

LABORATORY SAFETY MANUAL

Carpentry Shop



**BANGLADESH UNIVERSITY OF
ENGINEERING
AND TECHNOLOGY**

Published by:

Department of Civil Engineering
Bangladesh University of Engineering and Technology

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Disclaimer:

The safety measures mention in this manual are applicable for general activities in the laboratory. Students and lab stuffs are asked to follow additional safety measures if it's necessary for any specific experiment.

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Safety manual

This safety manual is applicable for Carpentry Shop. This will help both students and laboratory instructors to know about the safety features and safe work practices inside the laboratory.

1. Emergency

1.1 What is an Emergency? (Definitions)

Sudden, unexpected, or impending situation that may cause injury, loss of life, damage to the property, and/or interference with the normal activities of a person or group and which, therefore, requires immediate attention and remedial action.

Following situations may be regarded as emergency:

- 1) A sudden, urgent, usually unexpected occurrence or occasion requiring immediate action
- 2) A state, especially of need for help or relief, created by some unexpected event

Emergency Contact List

Designation	Phone No.	BUET Office
BUET telephone operator(PABX)	55167100	0

Medical Centre:

Emergency ambulance service/Medical officer	6666 (BUET Office)
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Designation	Name	Phone No.	BUET Office
Chief Medical officer	Dr. Md. A. K.Masud	01916740809	7344
Senior medical officer	Dr. Mohammad Mashuk Elahi	01552416578	7393
Medical officers	Dr. Md. Hasib iskandar	01720960997	7893
Medical officers	Dr. Md. Mubashwirul islam	01679222750	7817

Fire service and civil defense:

Fire Brigade Emergency/Enquiry	199
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Place	Mobile	Phone
Polashi	01716354370	02-8628688
Mirpur Road	01730002229	02-9001055
Mohammadpur	01712970093	02-9112078

Police & Security:

Designation	Number
Emergency Call	999
DMP Police Emergency	01713398311,9551188

Directorate of Students' Welfare (DSW):

Designation	Name	Phone No.	BUET Office
DSW	Dr. Md. Mizanur Rahman	01911346993	6135,7143
Assistant DSW	Dr. Md. Raquibul Hossain	01819557960	7224
Associate Directors	Dr. Mohammad Faisal	01794692601, 01926714764	7713, 6168

Residential Halls: (Updated at 03/08/2019)

Hall Name	Designation	Name	Phone No.	BUET Office
Ahsan Ullah Hall	Assistant Provosts	Dr. Md. Iqbal Hossain	01927885215	7430
Kazi Nazrul islam Hall	Assistant Provosts	Dr. Mahbub Hasan	01820291811	7833
Titumir Hall	Assistant Provosts	Dr. Md. Muktadir Billah	01840702279	7718
Sher-e-Bangla Hall	Assistant Provosts	Dr. Md. Shahinoor islam	01922544639	7933
Suhrawardy Hall	Assistant Provosts	Dr. Mohammad Khurshed Alam	01712526059	6390
Shahid Smrity Hall	Assistant Provosts	Dr. Rupak Mutsuddy	01839848062	7224
Chattri Hall	Assistant Provosts	Nishat Sultana	01757786310	7735
Dr.M.A.Rashid Hall	Assistant Provosts	Dr. Md. Shafiul Azam	01535495622	7470

University security & others:

Designation	BUET Office
Security Emergency Call	7777
Security officer	7482
Electricity & Plumbing	7323
Machine Room	7589
Shaheed Minar Gate(Main Gate)	7812
West Palashi (Main Gate)	6592
Bakshi Bazar R/A Gate	7825
Dhakeswari R/A Gate	7759
Palashi R/A Gate	7692
Azad R/A Gate	7760
71,72 No. Building Gate	6330

1.2 What to do in Case of an Emergency?***In the event of an emergency,***

- Get out of immediate danger!
- Report situation to the instructor
- Explain the nature of the emergency.
- Provide your name and location.
- Provide the phone number from which you are calling.
- Answer all questions and do not hang up the phone until the operator is finished.

If the emergency has cause injury to a person,

- Provided it is safe for you, stay with the victim!
- If the victim is conscious, ask what the problem is.
- If the victim is unconscious, check for breathing and bleeding. Do not move the individual until trained personnel arrive or an immediate threat to life exists. Only trained individuals should administer first aid and CPR.
- Keep the victim still, comfortable, and ventilated.
- Protect the victim from any disturbances.
- Search for any emergency identification (i.e. ID)
- Wait for emergency help to arrive. Never leave the victim alone if possible.
- Once the emergency responders have arrived, stay out of the way of emergency personnel and emergency vehicles!

What to do in case of a fire or smoke?

All situations related to fire should be taken seriously. If you hear or see anything uncertain, evacuate the building!

If fire or smoke is discovered anywhere on or about the campus:

- Leave the area where the fire is located, isolating it as well as possible by closing doors and windows around it.
- Activate the fire alarm switch.
- Do not attempt to retrieve valuables.
- Do not use Elevators /lifts .
- Never attempt to fight a fire larger than wastebasket size. Even a small fire can generate enough smoke to cause serious injury. Never attempt to fight a fire by yourself. Call for help. Always stay between the fire and the exit.

If you can't evacuate:

- Find a safe location and call emergency.
- Crawl to the door on hands and knees, so you can breathe the fresher air near the floor.
- Seal your room against entering smoke.
- If it's still smoky in your room, breathe through a wet towel that covers your nose and mouth. Breathe only through your nose.
- Clear flammable debris from the window.

1.3 FIRE EXTINGUISHER INSTRUCTIONS (PASS)

- P * PULL** safety pin from the handle
- A * AIM** at the base of the fire
- S * SQUEEZE** the trigger handle
- S * SWEEP** foam side to side



1.4 What if you or people are trapped in a burning building?

- The universal sign for a person trapped in a burning building is to hang clothing or a sheet out of the window of the room where you are trapped. The firefighters then will know where you are trapped.
- If you are aware that someone is trapped in a burning structure, inform the firefighters immediately.
- Do not re-enter the building alone.
- If you are trapped, stay low to the ground as you try to exit. Do not open any doors that feel hot. Use wet towels or clothes to protect you from flames and smoke.
- If your clothes catch fire, STOP, DROP, AND ROLL!!!

2. General Conduct

2.1 Behavior in the Laboratories:

- Act in a professional manner at all times.
- Visitors must be escorted.
- Contact information is to be posted on all laboratory doors. If an experiment is being run unattended, the experiment contact information must be displayed.
- Students must be aware of the location and proper operation of laboratory safety equipment, i.e. fire extinguishers, flammable cabinets and fume hoods, eye-wash stations, and personal protective equipment.

2.2 Housekeeping

- Lab areas are to be kept clean and uncluttered. This will help prevent spillage, breakage, personal injuries and unnecessary contact with chemicals.
- Contaminated glassware should be cleaned daily.
- Small spills shall be cleaned up immediately from work areas and floors. (Contact Safety & Risk Management for large hazardous spills.)
- Doorways and walkways within the lab shall not be blocked or used for storage.
- Access to exits, hallways, emergency equipment, and utility controls shall remain accessible at all times.
- All tools and equipment shall be returned to their proper storage location after use.
- Chemical containers shall be properly emptied and cleaned prior to disposal. Glass bottles will be uncapped, washed out with an appropriate solvent, triple rinsed with water and placed in the glass container for disposal.
- All non-empty, non-cleaned containers must be labeled with a description of their content!

3. Woodshop Safety Rules

3.1 Always Wear Safety Equipment:

The first and most important rule of woodworking is to wear appropriate safety equipment. While hearing protection is necessary for some very noisy tools such as routers and surface planers, and latex gloves may be necessary when applying finishes, there is no time in the wood shop that you should be

without your safety glasses. Put them on when you enter the shop and don't take them off until you leave.

3.2 Wear Appropriate Clothing:

Whenever working in the wood shop, remember to avoid loose-fitting clothing, as you wouldn't want any of your attire to become entangled in a saw blade or cutting head. Wear clothes that are comfortable for the environment in which you're working, but also will protect your body from any wayward wood chips that might result from cutting. Before beginning, remember to remove any dangling jewelry such as neck chains.

3.3 Disconnect Power before Blade Changes:

Whenever you need to change a blade or bit on a power tool, always disconnect the electricity to the power tool before even beginning the blade change. Many a woodworker has lost fingers (or worse) by forgetting this simple but very important rule.

3.4 Use Sharp Blades and Bits:

This one seems like a no-brainer, but a dull cutting tool is a dangerous tool. If a saw blade is not as sharp as it ideally should be, the tool and the woodworker will have to work harder to complete the desired task. In such cases, the tool will be more likely to kick-back or bind. Besides, a sharper cutting tool will produce a cleaner cut, so there are more than just safety advantages here. Keep the blade sharp and clear of pitch and you'll be safer and have better results.

3.5 Always Check for Nails, Screws, and Other Metal:

Always check the stock you're preparing to cut for any metal (nails, screws, staples, etc.) before beginning a cut. Nails and rapidly spinning saw blades are not a good mix. Not only can this damage the cutting head and the stock, but at the very minimum, can cause the stock to kick back, which is a common cause of injury. Inspect the stock (or better yet, use a metal detector) before cutting.

3.6 Always Work Against the Cutter:

Woodworking power tools are designed so that the direction that the wood moves through the tool (or the direction that the tool moves across the wood) is in the opposite direction of the movement of the cutting head. In other words, a router bit or saw blade should cut against the motion and not with it. The cutter should cut into the stock, not with the stock.

3.7 Never Reach Over a Blade to Remove Cut-Offs:







When working on a table saw, miter saw, etc., never put your hands anywhere near the moving blade, especially when attempting to remove waste or cut-offs. Wait until the blade has stopped moving and then reach for the cut-off. Better yet, once the saw blade has stopped, use a piece of scrap or a push stick to move the waste away from the blade. Remember that switches can be inadvertently bumped or malfunction, so just because the blade has stopped, don't relax and put your hands too close.

3.8 GENERAL SAFETY PRECAUTIONS OF CARPENTRY SHOP

1. Do Not Operate Any Machine Without Permission Of The Instructor.
2. Be Sure That The Machine Is Active And Properly Working And Guard Are Always In The Right Place.
3. Always Wear Tight And Appropriate Clothing With Apron:
4. Do Not Wear Loose, Torn Or Such Kind Of Clothing.
5. Concentrate At The Work And Do Not Talk Unnecessarily While Operating The Machine
6. Do Not Lean Against The Machine.
7. Always Wear Safety Glasses And Goggles Designed The Work.
8. Neck The Should Not Be Used While Working At The Machine.
9. Shoes Must Be Laced Tight At The Working Time.
10. Rings And Wrist Watches Must Be Removed While Working At The Machine
11. Keep The Floor Clean From Metal, Wood And Other Chips, Curls Or Waste Pieces, If Any. Put Them In The Container Provided For
12. Get First Aid Immediately If Necessary
13. Different Safety Rules For Each Individual Machine Could Be Known From The Concerned Instructor
14. Do Not Leave The Machine Until The Power Is Off And The Machine Has Stopped.

4. Physical safety symbols

	<p>Symbol for Gloves Gloves must be worn while working in the laboratory. It is important to choose the appropriate type of glove.</p>
	<p>Symbol for Boots Closed toe shoe that cover the entire feet must be worn all time while working in the laboratory.</p>
	<p>Symbol for Protective Clothing Apron must be worn while working in the laboratory.</p>
	<p>Symbol for Safety Glasses Safety glass must be worn while working with chemicals.</p>
	<p>Symbol for Breathing Masks Use breathing mask while working in an area with potentially contaminated air.</p>
	<p>Symbol for Face shields Face shields must be worn when executing experiments that carry the potential of causing an explosion inside of the hood.</p>
	<p>Symbol for Hearing Protection There is a wide variety of hearing protection devices available. Use one according to your need in the laboratory</p>
	<p>Symbol for Wash Hands Hand washing is a primary safeguard against inadvertent exposure to toxic chemicals or biological agents. The wash hands safety sign lets lab personnel know to wash their hands.</p>
	<p>Symbol for Food & Drink Prohibited No food and drink is allowed inside the laboratory. Especially during class hours.</p>

	<p>Symbol for Fire Extinguisher it's important that every lab be prepared with the correct fire extinguisher, inspection requirements, and training.</p>
	<p>Symbol for No Open Flames Open flame devices carry with them the risk of unintentional fire and serious consequences when not used appropriately. So be careful about open flame.</p>
	<p>Symbol for Poison/Toxic Material The toxic material symbol indicates the presence of substances that may harm an individual if they enter the body.</p>
	<p>Symbol for Explosive Hazard The exploding bomb symbol will appear on chemicals in the lab that have explosive properties</p>
	<p>Symbol for Flammable & Combustible Substances The flammable and combustible symbol signifies substances that will ignite and continue to burn in air.</p>
	<p>Symbol for recycling storage The recycling sign is used in labs to indicate where recyclable items are gathered and sorted.</p>

Some tools and machines:



Circular Saw Machine



Jointer Planer Machine



Mortise Machine



Circular Saw Machine



Scroll Saw Machine



Chisel Saw



Marking Gauge



Iron Jack Planer



Tenon saw



STEEL ROLL SCALE



T-square



Wooden Mallet



wooden vise



Disk Sanding Machine



Thickness planer

5. Reference

1. <https://www.labmanager.com/lab-health-and-safety/2017/09/science-laboratory-safety-and-hazard-signs-meanings>
2. <http://www.healthcareinspirations.com>
3. *Laboratory Safety Policies and Procedures, The University of Connecticut*
4. <https://www.wikipedia.org>
5. <https://www.thesprucecrafts.com/safety-rules-every-woodworker-should-know-3536833>
6. <https://www.wikihow.com/Handle-an-Emergency-Situation>
7. <https://emergency.vt.edu/ready/guides/building-fire/building-fire-during.html>