



California State University
Long Beach

California State University Long Beach 1250 Bellflower Blvd.,
Long Beach, CA 90840 USA

CSULB School of Art

Metals Area

Metal Arts Program

General Expectations, risks and hazards, precautions, Personal Protective Equipment (PPE), and Health/Safety Considerations for the Metals Area

(Health/Safety Document)

Updated 2022-10-31

NOTE: All Participants in the Metals Area must fully familiarize themselves with this Health/Safety Document.

This Health/Safety Document is NOT a training or authorizing document for use of any facilities, equipment, processes, or materials described herein.

This Health/Safety Document ONLY provides information on expectations, risks and hazards, precautions, personal protective equipment, and health/safety considerations.

TO THE STUDENT/PARTICIPANT:

It is your responsibility to fully familiarize yourself with the Health/Safety Document provided to you, to be knowledgeable in the safety-related matters associated with this course and area, and to abide by the safety policies and procedures presented by the instructor of your course and/or other faculty and technical staff in the area.

Direct supervision and assistance from staff and/or faculty are provided routinely in the Metals Area **only** during and in scheduled course meetings. Participants cannot expect direct supervision and assistance from staff and/or faculty at all other times and in all other locations and circumstances.

TO THE INSTRUCTOR/SUPERVISOR:

Please provide the Health/Safety Document for your discipline-specific area to all students in your class, or to all other authorized Participants in the Metals Area.

It is your responsibility to review this Health/Safety Document with your class, and with all other authorized Participants in the Metals Area; to review all general expectations, risks and hazards, precautions, personal protective equipment (PPE), and health/safety considerations associated with the area in general; and all those specifically related to facilities, equipment, materials, and processes that will be utilized in your class or by authorized Participants.

This must take place within the first two weeks of the semester or upon arrival of other authorized Participants, AND before students or other authorized Participants begin use of any facilities, equipment, materials, and processes in the area.

Throughout the semester, it is your responsibility to ensure that the appropriate health and safety measures are followed. Any questions regarding this safety instruction, training, documentation, and enforcement should be directed to the Director of the School of Art in FA4-106, or the SoA Safety Officer.

NOTE:

The Metals Area is an instructional and working area combining the characteristics of an art studio environment and an industrial environment. Participants accessing and utilizing facilities and equipment in the Metals Area, and utilizing materials and processes in the Metals Area, will work with, encounter, be exposed to, and work in the presences of facilities, equipment, materials, and processes that come with associated known and unknown risks and hazards including but not limited to those detailed in this Health/Safety Document.

Risks associated with the Metals Area include but are not limited to risks of physical or psychological injury, pain, suffering, illness, disfigurement, temporary or permanent disability (including paralysis), economic or emotional loss, and/or death for the Participant, for anyone who accompanies the Participant in the Metals Area, and potentially for the unborn children or future descendants of the Participant.

General Stipulations and Conduct for Metals Area Access:

Conduct

- All those present in the Metals Area are expected to conduct themselves in a respectful, responsible, and considerate manner towards all people present on Campus and in the Metals Area learning and making community.
- All those present in the Metals Area must operate at all times according to safety rules and safe practices as discussed, demonstrated, and documented in courses, instruction, training, and daily operations.

PPE and ATTIRE

- Remove all jewelry and tie back long hair when entering the Metals/Jewelry Area
- Wear close toed shoes, NOT sandals or flipflops under any circumstances in the Metals Area.
- Do not wear loose-fitting clothing while operating power equipment.
- Synthetic Fibers are extremely flammable! Cotton and other natural fibers are recommended.
- Always wear eye protection when working in the metals lab with any piece of power equipment. An N95 mask is highly recommended when grinding, sanding, and finishing metals.

Safety Considerations

- When a class is in session and you are not registered for that class, ask the instructor before entering the Metals Area.
- Follow the buddy system at all times. Do not work in the Metals Area alone.
- Unregistered people or children are not allowed in the Metals Area to help you work or handle any tools.
- Never use any piece of equipment before your instructor has shown you how. Even if you have had prior experience at another time or place. Students must be given specific instructions on how to use tools and equipment in accordance to Metal Department's policies.
- Report any damage a machine or tool may have to faculty staff or student tech. You will not be held responsible. Student should not attempt to fix or dismantle any tools or equipment belonging to or within the Metals Area.
- If you are the first person to set up a piece of equipment (I.e. drill bits, shears, rolling mill, etc), you are responsible for putting it back the way you found it and using all safety guards attached to power equipment.
- Do not leave running power equipment unattended.
- Do not disturb others while they are using power equipment or torches.
- Eating, drinking, and smoking is prohibited in the Metals Area.
- All those present in the Metals Area must maintain regular, open and responsive communication with CSULB faculty and staff, including responding promptly to email, text, and phone messages regarding university-related matters.

Shut Down and Clean Up Procedures

- All those present in the Metals Area must clean up thoroughly at the end of any work session in or outside of course times wherever they may have worked in the lab. This includes but is not limited to, putting away all hand tools and stakes used, wiping up drips and spills made, and closing all gas and air valves used.
- Return any material, tool, or piece of equipment to its designated location or its proper storage position in the Metals Area.
- Wipe and sweep your work area and floor before leaving.

General Matters for Safe Working in the Metals Area

CORE Health and Safety Principles

Work in the Metals Area should be accessed and used responsibly at all times. No one may use any equipment, tools, materials, or processes in the Metals Area if they have not been trained on their use in the CSULB Metals Area by CSULB faculty or staff, AND if they have not been specifically authorized to use them. Clearance means that these items appear to be safe for use with proper use, handling, and precautions; it is not an assurance of safety.

All Participants are responsible for closing the gas valves at your bench before you leave the classroom. Please close the gas valves of our two large gas/air torches and check the hotplate in the fume hood prior to leaving the metal lab after class hours. You must also check and replenish the two pickle baths with tap water if the level of the pickle bath is one inch or more below the brim. All general hand-tools kept in storage in the lab must be returned to their appropriate storage and last, but not least, you must clean your workbench top so that the next student finds it in a well-maintained condition. Proper use of the metal lab is essential for maintaining a safe, creative environment.

PPE (Personal Protective Equipment) Commonly Used in the Metals Area to Address Physical Environmental Hazards and Safety Considerations in the Metals Area

1. NIOSH N-95 Respirator Mask
2. Eye Protection: safety glasses, goggles, or face shield
3. Hearing Protection (Ear Muffs or earplugs, headphones and earbuds for music are not appropriate or safe)
4. Leather Gloves
5. Nitrile or other material-appropriate gloves
6. Protective Footwear
8. Tinted safety glasses with 5.0 to 7.0 IR rating (for casting)
9. Leather or heavy canvas apron
10. Leather or Canvas Welding jackets

Common Hazards and Safety Considerations in the Metals Area

Please be mindful of the following.

- **Appropriate Attire and Hair Caution:** Appropriate attire should be worn at all times in the Metals Area. Remove all jewelry and tie back long hair when entering the Metals Area. Wear heavy duty close toed shoes; NOT sandals or flipflops under any circumstances in the Metals Area. Do not wear loose-fitting clothing while operating power equipment. Synthetic Fibers are extremely flammable! Cotton and other natural fibers are recommended. Hair longer than chin length should be pinned and tied back at all times. Long pants and/or aprons are also recommended.
- **Personal Protective Equipment (PPE):** Always wear eye protection when exposed to any power equipment, heat, chemicals, or possible particulate projectiles. Wear NIOSH - N95 respirator masks when grinding, sanding, or working with any powder particulates. Metalworking tools can be dangerous and must be used with respect and caution. Do not hesitate to ask when in need of guidance or assistance.
- **Hot Surface/Fire/Burn Hazards** are common in the Metals Area, particularly as associated with torches, hot metal, forges, hot plates, heat-lamps, irons, pickle pots, casting processes, vulcanizers, and kilns. These tools can reach temperatures in

excess of 2000 degrees Fahrenheit. Residual heat from soldering and sanding metals can also cause serious burns and injuries. Be mindful of touching surfaces that others have been working on and moving throughout the metals area while handling hot material. Some materials such as plaster and resins also emit heat sufficient to cause serious skin burns during catalyzing processes.

- **Trip/Slip/Fall Hazards** are possible as a result of presence of particulate dust, tangled floor mats, water or wet products containing a slippery mix of water and fine particulates, cords outstretched temporarily in work areas, and low-slung and often location-changing objects such as push carts that might not be visible to Participant's carrying objects, backing up, or navigating spaces with presumed familiarity despite shifting arrangements of obstacles.
- **Moving Mechanical Parts** on both manually powered and electrically powered equipment pose the risk of catching fingers, hands, jewelry, clothing, hair, beard, etc. Flex shaft tools, drill press, band saws, centrifugal caster, buffing wheels, bench grinders, hydraulic press, scroll saw, belt sanders, and rolling mills are some of the tools in the metals area to be cautious of.
- **Projectile Hazards** are common in the form of flying debris that can result from processes such as sanding, accidental projectiles such as material flying off of objects being hammered, or projectiles resulting from processes such as soldering that may create projectiles when heated.
- **Sharp Point/Blade – Laceration/abrasion Hazards** are common with hand tools such as blades and jewelry saw blades, and with power tools such as flexible shafts and bandsaws.
- **Crush/Pinch Hazards** are associated with equipment that moves or has moving parts, and particularly equipment that exerts significant force or pressure such as hydraulic presses, rolling mills, centrifugal caster lid, and bevel shears.
- **Ear Injury / Hearing Damage Hazards** are common in the Metals Area primarily in the form of hammering, loud equipment and pressurized air. Hearing protection should be used at all times when in the presences of loud noises regardless of whether the Participant is responsible for making the noise.
- **Surrounding Awareness Caution** is essential to the Metals Area where many Participants often are working in close proximity, and involves consideration of how Participants can avoid causing risk or harm to or being subject to risk or harm from others working nearby. Be cautious of closed doors and other people who may be working behind those doors. Be mindful and move cautiously around people who may be handling hot materials or chemicals. They may not as aware of your presence.
 - Example: Participant "A" opening a closed door to access another part of the studio may not know that there is Participant "B" soldering on the other side. Both Participants could potentially get hurt or damage equipment. If necessary to go through door, knock and open door slowly. If possible use a different entrance.
- **Path/Direction of Force Caution** is required to avoid any of the following: injury as the result of moving a tool or object in the direction of one's own body, causing or suffering injury as the result of one Participant being in the path of another Participant's tool, injury as the result of navigating space with an object of mass and momentum such as a ware cart without visibility or awareness of other Participants in one's path, or injury as a result of unknowingly stepping into the path of another Participant in motion.

- **Shock Hazards** are a matter of concern with all electric-powered tools, particularly when they are used near water, and when they are used in conjunction with water as in with our electric water buffing wheel. Electrical cords that can become damaged, or can be introduced into wet conditions also are a concern. Enameling kilns pose hazards particularly due to their exposed elements.
- **Splash/Splatter/Spill Hazards** are common in the Metals Area as the result of common use of liquid products as well as liquid as a byproduct of processes such as investing, etching/electroforming or drips from the pickle station.
- **Ingestion Hazards** are common throughout the Metals Area. All materials used in the area should be treated as ingestion hazards. Food and drink are not to be prepared or consumed in the area. Containers previously used for chemicals or material storage in the Metals Area should never be used to contain or serve food or drink, and hands must be thoroughly washed before preparing, handling, or consuming food or drink.
- **Inhalation/Respiratory Hazards** are common in the Metals Area as the result of the presence of dry powdered materials and particulate dust from sanding, as well as fumes that may result from off-gassing materials including flux, solvents, paints, glues, or resins, or from volatilizing materials and gases released during soldering and casting. Respiratory hazards include both substances that can damage the lungs and respiratory system, and toxins that can be absorbed via the lungs and respiratory system. Always make sure to be using chemicals and tools in the correct designated spaces. There are multiple ventilation hoods that should always be running when the Metals Area is in use. N-95 respirator masks should also be used when particulates are in the environment.
- **Skin Irritation/Damage Hazards** may result from materials that can dry, irritate, burn, or damage skin, and equipment that can burn or abrade skin. Nitrile gloves and should be used when possible.
- **Eye Irritation/Injury Hazards** are common in the Metals area as the result of projectiles, dust and airborne particulates, potential splatters of liquids and chemicals, tools that can injure eyes, pressurized air, and light and heat from torches, heat guns, and kilns.
- **Bodily Injury Hazards** are present throughout the Metals Area, particularly as associated with hand tools, power tools, heavy equipment, and kilns. Improper handling of large materials can also incur harm to hands and body parts.
- **Repetitive Stress Injuries** can occur when working in metals due to repetitive motions and positions involved in metals processes and techniques. These injuries are common in the hands, wrists, elbows, and shoulders; however, they also can affect other areas including but not limited to the neck, back, knees, and ankles. Indications of a potential repetitive stress injury include pain, tingling, numbness, stiffness, or weakness in the affected area, as well as possible swelling and redness, and clicking or popping in a joint when moved. Contributing factors include repeated motions or tasks, awkward positions (especially while sawing or hammering), forceful exertion, contact stress (such as resting wrists on the edge of a table), incorrect posture, vibration (such as from power tools), muscle fatigue, and lack of recovery time.
- **Musculoskeletal Sprains and Strains** are present as a result of awkward or heavy lifting or moving of materials or objects, such as lifting/carrying large pieces of metal, lifting/carrying equipment or ware, or pushing carts laden with materials or ware.

Safety Data Sheets (SDS)

A Safety Data Sheet (SDS) is a document that lists information relating to occupational safety and health for the use of various substances and materials. Safety Data Sheets are maintained on the premises for all materials commonly used in the Metals Area, and are available for review upon request. Additionally, the website listed below is maintained by the primary metal tool and material supplier in the nation and may be a useful resources.

Rio Grande

<https://www.riogrande.com/>

Right-to-know/Hazard Communications, Containers, and Reuse of Containers

Containers must be clearly labeled as to their contents, and containers previously used for other purposes may only be reused if their prior labeling is completely removed or obscured so as to avoid any confusion about contents.

You must operate on the assumption that anyone could get ahold of your container and misunderstand its contents if it is not clearly labeled.

Please inform faculty of any containers that are unlabeled or that you believe may be inaccurately labeled.

Proper Disposal of Art Materials And Chemicals

All copper, brass, and steel are recyclable materials. All scraps should be collected and placed in clearly marked bins in FA2-105. Please DO NOT dispose of such materials in trashcans located throughout the Metals Area. Broken saw blades are also collected and disposed of safely in a marked jar in FA2-104. Chemicals often used in the studio such as sodium bisulfate(pickle), liver of sulfur, and cupric sulfate have appropriate barrels for waste in the studio. Faculty, staff and student techs should be the only authorized personnel to dispose of these chemicals. For disposal of other materials, please consult faculty or technical staff in the Metals Area before disposing.

Food and Beverage

Food and Beverage are not to be prepared or consumed in the Metals Area.

Smoking, Vaping, Tobacco

Smoking and vaping of any substance, as well as use of any tobacco product, are not permitted anywhere on the premises.

Alcohol, Substance Use

Alcoholic beverages may only be consumed on Campus in areas that have been permitted by the California Department of Alcoholic Beverage Control, or that have been approved for special events. The Metals Area is not so permitted, nor are any events in the Metals Area pre-approved for serving or consuming alcohol. Alcoholic beverages are not permitted in the Metals Area except on the rare occasion of an event officially sponsored by SoA, COTA, or CSULB and approved for the serving of alcoholic beverages.

With the exception of rare approved special events, which will be announced as such by University Personnel, alcoholic beverages may not be possessed or consumed anywhere in the Metals Area.

Anywhere on the CSULB campus, and on property owned or operated by the University, the solicitation, sale, use, or knowing possession of dangerous drugs, restricted dangerous drugs, or narcotics (as these terms are used in California statutes) are prohibited. Excepted are drugs lawfully prescribed or lawfully permitted. However, use of cannabis, whether prescribed or otherwise, is prohibited on Campus grounds and facilities.

CSULB enforces all drug laws in the University community. Violations of any of the above will result in legal sanctions, University sanctions, or both (California Health and Safety Code, Division 10, all, and including, Section 11357 through 11401).

The use, possession or sale of cannabis and any THC derivatives are prohibited at CSULB. Under federal law which supersedes State law, cannabis is still illegal. The campus is held to two federal laws, the Drug-Free Schools and Community Act, and the Drug-Free Workplace Act. These laws say that in order to receive any federal funding (work-study, financial aid, and federal research grants), the university must prohibit all illegal drugs. As for medical cannabis, the Drug-Free Schools and Community Act, and the Drug-Free Workplace Act do not distinguish medical and non-medical use. CSULB, like all public colleges and universities, prohibits any cannabis use, regardless of medical status.

Use or possession of illegal drugs on Campus, including drugs that may be considered legal by the state of California but remain prohibited under federal law and/or by CSULB, is strictly prohibited.

No one is to work in the Metals Area, come to the Metals Area, be present in the Metals Area, be in or operating University vehicles, be in or operating personal vehicles while engaged in University activities, or in any way otherwise engaged in University activities while “under the influence” of a controlled substance, alcohol, illegal drugs, cannabis, THC derivatives or any substance which could compromise performance or safety. This includes the use of prescription and over-the-counter drugs not used in accordance with the prescription directions.

Metals Area Access/Utilization – Participant Levels

Access to and utilization of facilities and equipment in the Metals Area, and utilization of materials and processes in the Metals Area, are limited as follows.

Every person accessing and utilizing facilities and equipment in the Metals Area, and utilizing materials and processes in the Metals Area, does so voluntarily, either as an employee of the university working in accordance with an employment contract, or by request as a Participant in one of the following five levels.

Participant Level 1 – Student During Class: Participant is a student currently enrolled in a course in the Metals Area, who requests access to facilities and equipment, and utilization of materials and processes, in the Metals Area, directly related to the course and in order to work only during scheduled course-meeting time. Limited specifically to scheduled course meeting times.

This level requires the following for access and utilization in the Ceramics Area:

- Participant has completed General Safety Training for the Ceramics Area inclusive of receiving and reviewing the General Expectations, risks and hazards, precautions, Personal Protective Equipment (PPE), and Health/Safety Considerations for the Ceramics Area document;
- Participant has completed Safety Certification Process and has been authorized for access and utilization within regular weekday hours.

Participant must complete additional training before using any materials, processes, tools, or equipment, and may have to complete intensive training and testing for some materials, processes, tools, and equipment.

This access/utilization may be further limited or revoked at any time by CSULB faculty or staff.

Participant Level 2 – Student Outside of Class: Participant is a student currently enrolled in a course in the Metals Area, who requests access to facilities and equipment, and utilization of materials and processes, in the Metals Area, directly related to the course in order to work outside of scheduled course-meeting time. Limited to the semester/term during which the student is enrolled in the course.

- Participant has completed General Safety Training for the Metals Area inclusive of receiving and reviewing the General Expectations, risks and hazards, precautions, Personal Protective Equipment (PPE), and Health/Safety Considerations for the Metals Area document;
- Participant has completed Safety Certification Process and has been authorized for access and utilization within regular weekday hours.
- Participant must not work alone in the Metals Area and must log in when using area using process defined by the School of Art and College of the Arts.

Access/utilization during “after hours” such as weekend hours or extended hours in the late night or early morning is subject to further limitation and requires satisfactory completion of a safety test by the Participant.

Participant must complete additional training before using any materials, processes, tools, or equipment, and may have to complete intensive training and testing for some materials, processes, tools, and equipment.

Access/utilization may be limited or revoked at any time by CSULB faculty or staff.

Participant Level 3 – Metals Minor or BFA: Participant is a student currently enrolled in a Metals Minor or BFA Metals Option program of study, who requests general access to facilities and equipment, and utilization of materials and processes in the Metals Area. Limited to the current semester/term.

- Participant has completed General Safety Training for the Metals Area inclusive of receiving and reviewing the General Expectations, risks and hazards, precautions, Personal Protective Equipment (PPE), and Health/Safety Considerations for the Metals Area document;
- Participant has completed Safety Certification Process and has been authorized for access and utilization within regular weekday hours.
- Participant must not work alone in the Metals Area and must log in when using area using process defined by the School of Art and College of the Arts.

Access/utilization during “after hours” such as weekend hours or extended hours in the late night or early morning is subject to further limitation and requires satisfactory completion of a safety test by the Participant.

Participant must complete additional training before using any materials, processes, tools, or equipment, and may have to complete intensive training and testing for some materials, processes, tools, and equipment.

Access/utilization may be limited or revoked at any time by CSULB faculty or staff.

Participant Level 4 – Ceramics Track MFA: Participant is a student currently enrolled in the MFA Metals Track program of study, who requests general access to facilities and equipment, and utilization of materials and processes in the Metals Area. Limited to the current semester/term.

- Participant has completed General Safety Training for the Metals Area inclusive of receiving and reviewing the General Expectations, risks and hazards, precautions, Personal Protective Equipment (PPE), and Health/Safety Considerations for the Ceramics Area document;
- Participant has completed Safety Certification Process and has been authorized for access and utilization within regular weekday hours.
- Participant must not work alone in the Metals Area and must log in when using area using process defined by the School of Art and College of the Arts.

Access/utilization during “after hours” such as weekend hours or extended hours in the late night or early morning is subject to further limitation and requires satisfactory completion of a safety test by the Participant.

Participant must complete additional training before using any materials, processes, tools, or equipment, and may have to complete intensive training and testing for some materials, processes, tools, and equipment.

Access/utilization may be limited or revoked at any time by CSULB faculty or staff.

Participant Level 5 – Other Authorized Participant: Participant is a person not enrolled in a course or program of study associated with the Metals Area, who requests defined/limited access to facilities and equipment, and utilization of materials and processes in the Metals Area. Limited to dates and hours defined by written agreement.

- Participant may not be enrolled as a student at CSULB, and may be subject to additional agreements defining and limiting the Participant’s status in relation to the University, CSULB, College of the Arts, School of Art, and Metals Area.
- Participant has completed General Safety Training for the Metals Area inclusive of receiving and reviewing the General Expectations, risks and hazards, precautions, Personal Protective Equipment (PPE), and Health/Safety Considerations for the Ceramics Area document;
- Participant has completed Safety Certification Process and has been authorized for access and utilization within regular weekday hours.
- Participant must not work alone in the Metals Area and must log in when using area using process defined by the School of Art and College of the Arts.

Access/utilization during “after hours” such as weekend hours or extended hours in the late night or early morning is subject to further limitation and requires satisfactory completion of a safety test by the Participant.

Participant must complete additional training before using any materials, processes, tools, or equipment, and may have to complete intensive training and testing for some materials, processes, tools, and equipment.

Access/utilization may be limited or revoked at any time by CSULB faculty or staff.