

Attachment 8: Shop / Maker Space Set-up and Management Guide

Instructions for Shop / Maker Space Manager:

This is a Shop / Maker Space Set-up and Management Guide for any person delegated the responsibility to set up and manage a Shop and/or Maker Space on Stanford University property. By following this guide, a Shop / Maker Space Manager will put into place all necessary hazard identification, control and user-training requirements for integrating the Stanford University Shop Safety Program into their shop.

Instructions for ShLab Safety Coordinator:

A “ShLab” is a space where shop equipment or work-processes are used as part of laboratory operations. As a ShLab Safety Coordinator, you are responsible to act as a liaison between your lab and the Shop Safety Committee, and for implementing the Shop Safety Program as may be appropriate for your lab. Familiarize yourself with this document and the Shop Safety Program on the EH&S website. You are performing the “shop manager” role for your lab.

Shop processes and equipment-use in labs are generally ancillary to lab operations. Therefore, participation in the Shop Safety Program may be voluntary as described in the “Lab Exemption” in the “Applicability and Scope” section of the Shop Safety Program. However, EH&S must have your contact information to keep you and your lab informed of shop safety program requirements and updates as they may impact your lab’s safety and operations. Complete Attachment 3 MOU of the Shop Safety Program and send it to the EH&S Shop Safety Program Manager at this email. [<shopsafety-ehs@stanford.edu>](mailto:shopsafety-ehs@stanford.edu)

Building the Physical Shop / Maker Space

Every Shop / Maker Space must have certain physical space / access characteristics to ensure safety can be maintained by the manager of the space. When setting up a new shop / maker space, or modernizing / repurposing an existing space that will contain any of the work-processes outlined in the “Applicability” section of the Shop Safety Program, the Shop / Maker Space Manager should incorporate the following into the planning and installation of the Shop / Maker Space:

1. Determine the location and boundary of the “Restricted Area” within the shop / makerspace where high-hazard work will take place. Clearly mark the “Restricted Area” using signage, floor-paint-striping, and/or other means to create visual cues of the boundary.
2. Develop and install a location where “Authorized Users” and “Visitors” may enter the shop / maker space, remove and safely store their “street clothing and gear” and put on PPE prior to entering the “Restricted Area” of the shop / makerspace.
3. Ensure access control of the “Restricted Area” of the space by installing physical barriers to non-authorized users such as doors that lock and require a key, combination-lock or other “user-knowledge” to access the space and conduct high-hazard work activities and use high-hazard equipment.
4. Document the formation and location of the Shop / Maker Space, and inform the Shop Safety Committee and EH&S of the name, title and contact information for the person responsible for shop safety for the space using [Attachment 3 MOU](#).

Qualifying and Authorizing Shop / Makerspace Users

1. Any person who works with shop equipment and processes must be “authorized” by their PI/Instructor/Supervisor, as well as the “Shop Manager” prior to working unescorted in a shop. If the “Supervisor” is the same person as the “Shop Manager”, then the Shop Manager completes both halves of Attachment 1 for each “Authorized Person” who may work in their shop. This is a documented process using [Attachment 1](#).
2. All “Authorized Persons” must be trained on, and remain current to, each shop / makerspace’s specific safe-work requirements including but not limited to general safe work rules, personal protective equipment use, and solo work. Training on these Stanford University Shop Safety Requirements are documented by each Shop Manager using [Attachment 2](#) as well as any other training documentation a Shop Manager may deem necessary to ensure safety within their shop operations. Use [Attachment 6B](#) Training Roster to document any “shop specific” safety training given to shop users.
3. “Authorized Persons” may only work on or with shop equipment and conduct shop processes that they have been ‘Authorized’ by the Shop Manager to do.
4. Once authorized, “Authorized Persons” may enter and work unescorted in a shop’s “Restricted Area”.

Managing Shop “Visitors”

Visitors:

1. May not enter the “Restricted Space” of any shop unless escorted continuously by an “Authorized Person” in that specific shop.
2. May be escorted within the shop’s “Restricted Area” as long as the visitors are wearing the same PPE as required by all shop users.
3. Must remain within 10 feet or less of the Authorized Person escorting them.
4. Must remain closer as needed to ensure visual and audio contact with the Authorized Person at all times while in the “Restricted Area” of a shop.

Authorized Persons:

5. May escort visitors within the shop’s “Restricted Area”, but only with the Shop Manager’s permission.
6. Must provide PPE to all visitors as shop rules dictate, and ensure all visitors being escorted are properly wearing their PPE at all times within the Restricted Area of the shop.

Managing Contractors using the Shop

Contractors and Joint Projects in Shops

When using their own equipment and shop processes, when not using Stanford shops or Stanford shop equipment, and when not working in conjunction with or around Stanford University personnel, Contractors must:

1. Follow their own Shop Safety Program and procedures.
2. Provide the University project manager and/or Shop Manager evidence of their Shop Safety Program upon request when working on Stanford-owned property.
3. Provide all their own shop equipment, materials and supplies unless negotiated by contract with the University the use of University facilities and equipment.

Contractors using Stanford University-owned Shops and Shop Equipment

The Shop Manager must:

1. Use the same authorization / orientation process used for Stanford University Shop Users by completing [Attachment 1](#) and [Attachment 2](#) for each contractor-employee using a Stanford-owned and managed shop. The Contractor Representative hiring and overseeing the work conducted by contractor personnel must act as the “Supervisor” and document contractor authorization and orientation / training to the Stanford University Shop Safety Program prior to allowing the contractor-personnel to work in any Stanford University owned / managed shop.
2. Approve and authorize each contractor-employee to work in their shop prior to allowing Contractor-use of the shop by signing the bottom half of [Attachment 1](#) and [Attachment 2](#) for each authorized contractor-employee.

Joint Projects – When University Personnel and Contractor(s) work in a University-owned shop concurrently:

The Shop Manager is the controlling person in the shop / makerspace. Only the Shop Manager may authorize someone to work in the shop / makerspace. Contractors must follow “Joint Project” requirements as outlined below when working in the area of or with Stanford University shop / makerspace users.

The Shop Manager must:

1. Hold joint meetings with all Stanford and Contractor personnel in attendance who will be working in the area to promote understanding of planned work, safe work practices and open lines of communication amongst workers regardless of employer.
2. Ensure Contractors using University equipment and property follow University safe-work procedures and review JSAs and SOPs developed by the Stanford University shop as part of their training/orientation to the shop.
3. Document Joint Project / Contractor orientation/training by using a training roster ([Attachment 6B](#)) and keep completed training records for length of the Contractor project plus 3 years.

Shop Manager – Ongoing Management Requirements

All Shop / Makerspace Managers must:

1. Ensure the physical space of the shop / makerspace complies with the guidelines outlined above.
2. Ensure only “Authorized Persons” conduct work in the “Restricted Area” of their shop. Documents this process by completing the bottom-half of [Attachment 1](#) for each authorized shop user.
3. Ensure every “Authorized Person” in the shop has read, been given, and signed off receiving a copy of the Stanford University Shop Safety Requirements using [Attachment 2](#).
4. Add-to their specific shop / makerspace’s “Authorized Person Safety-training” any additional hazard control measures (in addition to Attachment 2) such as SOPs, JSAs, specific equipment / processes orientation, etc. that the Shop / Maker Space Manager requires to ensure safe work within their area. Document this additional training using [Attachment 6B](#).
5. Ensure any Contractor-employee working in any Stanford-owned shop / maker space goes through the same “Authorized Person” safety orientation as other shop users, and have their training documented by completing, at minimum, [Attachment 1](#) and [Attachment 2](#).
6. Conduct “Joint Projects” meetings when contractor work is present as well as other responsibilities outlined in the “Contractors and Joint Projects” section above. Document this additional training using [Attachment 6B](#).
7. Purchase and keep in stock Personal Protective Equipment (PPE) for use by Authorized Personnel and Shop Visitors based upon a hazard assessment / control measures of their equipment and processes.(may use [Attachment 7](#) or similar)
8. Maintain training records of all Shop “Authorized Persons” working in the shop using a training roster ([Attachment 6B](#) or similar). Training records are kept for duration of shop-work plus 3 years.
9. Provides refresher training to “Authorized Persons” on their shop’s safety program, whenever new hazards and control measures are identified, by using [Attachment 2](#) and any other shop safety training as the Shop Manager may require.
10. Regularly attends Shop Safety Committee (SSC) meetings as a member, or designates a Shop / Makerspace representative to be a member, of the SSC.
11. Oversee conducting an annual (at minimum) shop safety self-assessment / safety inspection ([Attachment 7](#)). May implement more frequent inspections to maintain shop safety within their shop as they deem appropriate.
12. Assure a hazard assessment / control review is conducted for any new shop equipment / processes.
13. Conduct new training of Authorized Persons as may be needed to ensure safety with new equipment or new shop processes.

Training Requirements

Shop “Authorized Person” / Shop User

Must be trained on:

1. Stanford University’s Shop Safety Program by, at minimum, reading / signing [Attachment 1](#) and [Attachment 2](#), and
2. Any other training required to orient a Shop User to a specific shop’s safe work processes and practices, and
3. How to escort any “Visitors” to a shop they have been authorized to work in.

Shop / Maker Space Manager

1. Must know and implement their [roles and responsibilities](#) in the application of this program by following all requirements of this guideline.
2. Be trained on Shop Management as may be appropriate to ensure safety in location(s) and operation(s) under their purview (consult with EH&S for questions / help),
3. Assures proper documented training of people reporting to them and other “Authorized Persons” working in the shop, and
4. Assures compliance with the Shop Safety Program by all who fall under their oversight.

ShLab Safety Coordinator

Is trained on:

1. The contents of the Shop Safety Program and how it may apply to shop work and equipment used in their lab.
2. Their responsibilities to train other members of their lab in the specific shop safe work processes in their lab as may be appropriate.
3. The Shop Safety Program “[Record-keeping](#)” responsibilities, management of the annual shop safety self-assessment program in their lab, and other duties as outlined in the “[Roles and Responsibilities](#)” section of the Shop Safety Program.
4. Conducting an annual (at minimum) shop safety self-assessment / safety inspection for the lab using [Attachment 7](#).

Contractors and Joint Projects in Shops

Contractors follow their own Shop Safety Program and procedures and must train their personnel when using their own equipment and shop processes. The Contractor provides the University evidence of their Shop Safety Program upon request. The Contractor provides their own shop equipment and materials unless negotiated by contract with the University for use of University equipment and materials.

For Joint Projects where University personnel and Contractor(s) are working in the same University-owned shop at the same time, the University’s Shop Manager is in control of the shop and must hold joint “tailgate” meetings with all personnel in attendance who will be working in the area to promote understanding of safe work practices, and open lines of communication amongst Shop Users. Contractors using University equipment and property follow University safe-work procedures and review and follow JSAs and SOPs as developed by the University’s

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Shop Manager as part of their training. Contractor training conducted by Stanford University is documented by the University's Shop Manager using a training roster [Attachment 6B](#).

Record Keeping Requirements

Shop / Maker Space Manager keeps the following documentation:

1. Completes bottom half of [Attachment 1](#) for each person who must become an "Authorized Person" to work in a shop. If the PI / Instructor / Supervisor is also the Shop Manager, completes both top and bottom halves of [Attachment 1](#) for each authorized shop user. This must be kept for duration of employment, tenure or work-study term plus 3 years.
2. For Student Shops, use [Attachment 1](#) for a duration of Authorization for shop use for a semester up to a maximum of 1 year. At the end of 1 year, the Student may be re-authorized for ongoing shop use of up to another year if their academic program dictates need. This must be kept for duration of academic program plus 3 years.
3. A signed copy of page 3 of the "Shop Safety Policy" ([Attachment 2](#)) given to each and every "Authorized Person" working in their shop. This must be kept for duration of employment, tenure or work-study term, or academic program duration, plus 3 years.
4. Copies of any training rosters ([Attachment 6B](#)) and training content. Keep for 3 years.
5. Copies of any procedures / protocols developed for shop safety. Keep for as long as they are current.

ShLab Safety Coordinators

Must keep the following documentation:

1. Authorized Person(s) who conduct shop-processes in labs documents ([Attachment 1](#) and [Attachment 2](#)) for the duration of their lab work plus 3 years.
2. Any training rosters ([Attachment 6B](#)) for 3 years.
3. Any Safe-work Protocols / SOPs / Other Procedures as long as they are current.
4. Any JSAs that are developed by the Department to address Shop Safety concerns for as long as they are current.
5. "Shop Self Assessment" forms ([Attachment 7](#)) completed for the lab for the previous two years.

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Resources

[EH&S Programs and Support](#)

[LINKS TO EH&S PROGRAMS AND WEBSITE INFO TO BE INSERTED HERE]

[California Title 8 – Cal-OSHA General Industry Code of Regulations](#)

Compressed Gas and Air Equipment	http://www.dir.ca.gov/Title8/sb7g9.html http://www.dir.ca.gov/title8/3301.html http://www.dir.ca.gov/title8/4650.html
Cranes and Hoisting Equipment	http://www.dir.ca.gov/Title8/sb7g13.html
Ergonomics	http://www.dir.ca.gov/Title8/5110.html
Fire Safety	http://www.dir.ca.gov/Title8/sb7g27.html
Flammable Liquids, Gases and Vapors	http://www.dir.ca.gov/Title8/sb7g20.html
Hand and Portable Power Tools	http://www.dir.ca.gov/Title8/sb7g3a20.html
Hazardous Energy – Lock out Tag out	http://www.dir.ca.gov/title8/3314.html http://www.dir.ca.gov/dosh/etools/08-003/LockoutSteps.pdf http://www.dir.ca.gov/dosh/etools/08-003/P08-00302.pdf
Hazardous Materials	http://www.dir.ca.gov/Title8/sb7g16.html
Housekeeping / Work Area Conditions	http://www.dir.ca.gov/Title8/sb7g1a4.html http://www.dir.ca.gov/Title8/sb7g1.html
Machine Guarding	http://www.dir.ca.gov/Title8/sb7g8.html http://www.dir.ca.gov/Title8/sb7g6a37.html http://www.dir.ca.gov/Title8/sb7g6.html
Noise	http://www.dir.ca.gov/Title8/sb7g15a105.html
Personal Protection (PPE) / Safeguards	http://www.dir.ca.gov/Title8/sb7g2a10.html
Safe Work Practices	http://www.dir.ca.gov/Title8/sb7g2a7.html
Vehicles and Shop Mobile Equipment	http://www.dir.ca.gov/Title8/sb7g4.html
Welding / Cutting Operations – Electric	http://www.dir.ca.gov/Title8/sb7g11.html
Welding / Cutting Operations - Gas	http://www.dir.ca.gov/Title8/sb7g10.html

[Federal OSHA:](#)

Machine Controls Interlocks and Fail-safe Design Guideline document:

http://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-147.pdf

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Shop / Makerspace Safety Program - Implementation Forms

(For use by Shop Manager / ShLab Safety Coordinator as may be appropriate)

Available on EH&S Shop Safety Program website.

Attachment 1: “Authorized Person” qualification for Shop Work – Template

Attachment 2: Shop Safe Work Requirements, Practices and Procedures - Template

Attachment 3: Academic Shop Space Designation / MOU / Identification - Form

Attachment 4: Solo Work Risk Reduction Plan

Attachment 6B: Shop Safety Training Roster – Template Form

Attachment 7: Shop Safety Self-assessment Template

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