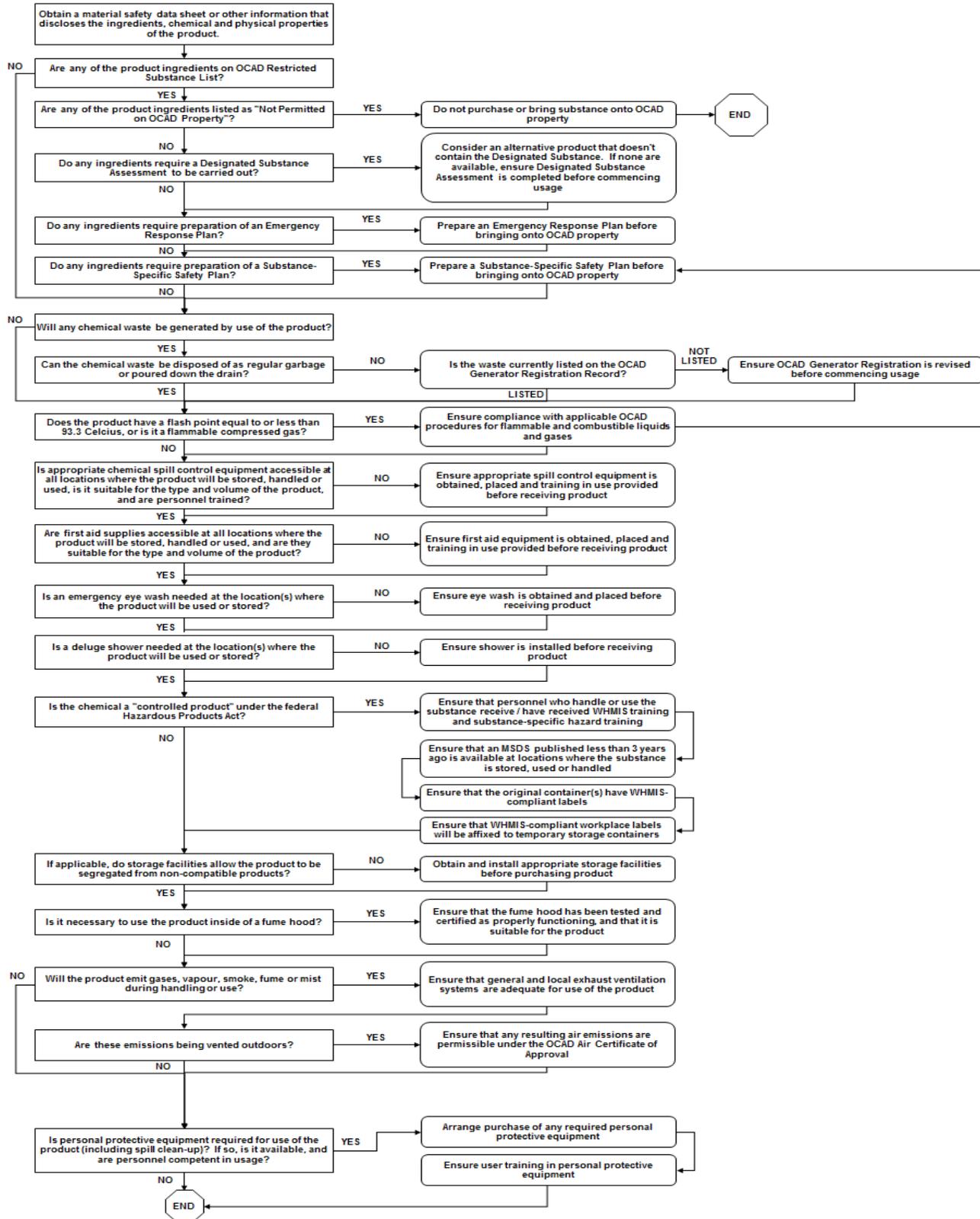
# List of OCAD U Prohibited Substances

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.

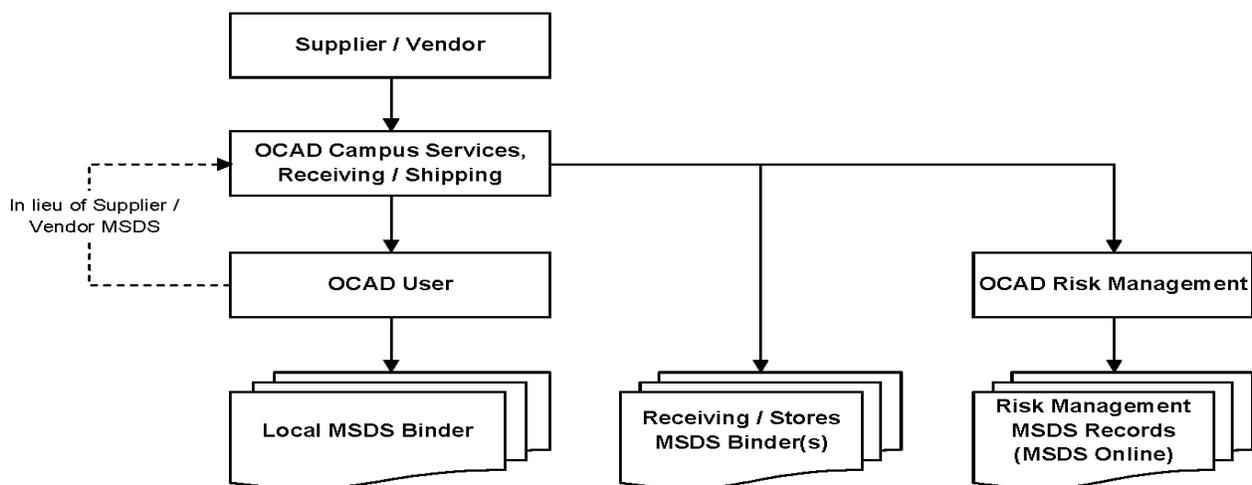
### Regulatory Context

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.



to  
a

##### 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.



the

### 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

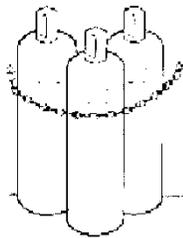
Indoor storage areas for compressed gas cylinders must be kept dry and ventilated.

### 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.



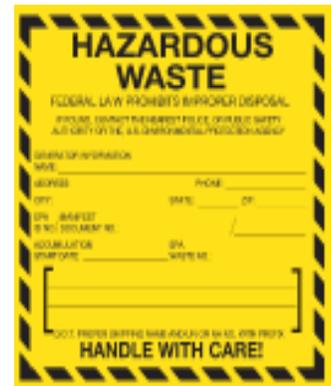
### Locations Where Hazardous Waste Storage is Permitted and Prohibited

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.

		<p align="center"><b>Notice of the Storage of Subject Waste</b>  <b>Avis de stockage de déchets visés</b>                  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</p>	
<p><small>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.</small></p>		<p><small>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<sup>e</sup> jour de stockage. Il doit y être décrit, aussi précisément que possible: i) la nature, la quantité et le lieu du déchet visé qui est stocké ou dont le stockage est prévu 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.</small></p>	
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
			Site / Bureau      No. / Numéro      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 / kg/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