

SAIC Instructional Fabrication

COLUMBUS METAL SHOP

Introduction to Metal Working



Welcome!

The School of the Art Institute's Columbus Metal Shop is one of four Instructional Fabrication facilities at the school that provides a professional, nurturing learning environment. The Columbus Metal Shop is a General Access facility set up to provide instructional and material resources for the school's students, faculty and staff. This is a creative forum for you to work cooperatively with the staff and other artists to realize your concept and develop responsible working practices.

This handbook outlines the basic policies and procedures followed by all students and staff in the Columbus Drive Metal Shop. These policies are minimum acceptable standards. Every project has a different set of problems resulting in innumerable concerns. If you are uncertain about the best way to accomplish a task, please ask a member of the staff how to perform the necessary steps.

It is your responsibility to understand and abide by the procedures outlined in this handbook, and to follow any other instructions provided by the staff. Please read this Handbook and ask questions if you don't understand something.

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Columbus Drive Wood Shop
Columbus Drive Metal Shop
Sharp Instructional Shops
Sullivan Fabrication Studio

About the Columbus Metal Shop

Location

The School of the Art Institute's Columbus Metal Shop is located in the basement level of the Columbus building in room 027. The metal shop is accessed through Columbus room 024.

Hours of Operation

Fall Semester:

Monday - Thursday: 8:30 am - 9:15 pm
Friday: 8:30 am - 9:15 pm
Saturday: 9:00 am - 8:00 pm

Winter Interim:

Monday - Friday:
9:00 am - 4:00 pm

Spring Semester:

Monday - Thursday: 8:30 am - 9:15 pm
Friday: 8:30 am - 9:15 pm
Saturday: 9:00 am - 8:00 pm

Summer Semester:

Monday - Friday:
9:00 am - 4:00 pm

Facilities and Access

Anyone interested in using the facilities is required to check in at the Shop's tool cage with a current SAIC identification card. The photo identification cards have magnetic strips that are encoded with information including shop access and authorization records. The cards are scanned to verify what tools individuals are eligible to check out or use. Identification cards are entered into our database and updated as authorization requirements are met.

Facilities and Access (continued...)

The Metal Shop facilities include a wide range of hot and cold metal working equipment. Cold working capabilities include: drilling, punching, mechanical fastening, roll forming, bending, shearing, cutting, grinding, sanding, and abrasive blasting. Hot working capabilities include: forging, annealing, plasma cutting, oxygen/acetylene welding, shielded metal arc welding, gas metal arc welding, and gas tungsten arc welding.

A fully stocked tool room offers patrons an excellent selection of hand tools and personal injury protection accessories. Students can checkout tools for the use during hours of operation.

Instructional Programs

Anyone enrolled in or employed by The School of the Art Institute can use the metal shops facilities after participating in the instructional authorization associated with the resource that they are interested in using.

The Training Coordinator begins each authorization with a discussion about check in requirements, personal injury protection, handling materials safely and health hazards associated with processing materials. The Training Coordinator then demonstrates how to use the equipment, and gives specific examples of proper attire, eye protection, hearing protection and respiratory protection for each tool discussed. The shop's staff works one on one with new patrons: reviewing information covered in the authorization, demonstrating proper technique, offering advice and assistance as is necessary.

About the Columbus Metal Shop

Instructional Programs (continued...)

Authorizations are resource-specific instructional orientations that cover a range of topics. Authorizations are offered beginning the second full week of spring and fall semesters.

The number of authorizations offered tapers off after first half the semester and diminishes as the semester progresses. During Winter Interim and Summer Session authorizations are scheduled on request. Authorizations are not offered during Critique Week, BFA Exhibition Install, MFA Exhibition Install, or during the last two weeks of any semester.

Participants may sign up in advance or on the day of the demonstration. Individuals are encouraged to sign up as alternates even if the sign up sheet is full. A minimum of three people is required and as many as ten candidates can participate. Authorizations are valid for one year.

Authorization sign up sheets and Authorization Request Forms are posted adjacent to the tool checkout area in the Columbus Wood Shop, room 024.

It is highly recommended that new patrons complete the Introduction to Metal Working Authorization before participating in the Welding Authorizations, the Forge Area Authorization, and Grinding Room Authorization.

Introduction to Metal Working

The Introduction to Metal Working Authorization Workshop consists of an instructional lecture, reading the manual, and student demonstration of mastery and safety awareness.

The Introduction to Metal Working Authorization provides patrons with an introduction to the practice of personal injury protection, material handling concerns, safety in cold metal working equipment use, safety working around open flames and arc welding, as well as tips on planning projects.

The discussion includes an introduction to all of the metal shop cold metal working stationary power tools including: drill presses, power punch, band saws, belt/disc sander, bench grinder, rod and bar rollers, rod and bar benders, sheet metal rollers, box and pan breaks, sheet metal shears, and sheet metal power hammer.

It is your responsibility to complete The Introduction to Metal Working Authorization training before attempting to use any of the cold metal working stationary power tools

If you are not certain about any aspect of how to safely use a tool, don't guess or improvise. Speak with one of the staff and refer to the instructional signs that accompany each of the shops stationary power tools.

Physical and Mental Condition

Stress, anxiety, sleep deprivation, low blood sugar, drugs (prescription and recreational) will interfere with your ability to work safely. If you cannot be unconditionally focused on your work, you put yourself and those around you at risk.

Please pay attention to the labels on your prescriptions - their effects may interfere with your ability to work safely in the Shop.

Personal Injury Protection

Attire

Personal Protective Equipment is required when working in the Metal Shop.

Clothing

Choose natural fibers - cotton and wool, for example.
No synthetic (polyester, nylon) clothing.

Welding Jackets and or Leather Aprons when appropriate

Shoes

Sturdy, closed-toe/heel shoes.

Pants

Long pants made of a natural fiber (no polyester or synthetics) without frayed ends or holes

Hair

Tied back and tucked in jacket or held back with a bandanna. A cap is a good idea.

Accessories

Anything that could conduct heat or get caught on equipment parts must be removed or restrained before starting work. Rings, watches, necklaces, ID lanyards, and bracelets should be re-moved.

Required Protective Gear available at the cage:

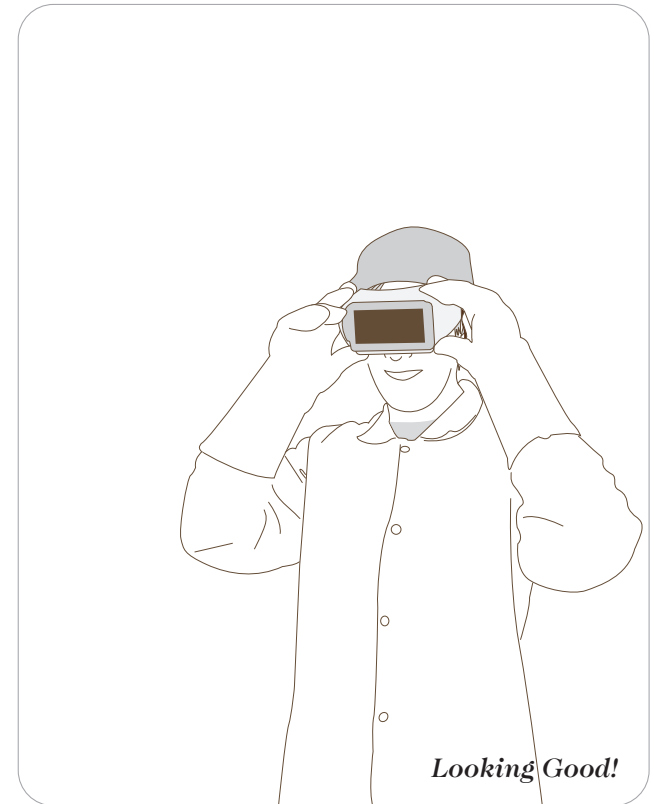
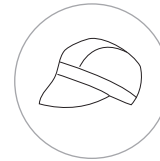
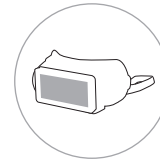
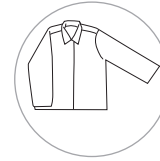
Eye Protection:

Required at all times when working with or around metal working processes. Goggles protect your eyes from air-borne particles and objects.

Safety Glasses provide limited eye protection from air borne particles and objects.

Face Protection:

For full-face protection, use a shield equipped with a polycarbonate shield.



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Hearing Protection:

Ear Muffs or Ear Plugs.

Caution: Prolonged exposure at or above 85 dB requires the use of hearing protection. The actual amount of protection obtained by a hearing protector depends on proper size and fit, the position in which the protector is worn as well as your specific work environment.

Respiratory Protection:

The Metal Shop is equipped with a main fume exhaust / ventilation system. Welding Respirators are highly recommended for individuals that are predisposed to respiratory problems.

Materials

Material Handling

We need to consider several issues when we move material from the Metal Shop Material Racks in room 024-B to the Metal Shop in room 027:

- The **weight** and **length** of the materials may determine whether we will need help moving our materials
- Which door we exit
- The path we take to get to the metal shop.

Personal Protective Equipment

Eye Protection

Proper eye protection minimizes the possibility of material injuring your eyes from impact. Although the risk of eye injury when moving materials is minimal, there is significant risk of eye irritation from falling dust particles that accumulate on the surface of materials stored on the racks.

Gloves

Material handling gloves help you grip material and reduce the risk of dropping material. They also protect your hands from sharp edges and reduce the risk of cuts and abrasions. Material handling gloves are available for check out in small, medium and large.

*** Note - Gloves should never be worn while using stationary power tools.

Heavy Materials

If a quantity of material is heavier than you are comfortable carrying, the shop staff will help you get it down from the rack and moved in to the metal shop. Improper handling of any weight of material can result in serious back injury. Improper handling of heavy material *will most likely* result in serious back injury.

Never attempt to carry material that is too heavy for you to control. Keep weight close to your body, don't over reach or twist when setting material down.

Never attempt to carry material that is too heavy for you to control.

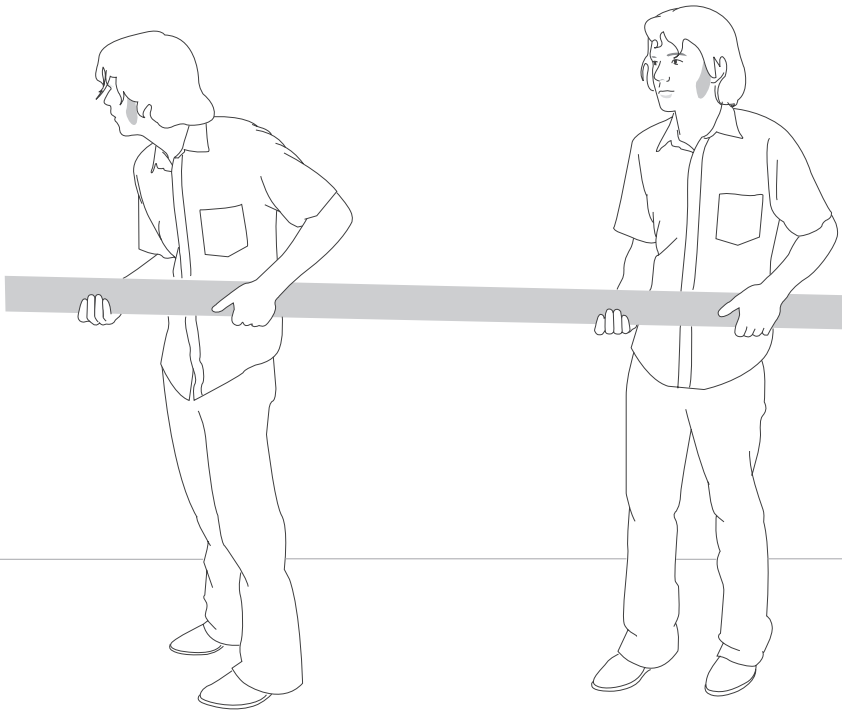
Keep weight close to your body; don't over reach or twist when setting material down.

Materials

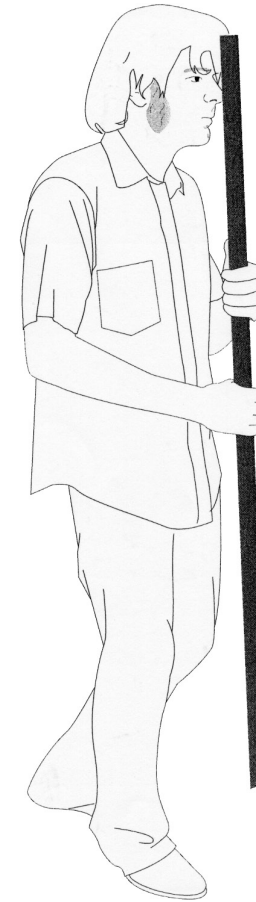
Long Lengths of Materials

If a length of material is longer than you are tall, the shop staff will help you get it down from the rack and moved in to the Metal Shop.

Any length of material longer than you are tall must be carried horizontal, no higher than waist height. Your lead/front hand should be 4"-6" from the end of the length:



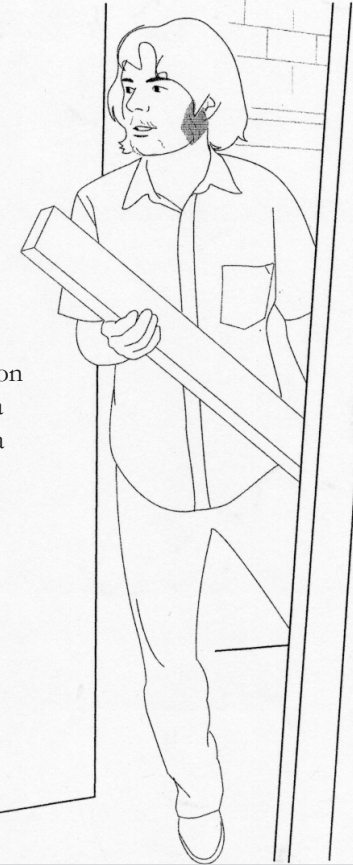
If a length of material is shorter than you are tall, it can be carried upright/vertically:



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Use extreme caution any time you exit a doorway or enter a blind intersection:



Materials

Material Hazards

Some materials have serious health hazards associated with their handling and processing. Dust particles and fumes from materials like lead can cause a range of disorders that affect gastrointestinal systems, red blood cells, and neuromuscular systems.

Conditional Concerns

The condition of material may present health hazards when heating material for annealing, forging, and welding. Any material that has a coating on the service must be inspected by the shop's staff before you use it.

Any coating that has a lower melting point than the material you are welding carbonizes and has the potential to put carcinogenic agents into the air. Painted, plated (chrome, zinc, cadmium, or nickel), coated with oil, wax, grease, tar, or any other petroleum products. *We will never heat material that has any of these conditional issues.

If you are not certain your material meets the shops' requirements, do not use it until it has been inspected by a shop staff member.

Cold Metal Working

Hazards associated with cold metal working equipment use include the risk of pinching/crushing, laceration/amputation, puncture and abrasion. It is your responsibility to complete training on the tools that you are interested in using before attempting to use them. If you are not certain about any aspect of how to safely use a tool, don't guess or improvise. Speak with one of the staff or refer to the instructional signs that accompany each of the shops stationary power tools.

Hot Metal Working

Hazards associated with working near Hot Metal Working Equipment: Thermal, Electrical, Ultra Violet & Infra Red Radiation, and Chemical Burns.

Saving Time and Money

The cost of metal materials is largely based on the weight and degree of precision involved in the processing of those materials. For example: hot formed rod is nominally round and nominally dimensionally accurate as opposed to cold formed rod that is precisely round and dimensionally accurate.

Introduction to Metal Working Authorization & Handbook Review Acknowledgment Form

I have attended the Introduction to Metal Working Authorization training session and I have read and understand the Introduction the Introduction to Metal Working Authorization Handbook. I have had the opportunity to ask questions concerning the training and the Handbook, and all of my questions have been answered to my satisfaction.

I understand that I remain responsible for knowing and adhering to the School's Metal Shop safety regulations and procedures. I understand that my safety and the safety of others using the Metal Shop is dependent upon adhering to these safety protocols/procedures. I understand and acknowledge that if I fail to abide by the safety protocol/procedures outlined in this Handbook and presented in the Introduction to Metal Working Authorization Workshop, I may be subject to disciplinary sanctions, including, but not limited to, fines and/or the loss of Metal Shop privileges. Furthermore, I acknowledge that the School will not be responsible to me for any damage or injury caused by my negligence or willful misconduct. I understand that I am financially responsible for replacing lost or damaged equipment.

I further acknowledge that loss of privileges to use the Metal Shop does not in any way excuse me from completing my course work on time.

I understand and acknowledge that it is my responsibility to test the equipment that I use and/or receive and that I must seek the pertinent instruction on proper use of a piece of equipment from Metal Shop Staff or other authorized person before I attempt to use the equipment. If I encounter safety problems in the course of my work, I will discuss them with shop staff. I acknowledge that it is my responsibility to report any equipment malfunction or damage immediately to Shop staff.

Accepted and Agreed:

Name (please print): _____

Signature: _____

Date: _____

Student ID: _____





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