

# FOUNDRY SAFETY

*SAFETY IS YOUR #1 CONCERN!!!*

- 1. Casting bronze is an inherently dangerous process that can result in serious injury or death.**
- 2. Safety measures will be discussed and shown in class and it will be mandatory that they are followed.**
- 3. Any student not complying with these safety measures or who is not using common sense will be barred from the foundry.**

It is everybody's responsibility to keep an eye out for dangerous situations or behavior, and point them out to the instructor or TA (whoever is closest) immediately.

## General Safety for Foundries

Safety is YOUR Responsibility!

The methods and materials involved in any form of metal casting operation are VERY hazardous. Educate yourself on the proper safety precautions before attempting any metal casting. We will go over proper safety precautions, things to keep in mind are:

- 1. Even trace amounts of MOISTURE and MOLTEN METAL don't mix!!!  
Steam explosions are the #1 cause of death in foundries.**
2. NEVER put water on a metal fire. This can cause a HUGE EXPLOSION!
3. Have a DRY pile of sand and a shovel ready to put out fires or to control metal spills.
4. Have a sand bed under all areas. The sand bed should be at least 3 inches thick. This will help in containing metal spills and will help protect flooring.
5. Never pour over wet ground. Remember, even TRACE AMOUNTS of MOISTURE can cause EXPLOSIONS.
6. Molten metal spilled on concrete will cause the concrete to explode. Use a thick sand bed over concrete.
7. Always use clean metal as feedstock. Combustion residues from some lubricants and paints can be very toxic.

8. Always operate in a well-ventilated area. Fumes and dusts from combustion and other foundry chemicals, processes and metals can be toxic.
9. Use a NIOSH rated dusk mask. Dusts from sand, parting dusts and chemicals can be hazardous or cancer causing. Protect your lungs!
10. Always use safety glasses. Even minor mishaps can cause blindness.
11. Never use a crucible that has been damaged or dropped. It's just not worth the risk. Imagine what would happen if a white-hot crucible of brass crumbled as you were carrying it!
12. Always charge crucibles when cold. Adding metal to a hot crucible is really dangerous. If there is moisture on the metal, even just a haze, the metal can cause the entire contents of the crucible to explode.
13. Spilled molten metal can travel for a great distance. Operate in a clear work area.
14. *Think about what you are doing at all times. Focus on the job at hand and the next step. Have all moves planned and rehearsed prior to any operation.*
15. Educate yourself beforehand and always be careful of your own and bystander safety.

## **Rules in Our Foundry**

All students *must* follow these rules. These rules are made not only with your safety in mind, but also with the safety of those around you in mind. **Not following these rules could cause the injury or death of you or someone else.**

1. Read, understand and follow the General Safety rules for the foundry listed above.

**2. Wear safety gear!! This includes, but is not limited to:**

a. This includes, but is not limited to

i. Leather shoes

ii. Fireproof apron

iii. Foot and leg protection

iv. Proper gloves, wire mesh face shield

v. Safety glasses

vi. Cotton baseball hat. A leather foundry hat is the best choice.

These hats look like a sailor's hat, with the brim turned down to cover your ears. Even wearing a baseball hat with the brim towards the back will help prevent metal from getting down your back. Don't laugh; ever had a weld splatter get into your shirt? Imagine what a tablespoon of molten metal would do!

vii. A long sleeve cotton shirt.

b. Clothes and shoes should be made from cotton or natural fibers. Synthetics melt and stick to the skin.

c. Wear safety glasses as well as the mesh face shield.

**3. During a pour no one but the pouring crew is permitted in the foundry area.**

a. Do not distract anybody during a pour.

b. Do not look into the furnace or kilns without a wire mesh shield or appropriate eye safety gear for splattering and infrared radiation.

**4. Only 1 pour will take place at a time, the large furnace has priority**

**.5. Do not participate or go near pours if you**

a. have been taking medication that may impair your coordination, judgment, or reflexes.

b. have been using drugs or alcohol in the last 24 hours.

c. are very tired or feel in any way impaired (for example you feel like you are getting sick).

d. unless you have planned and rehearsed the moves

e. feel that you do not understand in any way your part in the pour.

**6. No running or goofing around in the foundry.**