

# UW Physics Student Machine Shop

## Standard Operating Procedures

### Sheet Metal Equipment

#### Stomp Shear

##### Purpose

Shears have a very simple job: Shears make a single long straight chop into flat sheet metal. The result is less of a cutting action and more of a splitting action. This very simple action is effectively all that the shear does, but it does it well.

All Shears have two key components: The first is a relatively large, heavy, and sharp cutting blade. This blade runs the length of the shear line, and is usually built from tool steel or high speed steel. The blade is mounted precisely perpendicular to the flat machined top surface of the Table feature and aligned precisely parallel to the "Shear Line" edge of the table. This Table is the second key component. The Shear line edge of the table is also precisely perpendicular to the reference rail. By carefully registering the flat sheet metal edge along this rail, the operator can create a true 90 degree corner from the cut. The mechanical energy for the cut is triggered when the operator stomps on the large foot pedal.

##### Limitations

Manual shears typically allow for cutting mild steel sheets less than 1/8" in thickness with width limited to the width of the shear blade. Refer to the equipment manufacturer's instructions or contact the Shop Supervisor for appropriateness of material. • Shears are designed to cut sheet metal stock only. Cutting material other than sheet metal, such as round stock, will damage the shear blade.

**As always, whenever you have any doubt regarding the safe operation of Student Shop equipment, find the Shop Instructor or another Instrument Maker and ask before you act.**

## **Hazards**

There are a number of particular hazards associated with the operation and use of tool, including but not limited to:

- Amputation – The shear blade can easily amputate body parts if proper safeguards and procedures are not used.
- Flying Objects – Cutting activities can generate sharp flying chips. Work pieces can become disengaged and be flung across the room. This is especially true for cutoffs on the exit side of the shear.
- Cuts, Laceration, and Puncture – Sharp edges on tooling, sharp edges and potential burrs on the workpiece are created when using this tool.
- Pinch Points – Potential pinch points exist with hold down clamps, moving shear parts, and between the workpiece and the tool. Familiarity of all potential pinch points, appropriate guarding, and proper tool use will prevent accidental contact with pinch points.

## **Required Personal Protective Equipment (PPE)**

- Safety Glasses and/or Face Shield. Eye protection should be worn at all times during operation or handling sheet metal.
- Closed-toe, sturdy footwear. Sturdy sneakers and other such footwear is the minimum level of allowable foot protection. Proper safety shoes or boots, with steel toes, electrical protections, etc. are preferred. Extremely lightweight sneakers and all sandals and flip-flops are not safe for machine shops in general.
- Hearing protection is recommended in areas which exceed 85 decibels. Higher decibel levels can cause permanent hearing loss very quickly so hearing protection is always recommended in machine shop.
- If sufficient dust is created, a particle mask or respirator is advised.
- Hair ties, hats, etc. to safely contain long hair if needed
- Sturdy, well-covering and comfortable clothing WITH NO LOOSE SLEEVES, SCARVES, etc. that could get pinched and pulled through the band saw.
- ABSOLUTELY NO GLOVES ARE TO BE WORN WHILE THE MACHINE TOOL IS RUNNING.