

## **Ergonomic Safety while using Hand Tools!**

### **There are 27 bones in each hand and wrist.**

Most of the muscles that operate the hand are in the forearm. Blood vessels and nerves pass through a small tunnel at the base of your hand that is known as the “carpal tunnel”. Because many hand tools cause the wrist to bend, a great deal of stress is placed on the tendons, nerves and blood vessels.

### **Grips**

- ✓ Tools that are too heavy or improperly balanced, grip spans that are too large, too small, slippery or the wrong shape can lead to injuries of the neck, upper back, shoulders, elbows, wrist and fingers
- ✓ Avoid tools that cause your wrist to be in flexion (bending your wrist downward) or extension (bending your wrist upward). Your tool should do the bending, not your wrist
- ✓ Power grip (hand wrapped around the handle) should be used over a pinch grip (item held between the thumb and index finger). Power grip allows the greatest amount of force with the least amount of strain on the forearm, wrist and hand muscles, ligaments and joints



### **Weight**

- ✓ The heavier the tool, the more fatigue on the muscles and ligaments. When there is more fatigue on the muscles and ligaments it is more difficult to control the tool
- ✓ Hand tools should weigh no more than 2.3 lbs (1 kg)
- ✓ Ideally the centre of gravity should be aligned with the centre of the hand gripping the tool, the tool should feel easy to use with the hand doing the job

### **Handle Size**

- ✓ A rubber handle is generally more comfortable and allows any pressure to be shared by your palm and fingers
- ✓ Foam-wrapped or rubber-handled tools reduce the amount of vibration felt in the hands and arms
- ✓ The handle should allow the hand to go more than halfway around the handle without the thumb and finger meeting

### **Grip Surfaces**

- ✓ Ideal grip surface is smooth, non-conductive and able to slightly compress to dampen the vibration in the hands and fingers, the end of the handle should never rest in the palm of your hand
- ✓ Spring-assisted tools require less finger and hand effort because they automatically open
- ✓ Trigger finger can occur when the tool requires the index finger or thumb to activate the tool, the trigger should be longer to allow more fingers to activate the tool when possible

### **Other Factors**

- ✓ Most left-handed people generally have to adapt to awkward positions to accomplish the job as most tools are made for right-handed people
- ✓ Maintenance of tools is very important. When a tool is not properly maintained, there is an increased chance of injury. A regular maintenance schedule is important for health and safety
- ✓ Dull tools require the worker to use more force to accomplish the task, Replace old or worn-out tools with new ones to reduce the overall risk

**Be Safe!**