Safety Tips for Knife Makers
By Allen Elishewitz

Safety in the shop is the most important thing knife makers should be concerned about. Being safe in the shop is more important than making the knife. Knife makers must be very cautious of what they do and how they do it.

In the first step of knife making, your material is ready to be cut on the band saw. There are two major areas of possible injury here: your fingers and your eyes. Your eyes should be protected from little chips of metal or handle material that bounce off the band saw. To prevent your eyes from getting punctured, wear safety goggles. I recommend yellow filtered goggles because they make what you see appear brighter. Also, pick goggles that protect the eyes in a 180-degree. Fingers are injured when they get caught in the band saw blade. To prevent fingers from getting stuck while pushing materials on the band saw base, eliminate the pushing aspect: Make a block to set on your base and cut your material on top of that block. This raises your base to a smaller surface and you are able to hold onto the handle material and push, turn and pull it without having your hands in front of the blade. Also a push-stick will distance your hand from the blade. A lesser concern you may want to take into consideration is the vibration and noise factor when cutting steel or sheets of titanium. I recommend using earplugs or muffs or at a minimum foam ear protectors to limit the possibility of ear damage.

Another chance of injury occurs during drilling. The main concern is your eyes. When drilling, many chips are flung and twirled out of the hole by the flutes of the drill bit. These chips are very hot because the bit creates a lot of friction with the steel. Here again, I recommend wearing safety goggles. A way to prevent hot steel chips from landing on your skin is to use a coolant to cool the drill bit and the material you are drilling. This also prolongs the life of your drill bit. Sometimes your material may get caught by the drill bit and might hit or cut your hand. To prevent this, buy a clamp for your drill and clamp the material you are drilling to the base.

The next possibility for injury is during grinding. Grinding is probably one of the most overlooked safety hazards in the shop because it is done so much. Safety while grinding covers four major areas of protection: the eyes, ears, hands and lungs. Your eyes are in danger from the large grit that is knocked off the belt or the steel particles that are ground off your blade. The belt may be traveling down but it is also traveling in a circular motion where grit can be flung back up into your face. I recommend a face shield instead of eye goggles, it will protect your whole face instead of just your eyes. Also, grinding can be very loud. If you have a square wheel grinder, it is very noisy and requires ear protection whereas if you have a Burr King, you will not need ear protection.

You must also protect your fingers with some kind of finger cover or gloves while grinding, so that the heat does not burn them. Have a bucket of water near you to cool down the steel if needed.

You also need a good respirator. This does not mean a cotton facemask, but a dual- or quad-filter charcoal respirator. Do not forget to put your respirator back in an air sealed bag after you are done: the respirator with the charcoal is constantly filtering air and you can prolong its life by placing it in the bag. You must filter out the particles you are grinding from the air you breathe. A good system to have is a vacuum or filtration system. For about 6 months, I went without a filtration system and I was constantly cleaning, vacuuming and sweeping all the grit from steel and handle materials. Once I got a vacuum system, I concentrated the nozzle on one machine at a time. I use a small single bag system which has a 650 cfm (cubic feet per minute). I doubled the filter power by installing a Hoover vacuum cleaner filter in addition to the other so that it collects more dust. Once I installed this vacuum system, I noticed a dramatic difference in cleaning. I had almost no grit on the floor and maybe a teaspoon on the table and machine after grinding and profiling. My second filtration system is an air purification system. You can find these in woodworking catalogs. These squirrel-cage filtration systems can be mounted above your grinder and can filter 95% of the particles in the air. In a 400 sq. ft workshop, they can filter the air about

3 times in one hour. The system filters fine particles which are floating in the air. Air purification systems are important because grinding materials such as pearl can create carcinogenic dust, the fumes from grinding titanium causes headaches and scratchy throat; also ivory, carbon fibers and G-10 are harmful. Be careful with woods because the natural oils could be allergenic. I even use a shop vac to clean up le last bit of material left over.

The buffer is probably the most dangerous machine in the shop. Most horror stories about knife makers injuring themselves are due to buffers. The reason being that the wheel on a buffer is soft. They have a tendency to give when pushing on the metal and the blade can cut into the wheel, spin around and hit you. Therefore do not buff with the cutting edge straight up. The chances of your blade getting stuck in the wheel are lessened. Buff with the point of the blade straight down so the cutting edge is to your left or right foot. This will give the wheel nothing to grab onto. the buffer also creates a lot of fine dust so I would recommend a respirator and safety glasses here as well. A loose muslin wheel is great for polishing blades and handle materials and not creating heat. Be careful that the fine strands do not wrap around whatever you are buffing and rip it out of your hands.

Heat-treating, welding and soldering should be located away from flammable handle materials and chemicals like acetone, turpentine or gasoline. I would recommend putting a sandbox under your oven so spills will not burn the floor. Have 3 or 4 fire extinguishers and a first aid kit in your shop just in case of an emergency. When washing work clothes, wash them separately from everyday clothes to avoid contamination. Clean your shop on a regular basis to prevent breathing any particles or grit stirred up from everyday activities.

Make sure to have a sign requesting your visitors to be quiet as they enter your shop as loud noises can startle you and a quick jerk might cause an injury. Also make sure all work areas are well-lit.

You can never be too paranoid about safety in the shop.