



Maker Member Handbook

Welcome!

We're thrilled to have you join our community. Our mission is to provide education and practical experience in all sorts of making and promote the same in the community. We aim to provide a makerspace that serves all experience levels from hobbyists to professionals.

Our goal is to help you develop your skills and give you a space and tools to express them.

Being new to our community, we want to make it easy to know what we're about, what resources are available to you, what you should expect from the community, and what the community expects from you. This handbook has a lot of information in it. You really should read it. If you have questions, ask any of the staff - we are happy to discuss all of this. If something is missing, let us know that too.

This guide is what we feel is the most important information a new member needs right away. More in-depth material is found other places, often in our wiki. When that is the case you'll find references in this document that point you to those places.

Again, welcome to Maker Nexus. We can't wait to see what you make and how you help our community prosper.

What is Maker Nexus?

Maker Nexus is a 501 (c)3 non-profit organization fueled by community members. Creating our community makerspace requires the cooperation of many volunteers. To pull the effort together we use the latest on-line team technology. We have open discussion forums on Slack, and our wiki persists the information we create. Our Facebook group hosts lively discussions. We also send out weekly updates in our email newsletter. We hold town hall meetings to update the community and get feedback on our plans.

There are four focus areas to our current development

Educate

We provide a full range of training programs. From STEAM/STEM classes for teens to advanced skill building classes for experienced makers. With our classes everyone will be



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able to become a maker. We offer basic safety and operation classes on everything from the table saw and sewing machine to the most sophisticated computer controlled equipment

Practice

Skills improve with use. We provide a member makerspace filled with all kinds of tools. Woodshop, electronics, 3D printers, laser cutters, textiles, CNC routers, machine shop. We have tools that members can use to make anything. And we have space - build tables give members a place to spread out and make what they want. You don't need a garage full of tools if you belong to our makerspace.

Share Locally

Different disciplines, different minds, unusual perspectives: combining these outlooks creates a crucible for innovation. Our vibrant, inviting, inclusive community welcomes all kinds of makers. The beginner, the hobbyist, the new entrepreneur, the inventor, the professional. Everyone is part of the maker movement at our makerspace.

Share Globally

As we create the infrastructure to run our organization, we freely share it with other makers. Our safety classes, our strategic outlook, our project classes. All of these are released under a Creative Commons license so that other groups can benefit from the work we have done. We want to be a catalyst to help any group of makers create their own makerspace.

Here are few links to get you connected to our online resources:

- <https://www.makernexus.com>
- <http://makernexuswiki.com>
- <https://www.facebook.com/groups/1999239440316643/>
- <https://nextdoor.com/pages/maker-nexus-mountain-view-ca/>

The Basics

Maker Nexus is a community who runs a makerspace. You buy a monthly membership to gain access to the skill and expertise of the members, the shared space and all the tools therein. You learn to safely use the tools provided and then use them to make things. You only use the tools you have been trained on to insure the safety of everyone. Some tools have a reservation system to coordinate the usage effectively.

This handbook describes policies and procedures that keep the makerspace humming along. The core of this is simply safety and sharing. We want the members to be safe and to share what we have equitably and sustainably.

Contact Us

email: info@makernexus.org



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phone: 408 685 2500

Facilities

The Maker Nexus Facility is located at

234 East Caribbean Dr, Sunnyvale, CA, 94089

Hours:

Wednesday - Sunday 10am - 10pm PT

Closed most holidays. See (URL) for exact holiday hours and closures.

It is a Maker Nexus policy that we must have two responsible staff on duty whenever the space is occupied by members. If, for any reason, we do not have two responsible staff members available then the space will close and members will have to leave. There can be no exceptions to this policy. We hope you understand.

When the makerspace is open the doors may remain locked. Use the doorbell to get the attention of a staff person. As a member you should not open the door to admit anyone. Please do not prop open any door.

The reservation system for equipment can be found at

<http://makernexus.ezfacility.com>



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Notes :

WHERE TO PUT

- Shipping and receiving (or lack thereof)
- Advertising in the makerspace?
- Donations and fundraising (probably under volunteering)
- Staff - if you want to apply
- Discussion of flammables needs refining. Would we let someone store a flammable in their locker? Or have one shared flammable locker?
- Sale of consulting, products or other material in the space?

Still to add

- A mini map and link to google maps
- Map of the building layout.

Makerspace (n): A resource-filled DIY workshop where people can create, learn, build, make and explore.

Maker Nexus works to enable everyone to make things.

We are a 501(c)3 nonprofit organization.



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General Terminology

BOSS - Basic Operation and Safety Standards. Short classes to certify you to use certain equipment.

Maker Member - member of Maker Nexus in good standing.

Consulting Maker (CM) - Maker Nexus staff. They are makers too and if they aren't on duty, it's ok to say hi, but they are on personal time and not working in an official capacity.

Instructor - the primary person who is running a class or workshop. There may be others assisting in instruction and oversight, but always one person is designated as primary.

Shop Area Lead - A volunteer position, a lead is responsible for organizing their area to make it effective for the maker members who use that part of the shop.

Manager on Duty - Anytime the makerspace is open there is one staff person who is designated as the manager on duty. This person has ultimate say on what happens in the makerspace. Failure to follow the instructions of the Manager on Duty is cause to be denied access to the makerspace and possible termination of your membership. Seriously, this person is here to keep us all safe and having fun - do the right thing.

Safety

The safety of maker members, staff and instructors and guests is the prime consideration in every activity. The goal of Maker Nexus makerspace safety plan is to develop practical approaches regarding safety among all users of the facility.

If there is ever an emergency situation, make sure you are safe, alert others, exit the building, call 911.

The success of this plan depends upon the complete cooperation and support of everyone involved. All rules and guidelines published here or elsewhere for Maker Nexus apply to the entire shop and makerspace areas including the parking lots and any other maker related work environment including impromptu installation work locations. All tools must remain in the makerspace at all times and may NOT be checked out. At no point will tools be allowed outside of the maker space and its adjacent supporting areas.

Shared Safety Responsibility

The incorrect use of a machine can endanger everyone in the building. As a result of this shared danger, we all share the responsibility to monitor each other. We each have a responsibility to step up and question anyone using a machine in a way we feel is unsafe. This includes questioning the operator about the materials they are working with.



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If you are operating a machine and someone questions you about the safety of operation, don't be offended even if their approach to you is poor. It's a safety issue. If someone asks you to stop what you are doing, for any reason, you must pause your work. Talk about the safety concern. If you cannot resolve the concern between you, then seek out a staff member.

Bottom line: No matter what you are doing on a machine, no matter how important your job is, if someone asks you to stop for a concern about safety, you are obligated to stop immediately. If you do not then you may lose your access to the makerspace even if you are later proven correct. Safety is just that important and the ability of each of us to address it is paramount.

The Safety of You and Those Around You

Please maintain situational awareness at all times to insure there is no potential to injure yourself or others.

Safety takes many forms, both physical and mental.

You are responsible for both your safety and those around you. A detailed treatment of all the aspects of safety is available at

http://makernexuswiki.com/index.php?title=Ethics_and_Conduct

Here are some highlights to keep top of mind.

Respect all makers. Harassment and discrimination isn't tolerated. Don't startle or interrupt others as they operate machinery, instead wave from a distance.

Attend to issues of safety immediately, take action to bring attention and correct issues. If you see it, it's your responsibility to take immediate action.

Attire for safety. Utilize appropriate eye and hearing protection, wear close-toed shoes, use dust protection, do not wear loose clothing. Tie up your hair, remove jewelry, and only use gloves during material moves **never** with power tools.

Clear Mind for safety. No alcohol or drug use anywhere on the property. No headphones - you might not hear a safety warning from another person. Don't operate equipment while sleepy or while taking medication that may make you drowsy.

Ask for help with anything you are unsure of or if you are unclear how to safely make a particular cut/move. Seek assistance in handling larger, long or heavy materials. Seek first aid immediately for any injury. When unclear on the safety of an action, ask a Maker Nexus staff member for assistance.

Operate one at a time. One and only one person should operate a machine at a time and attend to it while running. Operate machines as they are documented.

Sharp and right tool for the job. Keep all tools in good working order, report those that are not. Inspect equipment before using. Clean the tool and area afterwards to keep the tools in safe and working order.

Material management. Handle materials appropriately to avoid accidents, fire and injury.



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Failure to meet safety expectation can result in immediate removal, suspension and/or termination of your membership.

Makerspace Access

Check in/Check out

Everyone is required to sign in at the front counter prior to entering the building and sign out upon departure.

Badges

As a member, your badge must be visible at all times. You may not provide access to the shop or equipment to anyone else. When operating machinery where a badge is a safety issue, you may place your badge inside your clothing; when done operating the machinery your badge should be made visible again.

Everyone working in the makerspace should have a membership badge. If you see someone in the makerspace without a membership badge you should immediately alert a staff member.

Guests of Members

Guests of members are welcome, and will need to sign a liability waiver and review the ethics and conduct upon entry. Members are responsible for their guests and their actions. Members must accompany guests throughout the space, which means in visual range generally and closer when near equipment so you can provide immediate guidance on safety.

Guests are not allowed to use tools and equipment, except as part of a scheduled class/workshop they are actively participating in with you.

We are happy to have your guests see the makerspace and become members.

Minors

Minors require their legal parent or guardian to sign a liability waiver and review the ethics and conduct. Minors must be accompanied closely at all times by a legal parent or guardian to insure safety. This includes scheduled class/workshops unless there is special provision to manage unaccompanied minors. 'Accompanied closely' means visual range generally, and immediate arm reach when near dangerous equipment.

Minors may only use the tools they have been trained for, with all required restrictions and supervision. Minors over the age of 16 are permitted to use the tools at Maker Nexus, provided they have passed the necessary training and received approval to do so from the Shop Manager.

Maker Nexus is fully committed to promoting minor's rights, notably their right to be protected from harm, abuse and exploitation and to be involved in any decisions that directly affect them.



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Maker Nexus implements effective policies and procedures for safeguarding the welfare of children and young people. A detailed child protection policies and procedures for Maker Nexus is available at http://makernexuswiki.com/index.php?title=Child_Protection_Policies_and_Procedures.

Visitors

A visitor is someone who is not a member nor sponsored as a guest of a member but would like a brief tour of the makerspace.

We hope when a visitor comes to see our makerspace they will become a member. It's a great opportunity to show our best. Please say 'Hi!' and take quick moment to engage if you have time when you see a visitor on tour.

Visitors need to sign a liability waiver before the tour and may not use the tools and equipment. They will remain near their tour guide at all times. Visitors can schedule tours with the Maker Nexus staff as availability permits.

Membership Benefits

There are several levels of membership. This is an overview of benefits of the levels and associated terms and conditions.

Entry Level

Entry level members have access to the general workspace, computers, and textiles areas of the makerspace. It does not include access to CNC machines or laser cutters even if they've taken the BOSS class for them. This level doesn't include any ability to rent storage space.

Hobbyist

Hobbyist members have access to all areas of the makerspace and may rent storage when available. Some equipment may have some time limits per day and per week. We expect this to be the most popular level of membership.

Family

Family level members are hobbyists that include one adult and one minor child. An additional adult and children can be added. A spouse must purchase their own adult membership.

Student

Student level requires proof of current full-time enrollment in an accredited educational institution. There may be some age restrictions on some equipment, but has the same access as the hobbyist.



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Education: Training, Classes, Workshops

There's a variety of educational and skill development activity options. Our goal is to provide a positive experience in learning and developing your skills in making. Details will be posted and signup available online. Non-members can enroll in most classes. If you have any questions about a class please contact the instructors before you sign up. You will need to have signed a liability waiver prior to participation in the class/workshop. Make sure you are committed to the full timeframe and to following the instructor's direction as there are no refunds. Some classes may require preparation, so make sure you check and ensure you are ready with everything needed.

Please arrive at least 15 minutes before the scheduled timeframe so you can check in and have everything ready the moment it starts. Classes start on time. Late arrivals may not be accepted. For safety, you must remain with the instructor and follow their instruction for the duration. Unsafe behavior will endanger membership status and/or ability to return to the makerspace.

If you have an idea for a class or workshop, please contact us to help you develop your idea.

BOSS: Use and Safety Training

In order to use equipment, members must attend the machine's BOSS class (Basic Operations and Safety Standards), read and sign an appropriate policy form, and pass all relevant testing requirements (See URL on equipment details and Testing Requirements). Upon completion, maker members will be able to reserve equipment at the online self service system <http://makernexus.ezfacility.com>.

Materials used in a BOSS class are always provided, and any specific preparation such as additional attire restrictions will be outlined in the BOSS class requirements. There may be suggested reading or videos to help you make the most of the class before you arrive.

BOSS classes are offered on all equipment requiring certification on a regular basis and made available for sign up on our reservation website <http://makernexus.ezfacility.com>.

Late arrivals to a BOSS class will not be allowed to join the class and your class fee (if any) may not be refunded.

Example BOSS class: 'BOSS for Epilog Laser Cutter'

Skill Classes

These are development courses on a specific machine and typically in creating a specific product. They are typically a single session event. You may or may not need to bring your own materials such as a small design to etch, or additional tools such as a washcloth or gloves. Please refer to the details in the Skill Class requirements for the specific class.



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Example Skill Classes: 'Laser cutting halloween pumpkins'

Workshops

Workshops can run as a one session event or through multiple sessions for more involved projects. You may or may not need to bring your own materials or additional tools. Please refer to the details in the Workshop requirements.

Example Skill Workshop: 'Making an Electric Skateboard'

STEAM/STEM Classes

These are classes specifically targeted to minors and may be for specific age groups. All our instructors have been background checked and trained to work with children. Materials are typically provided. These classes may or may not require legal parental or guardian in attendance along with the minor. See the class details for more information.

These classes may take a number of forms such as

- After school classes
- Homeschool classes
- Scout Merit Badges
- Scout Lab
- Vacation camps
- Summer camps

Groups and Clubs

In fostering a community, it's natural to bring together groups of members meet, share and gain feedback on their making or on some aspect of Maker Nexus itself such as a shop area on a short or long term basis.

A list of exiting groups and clubs is available at:

http://makernexuswiki.com/index.php?title=MN_Clubs_and_Groups

Making a group or club is done simply by declaring such on the Clubs and Groups page above. Please nominate a primary contact, so others can know who to contact to learn more.

For small groups of less than 6 members, no reservation is necessary to take an unused table in the general area, as long as the group is respectful of those in the area. Keep sound at reasonable levels to avoid interrupting others who may also be using the general area.

Room Reservations

For groups that need more space and have more members, there are a few rooms available for group usage when not used for BOSS, skill, STEAM/STEM classes or workshops. In order to insure that the rooms will be used when reserved, a nominal hourly fee will be paid based on room occupancy.



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Reservations are made at the Front Desk and paid in advance of use. Periodic reservations for large spaces are limited to at most bi-weekly and for 3 month total duration from declared at first signup to give others a chance to reserve rooms. At the end of the group's reserved duration, they can again sign up for space as available at that time.

The group needs to have a member as the primary contact for the reservation. Ideally this person will always be in attendance for periodic reservations, otherwise a group onsite contact will be identified.

Failure to claim the reservation within the first 15 minutes of the reservation timeframe forfeits usage for the remainder of the timeframe.

Room Usage

Rooms are to be respectfully used and some room configurations may not be rearranged during the reservation. All rooms must be returned to the same condition if not better at the end of the reserved timeframe.

Have the room empty and ready for next use at the end of the timeframe.

Failure to leave promptly or to return the room to original conditions can jeopardize future reservations.

Volunteering

yes, yes you can help - let me count the ways...

Amenities

Library

Library books, magazines and others that stay put (we take donations of relevant sources - please minimize out of date tech books)

OR

Free Little Library Book Exchange? Leave a book, take a book. <https://littlefreelibrary.org/start/>

Workbenches and Tables

First come first serve, but please don't hog for more than 3 hours.

Community Board

The physical board: Name and add date of posting, and date of expiration. Max duration - 2 months. 8x11 max size.



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(Also mention the online BB board)

Lost and Found

Materials, tools, project work and personal belongings left behind will be gathered at the front desk lost and found. Contact the front desk if you need assistance.

Lost and Found will be cleared out at least quarterly and items disposed of as Maker Nexus sees fit. If Lost and Found becomes too full, it may be cleared out earlier with 2 week membership notice.

See Also: Storage of Materials and Projects.

Kitchen: Home of Food and Drink

Our kitchenette is provided for the use of responsible members. Members must keep the area clean. This includes wiping down counters after using them. Failure to keep the kitchenette clean may result in the member losing permission to use the kitchen.

Keep the kitchen clean. If you bring it, you clean it. If you use it, you clean it. Soap provided. Don't leave anything in the sink, neither food, cups, cans.

Don't clean tools in the kitchen sink. Use the sink off the event room.

Label food and drink left in the refrigerator with your full name and current date. Don't leave anything overnight. No cans in the freezer.

Unlabeled food can be cleared out at any time. Cleaned containers will be retained at the discretion of the Maker Nexus staff. All unlabeled or expired food items will be completely cleared out of the kitchen at any time. Labeled or not, food or drink unattended that causes problems will be cleared out immediately.

Please don't take open food or drink into the wood, metal areas (closed containers are fine), and use caution with any food or drink especially around computers and delicate equipment.

Don't store materials for projects in the kitchen - it's for food and drink. Maker Nexus does not have a refrigerator for material storage at this time. Sorry, we can't help you make a butter cow.

Drinks and other food in the kitchenette is assumed to be the property of a member. Do not take or eat any food or drink in the kitchenette unless it is clearly marked "free". Beware, you are personally responsible for the safety of any food or drink that you consume from the kitchen. Maker Nexus can take no responsibility that food or drink you find in the kitchen has been properly stored or is safe to consume. Unless you are sure something is safe to consume, do not consume it.



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Storage of Materials and Projects

Maker Nexus is not responsible for any projects or materials left unattended. All materials and projects should have all necessary contact information attached.

Storage lockers may be available to members for a fee. Stable materials, private tools and projects may be stored and locked within the provided space.

Material storage in the shop area is available for a fee on a short term basis, contact a consulting maker for more information.

Projects left overnight must be retrieved within 30 minutes of opening the following morning. Any project left on a 3D printer may be removed by another member or the staff. Maker Nexus assumes no responsibility for the security of a 3D print or any damage caused by removal of it from the machine.

Parking

Please park in front of the building. The back of the building by the roll up doors is for unloading and loading only.

Cleanliness

Each maker member is responsible for clean-up and tool return. Each machine and work area should be cleaned immediately after use. Machines should be blown off using the air hose [Do we really want to say this? A web search will find many sources saying **not** to use compressed air to blow chips, etc. off machines for various reasons (safety; dispersing debris vs. collecting it; driving grit into slideways, bearings, etc). What should we recommend as best practice for cleaning machines?] and the floor area around it should be swept clean. Each member to use a machine is responsible for cleaning the machine and surrounding work area at the end of their use or reserved timeframe. **Leave the space cleaner than you found it!**

Use caution around machinery that can produce sawdust or where oil or water may be on the floor). Please notify a consulting maker if there's a spill or other slipping or tripping hazard.

Recycling

The city of Sunnyvale sorts recyclables out of the stream post-collection. Trash of all kinds goes into one bin. The bin is located in the fenced area behind the makerspace. If you see a full trash can, please take the time to empty it into the bin and return the collection can to where you found it.



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Toilets

We have a janitorial service that comes once a week. Between times all members are expected to keep the toilets in good shape. If you make a mess in one of the toilet areas then clean it up before leaving the toilet. If you need assistance, speak to the Manager on Duty.

Privacy, Video and Photos

Please ask before taking photos or video of either a member or their work. You can take photos and video of projects on display in designated areas.

It's fine to ask other members what they're working on, but please realize that sometimes the project may be sensitive and they may not be able to discuss it

Video Surveillance

For the safety of our members, guests, and equipment we have video cameras located in our facility. These cameras record activity in the facility and may archive that video for several weeks or longer. In the event of theft, damage to the premises or equipment, violence or for any other reason, we may review these recordings.

Accident and Injury

In the unlikely event of an accident, please familiarize yourself with the following information.

Non-Injury Accidents

In the event of accidents resulting in machine damage, material “kick-back” or other unsafe events, but not resulting in an injury then you are required to...

Report the accident to the consulting member or Maker Nexus Manager on Duty. They will record the details of the issue and work with those involved to address the issues that led to the accident and determine next actions and any required remediation for the machine and for the operator involved. The report will be reviewed by the Maker Nexus General Manager for any additional actions.

Injury Causing Accidents

In the event of an injury-causing accident, you are required to...

Report the injury to the Maker Nexus Manager on Duty immediately. Staff will follow established first-aid procedures. An injury report will be filled out and submitted to the General Manager for review. The General Manager will work with those involved to address the issues that led to the injury accident and determine next actions and any required remediation for the



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machine and for operator involved. Injury causing accidents requiring outside medical attention will also be reviewed by the Board of Supervisors.

Remediation Actions

All reports will be available for general review by parties within 5 business days of the accident. Any remediation actions will be relayed to the appropriate persons as soon as possible.

Actions may include but are not limited to

- Discuss current policy and requirements with the General Manager
- Immediate training on safety or usage with consulting members on site.
- Require actions such as cleaning up space, change specific behavior, remove items from the premises.
- Temporary removal of person or persons from a piece of equipment or activity.
- Additional training or safety review is required before return to the equipment.
- Persons barred from the equipment reservation for a day. Repeat offenses may include a week, a month or more. There are no refunds for removal.
- Temporary removal of person or persons from premises (facility or grounds) for the day. Perhaps review of the Ethics and Conduct with the General Manager is required for return. Repeat offenses may invoke a week, a month or more. There are no refunds for removal from the premise for cause.

See additional details on Incident Review and Remediation at

http://makernexuswiki.com/index.php?title=Ethics_and_Conduct#Incident_Review_and_Remediation

Disaster Preparedness

(put information here on what to do for fires, earthquakes, floods, etc)

Materials

The makerspace does not provide free materials with exception to identified scrap bins. Select materials may be available for purchase in the retail area.

Various areas of the makerspace have an intended use for specific materials (wood, metal, fabric, etc). Please see a consulting maker if you wish to work with unique materials. You can review the equipment documentation regarding material recommendations and restrictions at http://makernexuswiki.com/index.php?title=MakerNexus_MakerSpace_Inventory



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Some materials are not appropriate for the makerspace. A complete list can be found at:

<http://makernexuswiki.com/index.php?title=MaterialsManagement>

these include:

- No pressure treated/chemically treated wood.
- No green wood - tree limbs, etc. unless they are completely dry and approved by a Consulting Maker. Discuss with a consulting maker on any unstable materials as they pose potential dangers when processing.
- No plaster objects may be worked on by any equipment or machines in the shop due to fragility and dust issues.
- No unstable, or unapproved chemicals. When in doubt, provide the Safety Data Sheets (SDS) for consulting maker review.

See Also: http://makernexuswiki.com/index.php?title=Ethics_and_Conduct

Waste

Waste bins are clearly labeled to indicate which materials can be deposited in them. Please follow these instructions and put the right material in the right bin.

All material waste must be disposed of in a fashion that is consistent with Sunnyvale

Waste Management: <https://sunnyvale.ca.gov/property/recycling/default.htm>

Hazardous Waste Management: <https://sunnyvale.ca.gov/business/doingbusiness/materials.htm>

Recycling: <https://sunnyvale.ca.gov/property/recycling/getrid/center.htm>

Tools and Machine Safety

All hand tools, power tools, machines and other equipment can only be used with training and authorization. Don't turn on, use, repair or operate any machine, tool, power tool or other equipment unless authorized by Maker Nexus supervisor staff.

All full list of all tools and machines, and other useful information can be found at:

http://makernexuswiki.com/index.php?title=MakerNexus_MakerSpace_Inventory

Am I using the right tool for the job?

This is a very important question. It's important to use the right tool in order to complete a job safely, quickly, and efficiently. Expect to hear this repeated a few more times to insure it's a basic habit of self inspection and safety. Using the right tool results in better quality in the final product. Please don't hesitate to discuss with a consulting maker to insure you are using the right tools for your projects.

Yours, Ours, and Other People's Tools

Maker Nexus tools must remain in the Shop at all times and may **NOT** be checked out. At no point will tools will be allowed outside of the workshop and its adjacent support areas.

If a tool is not marked, it is assumed to be a Maker Nexus tool.



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You are welcome to bring in your own tools. Please mark your own tools with your full name. Many tools look the same. Other members may bring in their tools, too -- please be careful not to use other member's tools or supplies without their permission. If it is a hand power tool, please check with front desk to see if you need a safety checkout to operate it.

Do not leave your tools laying out and make sure to take them with you or put them away appropriately when you leave. Tools left unattended may be collected and stored in Lost and Found.

Hand Tool Safety

These tools, while they do not involve the same dangers as power machinery, should be used cautiously. Often, the type of injury sustained while misusing these tools are small cuts and lacerations - sometimes requiring stitches. Please observe the following guidelines while using hand tools.

Hand tools are non-powered tools. They include wrenches, hammers, chisels, screwdrivers, and other hand-operated mechanisms. Even though hand tool injuries tend to be less severe than power tool injuries, hand tool injuries are more common. Because people take everyday hand tools for granted, simple precautions for safety are easily forgotten.

The most common hand tool accidents are caused by the following:

- Failure to use the right tool.
For example, do not use a screwdriver as a chisel. The tool can slip and cause a deep puncture wound. The tip of the screwdriver may break and cause an injury. Also, don't use a knife as a screwdriver for the same reason. Don't use pliers like a wrench.
- Failure to use a tool correctly.
For every tool, you can easily search online for the tool name and the word 'safety' and receive many guides on correct use. For example, use your favorite search engine and enter "wrench safety". You may be surprised at what you learn.
- Failure to keep edged tools sharp - notify a consulting maker for sharpening.
This includes knives, scissors, chisels, and other blades. Dull tools are more dangerous than sharp tools. A dull edge requires more pressure to cut, increasing the chance that the edge will slip with great force behind it. A sharp edge bite into the surface of material more readily.
- Failure to safely store tools.
Improper tool storage is responsible for many accidents. Return each tool to its marked location for proper tool storage. Never carry a screwdriver or chisel in your pocket. If you fall, the tool could cause a serious injury. Instead, use a tool belt.
- Using a defective tool - notify a consulting maker,
Don't use a wrench with sprung jaws, blades with broken tips, bent pliers.

Use the right tool for the job to complete a job safely, quickly, and efficiently.

DO:



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- Wear safety glasses whenever you hammer or cut, especially when working with surfaces that chip or splinter.
- Review the proper use of the tool before using for the intended purpose. For example: Use the proper wrench to tighten or loosen nuts. Turn the wrench with the handle in the direction of turn, with no horizontal force or twist. Many wrenches are designed to turn safely in only one direction of rotation with respect to head placement, insure the rotation is proper for the wrench design.
- Think about the direction your energy is going while performing an operation. If you are holding material in your hands, be sure the action is going away from your body. Better yet, clamp the material in a vise or to the surface of a workbench. When using a chisel, blade saws, knives and other tools always chip or cut away from yourself and away from isleways and other people
- Look around before you start, with the direction of materials or tools be heading in the direction of. Think through a procedure before you attempt it. Many times, we become complacent or are rushing through a job - that is when accidents are most likely to occur.

Hand-held Power Tools and Stationary Machines

In addition to all the safety for hand held tools, power tools and stationary machines require additional levels of vigilance and mitigations.

The most dangerous parts of these tools are the moving parts. The radial forces produced by spinning shafts, pulleys, blades and belts can be particularly dangerous. This danger arises from two effects of spinning parts:

(1) outward forces—wood and debris can become violent projectiles when thrown by spinning blades, and (2) inward forces—loose clothing, jewelry, hair, and fingers can be grabbed, wound up, and pulled in and mangled by any spinning machinery. Always be aware of the danger of these radial forces.

Power tools can be extremely dangerous if they are used improperly. Common accidents associated with power tools include abrasions, cuts, lacerations, amputations, burns, electrocution, and broken bones.

These accidents are often caused by the following:

- Failing to use the right tool for the job. Select the correct bit, blade, cutter, or grinder wheel for the material at hand.
- Touching the cutting, drilling, grinding components, hot tools or hot work pieces
- Getting caught in moving parts
- Suffering electrical shock due to improper grounding, equipment defects, or operator misuse



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- Being struck by particles that eject during operation
- Falling in the work area or being struck by falling tools

Use the right tool for the job to complete a job safely, quickly, and efficiently.

DO:

- Review the proper use of the tool or machine before using for the intended purpose. Know the tool's capabilities and the work it is intended for. To operate a machine safely, you must know more than just how to turn it on and off. You must know how to perform the basic operations and how to make simple adjustments. Always maintain a healthy respect for the tool's capabilities and limits. Never use a machine for a job it was not designed for and never experiment - if you are unsure about how to perform a certain operation, ask a consulting maker. The more you know about a machine, the safer you will be, but don't become over confident - that leads to carelessness, which causes accidents.
 - Always operate tools at the correct speed for the job at hand. Working too slowly can cause an accident just as easily as working too fast.
 - Keep all guards in place. Cover exposed belts, pulleys, gears, and shafts that could cause injury. Do not use a machine without the proper guards. Keep all safety releases and devices in place. Never disable or tamper with safety releases or other automatic switches.
 - Only change blades, bits, etc., when the tool is off and unplugged. It is very easy to accidentally turn the tool on.
 - Disconnect power tools before performing maintenance or changing components or machine adjustments.
- Have a plan of the procedure. Consider and think through each step ahead of time.
- Always wear eye protection and other personal protective equipment. Avoid wearing loose clothing, remove jewelry, gloves of any kind, key chains, rings, bracelets, badges, that could catch in moving machinery. Tie back hair securely, and tuck long hair into clothing or netting. Some tools such as the lathe may also require the use of a face shield.
- Use the right force, not too much, not too little or have something else do the work.
 - Secure work pieces with a clamp or vise to free the hands and minimize the chance of injury. Use a jig for pieces that are unstable or do not lie flat.
 - Do not rely on strength to perform an operation. The correct tool, blade, and method should not require excessive force. If undue force is necessary, you may be using the wrong tool or have a dull blade.
 - Keep a firm grip on portable power tools. These tools tend to "get away" from operators and can be difficult to control.
- Make sure to turn all tools off before unplugging, and always check that it is turned off before plugging in.
- Before you turn on - checklist you are safe and ready



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- Clean and ready. No chuck key in chuck. All secondary, setup tools, unsecured parts moved away as they can vibrate into revolving parts and be thrown with great force. Clean floor with no slip hazards.
- Safety guards in place, have a push tool stick to move material through a machine.
- Know your material. Defects can be dangerous. Insure material has the room to move thru expected paths during operation.
- No bystanders nearby or in the path of any ejected material
- Proper body position. Body and hands are out of the path of the cutting force and any ejected material. Your stance is also important - stand in a comfortable, balanced (defensive) position when working. Both feet should be firmly on the floor.
- You are not alone.
- While operating- be aware
 - If something doesn't look, sound right, or feel right - turn off the machine and inform the consulting maker.
 - Watch your work when operating. STOP working if something distracts you. Take your time and take breaks.
 - STOP if you notice others too near the work or there is buildup of dust/particles that might cause hazards.
 - If you feel unsure, STOP and ask for assistance.
 - Always keep your hands a safe distance from cutters and blades.
 - When feeding material through a machine with the hands, be aware of the direction you are pushing (away from blade or cutter).
 - Never reach over equipment while it is running.
 - Don't make machine adjustments or clean while running.
 - Never stand in line with the force paths and planes of the machine, and always maintain a safe distance from spinning parts when the tool is operating.
- Stopped
 - Insure all moving parts come to a complete stop before making any moves towards the machine or tool.
 - Before clearing jams or blockages, turn off and disconnect from power source. Do not use your hand to clear jams or blockages, use an appropriate tool.
 - Before making adjustments, turn off and disconnect from power source. Use the correct tools to make adjustments.

Safety and Learning Never Ends

While this handbook does cover numerous safety issues, it is not a replacement for time spent practicing safe work habits in the Maker Nexus makerspace.

Completing the process to become certified on equipment (BOSS class) in no way makes the user an expert. Becoming accomplished at fabrication with many materials



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and the equipment used to shape them takes time, patience and hard work.

Finally, understand the limits of the equipment, the materials, the size and scope of the project, and your own technical ability and when considering work in the Maker Nexus makerspace. Reach out, plan ahead, consult with others and ask for assistance. Maker Nexus staff is available to help and offer advice.

Computers and Internet

Reference to an acceptable use policy - details kept elsewhere

Wi-Fi

(reference whatever is needed regarding wifi usage)

Printing

(what printers are available) - does this include 'fancy printers? Cross reference to facility machines.

Resources

Our Wiki <http://makernexuswiki.com>

Our wiki is a world community resource. It has information on tools, materials, and tips. It has information to help other groups start makerspaces, and it has information specific to Maker Nexus. Anyone is welcome - and encouraged - to add or modify the contents of our wiki. Go to the URL above and click "request account".

Materials

The nearest hardware store is Lowes, about a 10 minute drive.

- the nearest hardware store (see wiki for more and for offsite storage options)

Food

The nearest food place is to exit our parking lot, turn right. Turn right at the first traffic signal. Continue over the train tracks and on the left is Una Mas and Subway. The Subway has a full bar; please do not return to the makerspace if you have consumed any alcohol.

Fuel - the nearest station



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