



# Boyd Lab Standard Operating Procedures

1260 Hoover Hall

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## I. Contact Information

Chevonne McInnis Teaching Lab Specialist 1260C Hoover Hall cmcinnis@iastate.edu 515-294-7455	Craig Severson Teaching Lab Specialist 1260C Hoover Hall craigsev@iastate.edu 515-294-1715
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## II. General

Boyd Lab is located in room 1260 Hoover Hall. Boyd Lab has a variety of resources such as hand tools, power tools, milling and turning equipment, wood working equipment, metal-working equipment, MIG and TIG welders and a plasma cutter. Boyd Lab also processes job requests for a small fee. Additionally, Boyd provides support in the way of CAD and CAM expertise, design for manufacture expertise, design questions, etc.

## III. Access to/Use of the Facility

The Boyd Lab facility is open to Iowa State University students who have completed the required training as listed in Section VIII: Safety Training Requirements of this document, who have an ISU affiliated project they wish to work on (research, class, club, etc.), and agree to abide by all rules established in this document and as specified by lab personnel. No personal projects are allowed in the lab.

Additionally, use of the facility is restricted to the hours posted on the website and on the doors; no work outside normal operating hours is permitted excepting the Boyd supervisors preapprove. In all cases, in order for the lab to operate, two trained techs must be present at all times. This can be a combination of techs or lab supervisors.

## IV. Priority

Boyd Lab operates on a priority list. Mechanical Engineering (ME) courses always take first priority. This means that in the event someone outside the Mechanical Engineering department needs to use the facility, they will have next priority to an ME person. The priority list is as follows:

1. ME Capstone
2. ME 270
3. ME170
4. ME490
5. ME Department
6. Non-ME Department

Lab supervisors reserve the right deviate from the above priority list as need dictates.

## V. Hours of Operation

Boyd Lab has specific hours that it will be open during a semester. These hours are highly dependent on the ME course Schedule and will fluctuate from semester-to-semester. For up-to-date hours, see the Boyd Lab webpage or the hours posted outside the lab. Lab supervisors reserve the right to change theses hours as need be depending on technician availability.

## VI. Cameras

Boyd Lab has cameras in place in order to monitor equipment 24-7.

## VII. Personal Protective Equipment

Students are required to use personal protective equipment (PPE) as follows:

- Clear lensed safety glasses with a Z87+ rating must be worn before starting any work with chemical, hand tools, power tools or equipment. Safety glasses are required in the equipment area of Boyd Lab and is clearly posted with "Safety Glasses Required" signs and black/yellow floor tape. Students are

required to purchase their own safety glasses with Z87+ rating and clear lenses. Safety glasses can be purchased at the ISU Bookstore and from the vending machine in the North/East hallway of Hoover.

- Closed toe shoes must be worn at all times in Boyd Lab.
- Welding gloves, welding coat, long cotton pants, cotton shirt and welding helmets must be worn in the welding area. Welding PPE will be provided.
- Hearing protection is required when operating machines that produce excessive noise such as the planer, grinders, table router, etc. or when operations on a piece of equipment exceed 85db. Hearing protection will be provided.
- Gloves should be worn when working with sharp objects such as sheet metal. Gloves will be provided. Gloves should not be used on pieces of equipment that wearing gloves could pose an additional hazard such as grinders, lathes, saws, or any equipment that could grab the gloves and cause injury. This will be covered in hands-on training on a per equipment basis.
- Equipment sign-off badges must be worn at all times. Badges will be provided. It is the student's responsibility to maintain their own personal badge.
- Jewelry must be removed before operating any piece of equipment.
- Any loose hair, loose clothing, or other item that could be pulled into a machine should be tied up and out of the way.
- For the 2021-22 school year, masks are encouraged while using the Boyd Lab. For more information protocols related to COVID-19, visit: <https://web.iastate.edu/safety/updates/covid19>

### VIII. **Safety Training Requirements**

In order to use any piece of equipment in Boyd Lab, all persons must have completed the requirements listed below. All training is recorded on the Boyd Lab Canvas course. Students must be enrolled in the ME Boyd Lab Safety Course on Canvas to have access to the training requirements listed below. Consult the Boyd Lab webpage: <https://www.me.iastate.edu/undergraduate-programs/boyd-lab/> for details.

1. Shop Safety Fundamentals – Basic Procedures and Policies – Complete the online learning module and assessment. This requirement must be successfully completed before signing up for equipment hands-on training.
2. Boyd Lab Standard Operating Procedures – You are required to read this document in its entirety. If you are unclear with anything in this document please contact a Boyd Lab Supervisor.
3. Boyd Lab Equipment Specific Digital Training – In order to get hands-on training on equipment in Boyd Lab you must first complete any required equipment specific training listed on the Boyd Lab Canvas course.
4. Hands-on Equipment Training - To operate a piece of equipment in Boyd Lab you must first have completed the digital equipment specific training and hands-on training completed by a lab supervisor or lab technician. Once the Hands-On training is completed the lab supervisor or technician will digitally sign off in Canvas that you have completed the training.

You are not allowed to use equipment you are not certified on. Failure to complete both digital and hands-on training prior to using a piece of equipment in the lab will result in immediate dismissal from the facility.

If you've been trained on a machine but need to use a different process/setup that you haven't been taught see a lab tech or supervisor before you begin.

5. Equipment Sign-off Badges – Once you've received your hands-on training you will be signed-off electronically and your equipment badge will be stamped. You must wear your equipment sign off badges at all times while working in the lab. The badges with appropriate stamps will be a quick

indication of which equipment you will be allowed to operate. You are not permitted to use any piece of equipment in the lab that you are not certified on.

**IX. Procedures for Submitting Job Requests to the Boyd Lab**

1. Go to the Mechanical Engineering Dept. webpage at <http://www.me.iastate.edu>
2. Click on Undergraduate Program, Fabrication Labs and then Boyd Lab
3. Click on Job Submissions
4. Complete online form. Be sure to attach/upload any documents necessary for the job request.
5. After submission, a quote will be generated by Boyd Lab and emailed to your advisor.
6. Upon approval of the charges and a valid account number, the job will be accepted.
7. Drop off all project materials to Boyd Lab.
8. You will be emailed when the job is complete.

**X. Painting**

Only brush-on paint is permitted in the Boyd Lab facility. All painting should be done on cardboard on a table and be pre-approved by a lab supervisor. Any project left to dry in the lab should be tagged with name and contact information of the person doing the painting and also be preapproved by a lab supervisor.

**XI. Tool Checkout**

Boyd Lab allows for tools to be checked out to people. Tools cannot be checked out for a duration more than 2 days. Tool checkout is a privilege, not a right. You are responsible for returning the tools in proper working order. In the event the tools aren't returned on time or that they are damaged, the full replacement cost will be billed to your U-bill.

In the event tools are taken from the lab and not checked out, this will be considered theft and the authorities will be involved.

**XII. Project/Material Storage in Boyd Lab**

No materials from any project or club will be allowed to be stored in the Boyd Lab without explicit, pre-approval from the Boyd Lab supervisors. The exception to this is in the event of a job request.

**XIII. Boyd Lab Cleanup Policy**

It is your responsibility to clean up the area immediately around where you were working. You will be expected to:

- Clean all parts of the machine of dust or chips.
- Return all tools to their proper locations in the lab.
- Return the machine to its "default" working position. This may include dialing a mill in if you moved the head or squaring a vice if you took a vice of the table.
- Thoroughly sweep the area immediately around where you were working.
- Dispose of all chips, dust, and trash in the appropriate containers.

In the case of classes using the facility, the last 10 minutes of the period will be reserved for cleaning and prepping the space for the next section. No work will take place during these last 10 minutes. All persons who were using the lab,

**XIV. IOWA GOOD SAMARITAN 613.17**

A person, who in good faith renders emergency care or assistance without compensation, shall not be liable for any civil damages for acts or omissions occurring at the place of an emergency or accident or while the person is in transit to or from the emergency or accident or while the person is at or being moved to or from an emergency shelter unless such acts or omissions constitute recklessness.

XV. **Emergency Action Plan**  
 BOYD LAB – 1260 HOOVER HALL  
 Effective: August 20, 2021

Contacts:	Name	Office Phone	Cell	Home Phone
Professor/Supervisor	Per student section	Per student section	Per student section	Per student section
Emergency Contact	Craig Severson	515-294-1715	563-543-1010	Na
1 <sup>st</sup> Alternate	Chevonne McInnis	515-294-7455		Na
2 <sup>nd</sup> Alternate	Tech Mentor on Duty			
3 <sup>rd</sup> Alternate				

**The following procedures should be used in the event of an emergency.**



**Fire**

1. Pull nearest fire alarm; notify building occupants.
2. Call 911.
3. Assist injured or disabled personnel.
4. Evacuate the building. Activate emergency shutoffs.
5. Attempt to use a fire extinguisher only if you have been trained.
6. Meet **on the east side of Marston Hall**.



**Medical Emergency**

1. Identify the medical emergency.
2. If life threatening, call 911.
3. Administer first aid, if properly trained.
4. Contact the injured person's supervisor.



**Urgent Situation**

*(Suspicious person, package, activity, or bomb threat)*

1. Call 911.
2. State who, what, where, when, why and how situation occurred.
3. If bomb threat, turn off all electronics.



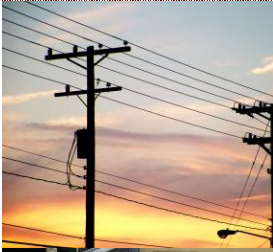
**Violent Incident**

1. Avoid – evacuate when you can.
2. Deny – lock/block doors, turn off lights, silence phones.
3. Defend – distract, attack, subdue.
4. Call 911.



**Severe Weather**

1. If you hear outdoor sirens or a severe weather warning, **proceed to first floor restroom, interior classroom (1213, 1227, 1233)**.
2. Stay away from exterior doors and windows.
3. Stay in shelter until danger has passed.



### Utility Outages

1. Identify in advance any critical research materials or processes that may be affected by utility outages.
2. Identify backup systems or alternate resources to employ.
3. Have backups in remote locations for data stored on computers.
4. Notify appropriate contacts.



### Chemical Spill – Small or Low Hazard, Indoors or Outdoors

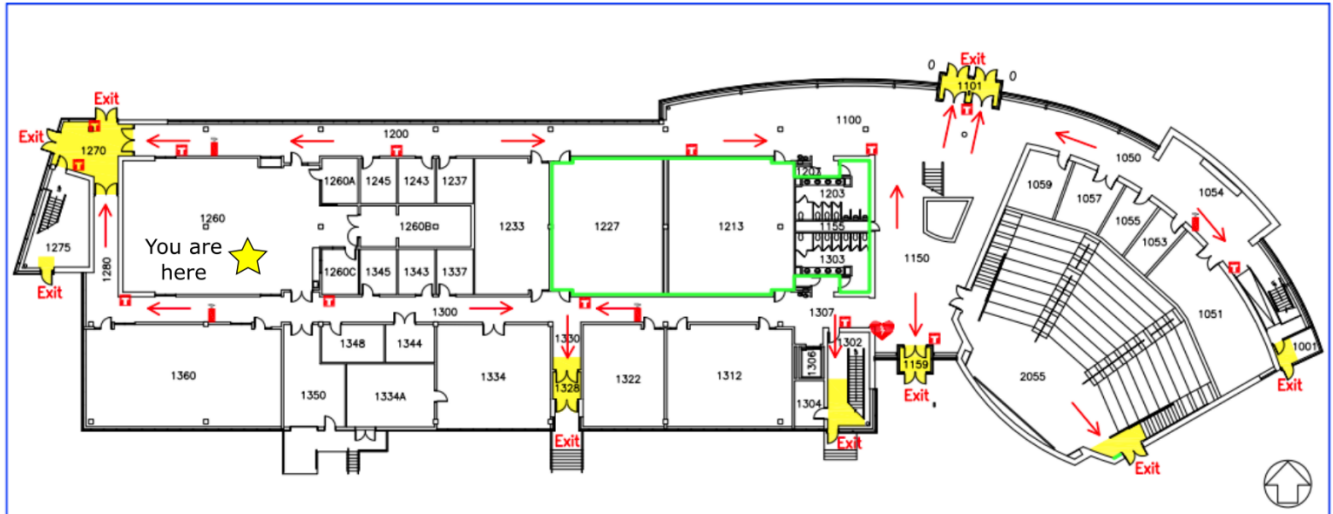
1. Notify people in the immediate area.
2. Assist with injured persons.
3. Confine/ limit the spill.
4. Clean up spill following procedures on EH&S [Spills & Leaks](#) webpage.
5. A chemical spill kit is located **in 1260 above both flammable cabinets in a white, labeled bucket.**

### Chemical Spill – Large or Hazardous, Indoors or Outdoors

1. Evacuate the immediate area and secure entrances or perimeter
2. Pull the chemical spill alarm or fire alarm
3. Dial 911. Report your name, chemical name, amount and location of spill.
4. Assist injured personnel.
5. Stay in a safe location until responders arrive.

XVI. Emergency Evacuation Map

## Hoover Hall - First Floor Emergency Map



<p><b>Key</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Exit</li> <li> Fire Extinguisher</li> <li> AED / Defibrillator</li> <li> Exit Direction</li> <li><span style="display: inline-block; width: 20px; height: 10px; border: 2px solid green; margin-right: 5px;"></span> Severe Weather Shelter</li> <li> Fire Alarm Pull</li> </ul>	<p style="text-align: center;"><b>Severe Weather</b></p> <ul style="list-style-type: none"> <li>In the event of severe weather, proceed to one of the designated rooms on the first floor. Keep away from exterior doors and windows.</li> </ul>
<p style="text-align: center;"><b>Evacuation Guidelines</b></p> <ul style="list-style-type: none"> <li>Exit in a calm and orderly fashion. Once you have evacuated to a safe location immediately call 911.</li> <li>Assist injured personnel, if time permits, and make sure all doors are closed and hazardous work operations are shut down as you exit the building.</li> <li>Help any physically impaired individuals in need of assistance.</li> <li><b>Meeting Place :</b> In the event of an evacuation, proceed to the meeting area on the East side of Marston Hall.</li> </ul>	<p style="text-align: center;"><b>Safety Guidelines</b></p> <ul style="list-style-type: none"> <li>Familiarize yourself with the location of exits and fire extinguishers.</li> <li>Attempt to control a fire yourself with a fire extinguisher only when the fire is small and you have been trained.</li> <li>Keep fire doors closed to prevent the spread of smoke and fire.</li> </ul>