

# **NAIL GUN SAFETY**

# Nail guns come in a variety of configurations



Pneumatic  
framing nail gun



Pneumatic  
finish nail gun

# Nail guns come in a variety of configurations



Gas powered nail gun



# Nail guns come in a variety of configurations



Powder actuated nail guns

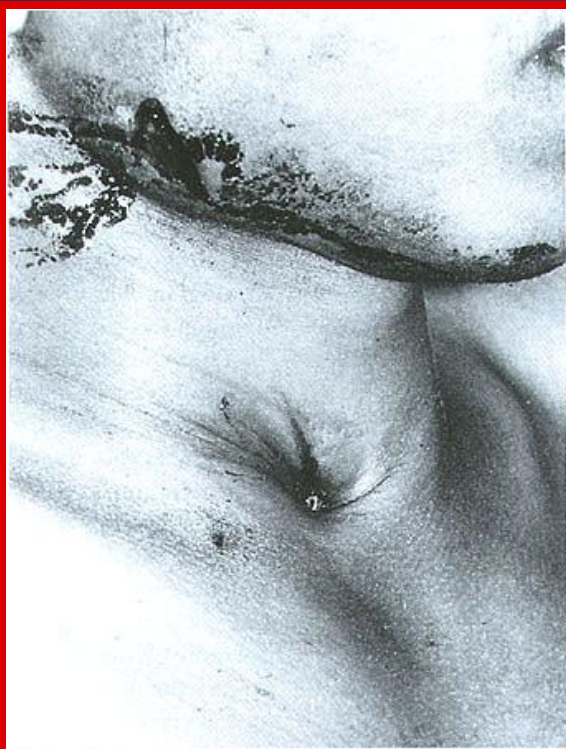


Fig 3 – Nail completely embedded with entry wound at sternal notch



Safety is up to you



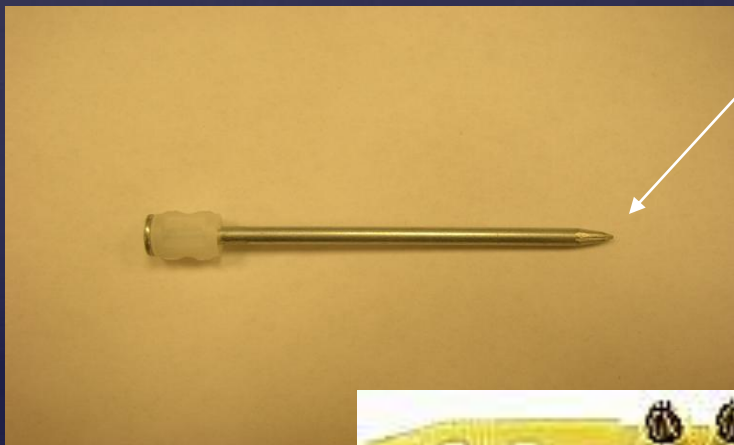
Fig 4 – Chest X-ray showing position of nail



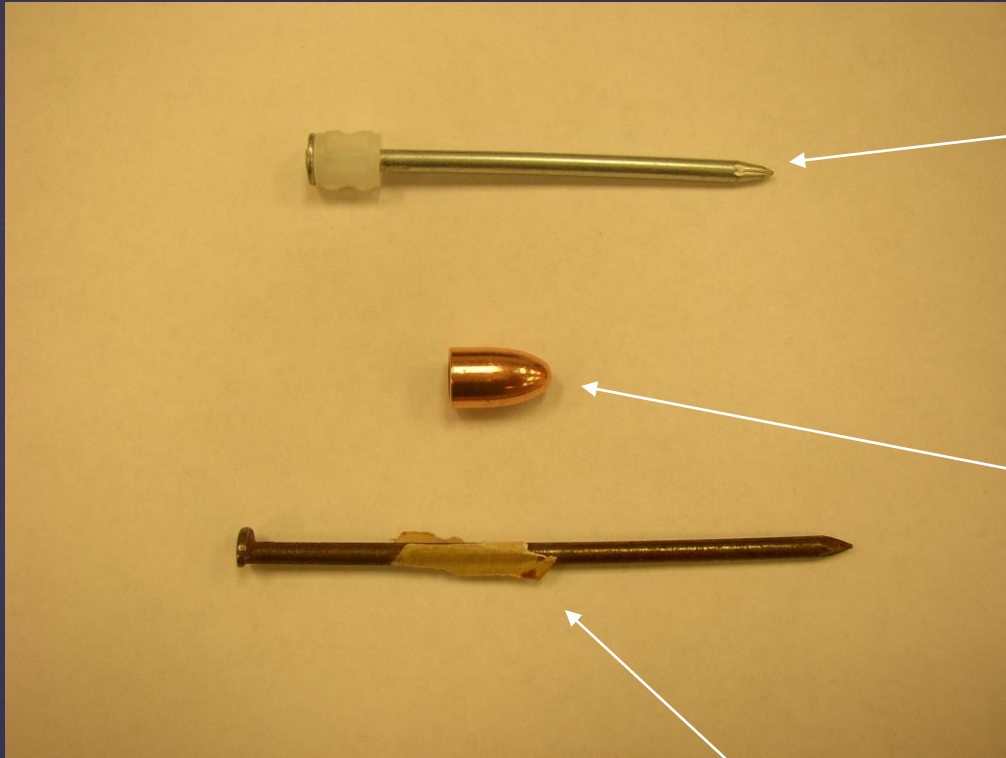
Know what  
you are dealing with!



# Certification is required to use powder actuated tools



Nail weight - 91.2 Grains  
Travel distance in feet per second  
Green shot – 490 fps.  
Yellow shot – 575 fps.  
Red shot – 675 fps.



Powder actuated nail  
91.2 grains – 675 fps

Certification required

9 mm bullet

90 grains – 1170 fps

Permit required

Pneumatic nail

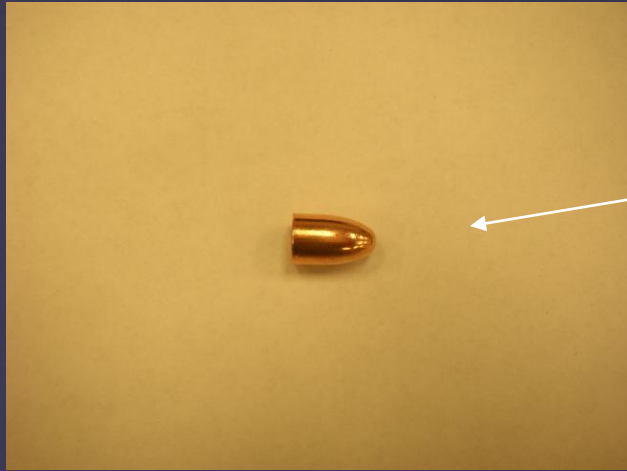
93.9 grains – 1400 fps

10 shots per second

**No requirements**



## 9 mm Bullet ( *police use* ) - permit required

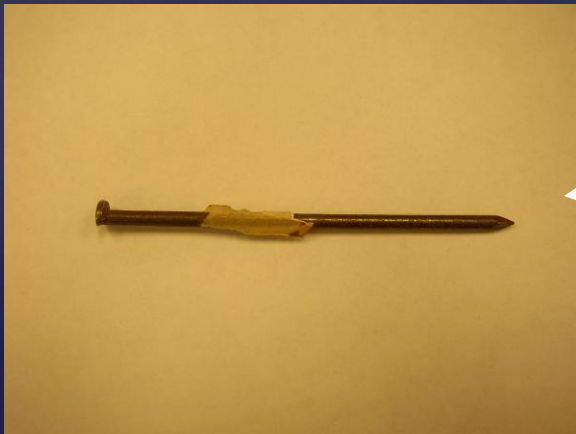


90 Grains

Travel distance in feet per second

1170 fps. (muzzle velocity)

## Pneumatic gun nail – **NO REQUIREMENTS**



93.9 Grains

Travel distance in feet per second

Up to 1400 fps.

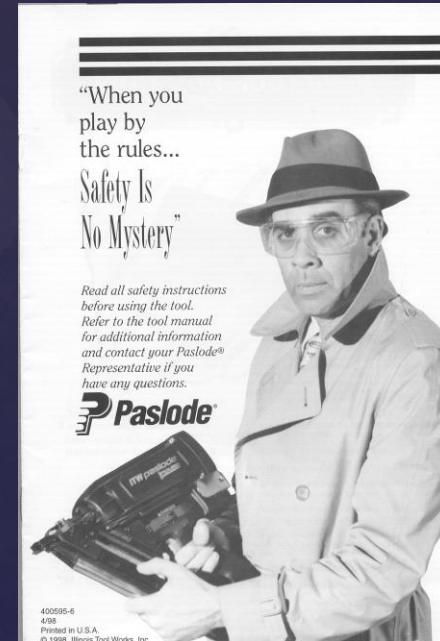
## Thompson Sub-machine gun



14 rounds per second

## Pneumatic nail gun

10 nails per second



Model:	F-350S
Part Number:	501000
Weight:	7.9 lbs.
Height:	13 in.
Magazine Type:	30 degree stick (nail strip)
Cycle Rate:	10 nails/second
Nail Capacity:	74-84 nails (2 strips)
Air Req./90 p.s.i. (6.3 bar):	.082/cycle
Op. Pres. p.s.i. (bar):	80-120 (5.5-8.3)

Injuries from pneumatic nail guns are  
common  
in wood frame construction

- 37,000 people seek treatment in emergency departments in the U.S. for nail gun injuries each year.

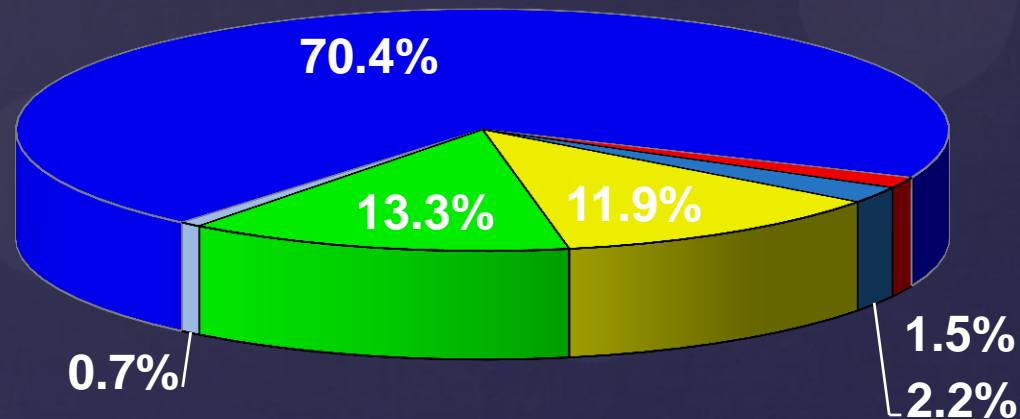


Half of apprentice carpenters in St. Louis had a nail gun injury before they finished their 4-year apprenticeship.

**25% of apprentices were injured each year.**

**Untrained apprentices nearly 3 times more likely to be injured.**

# Most injuries occur during framing and sheathing



■ Framing & Sheathing

■ Roofing

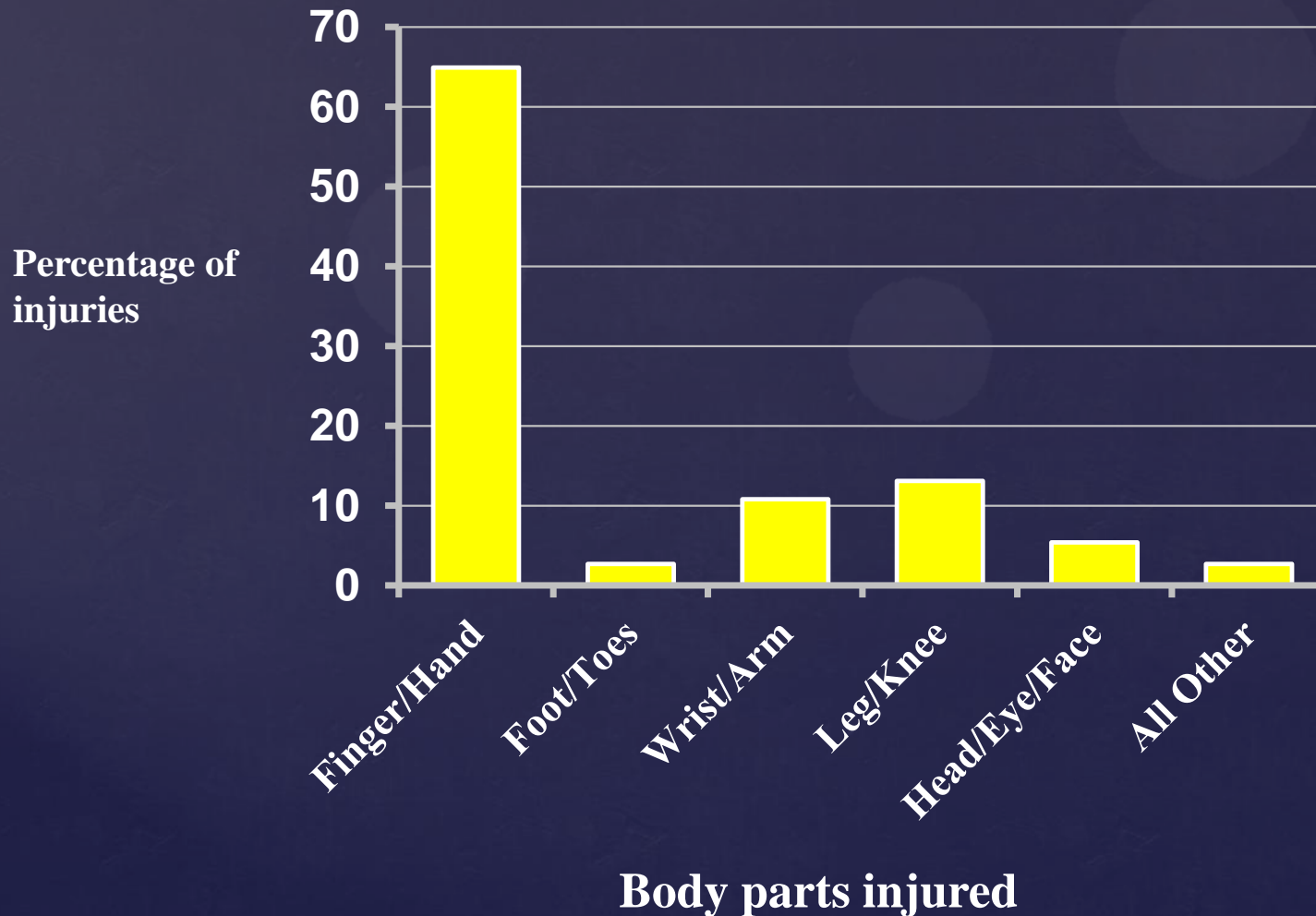
■ Interior Finish

■ Siding & Exterior

■ Exterior Finish

■ All Other

# Most nail gun injuries are to the fingers or hand





# Pneumatic Nail Gun Trigger Configurations

- **“Contact-trip”**
  - Allows the operator to discharge nails regardless of whether the operator first pulls the gun's trigger or depresses the nose contact element.
  - Allows “bounce nailing” - trigger is locked in firing position & gun fires each time the nose is depressed.
- **“Sequential”**
  - Requires that the **nose contact element be depressed first** and the **trigger pulled second** for the nail to be discharged.
  - The "sequential-trip" mechanism makes it more difficult for nails to be discharged unintentionally.

78% of injuries occur while using a contact trip trigger mechanism

Inadvertent or unintended firing of nail guns with contact triggers is the most common cause of injury

- Pneumatic nailguns recoil after discharging a nail.
  - A second, unintended nail can be fired if the nosepiece of a tool with a contact trigger comes in contact with anything following recoil if the user's finger is still on the trigger.

“A typical pneumatic nailer can fully sink a 3½-inch nail into tough southern yellow pine or dense Douglas fir in less than a tenth of a second.”

The recoil and second firing occur well before the trigger can be released.



You cannot move  
your hand as fast as  
the nail fires.



10 nails per second, each nail traveling up to 1400 – feet per second.

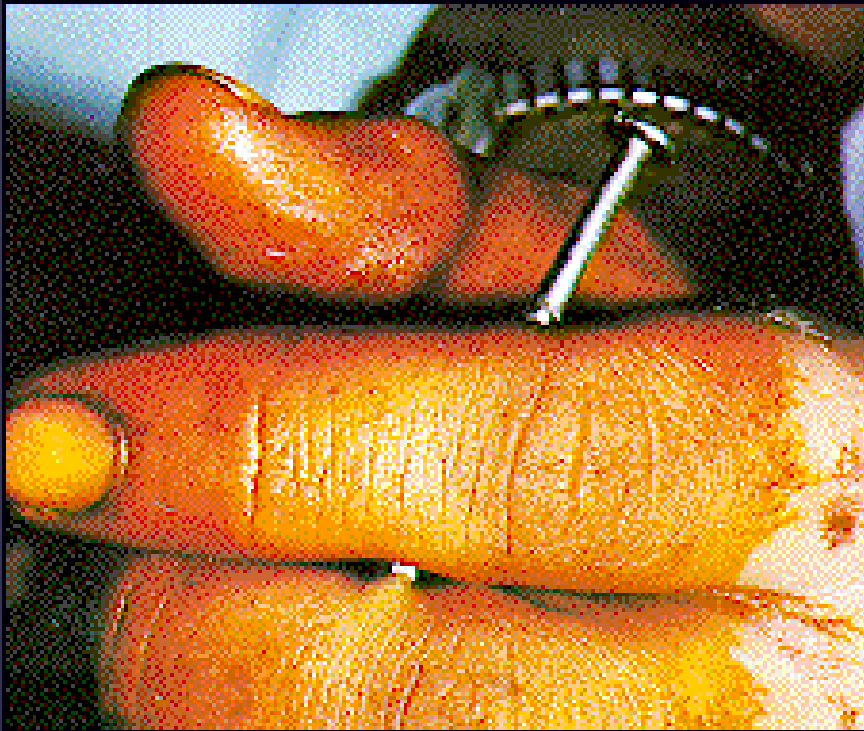
Inadvertent firing can also occur if the user has a finger on the contact trigger and the nose piece touches a co-worker or the user's body.

Framing nail guns with sequential triggers were designed to prevent unintended firing.

Nailers with sequential triggers are twice as safe as those with contact triggers.



# Typical nail gun injury



Framing walls on a sub-floor with a contact trip trigger pneumatic nail gun (bump firing).

While secondary hand is close to the plate and holding the 2x4 stud in position, the nail misses the plate and injures the fingers.

**SOME GUIDELINES TO PREVENT INJURY  
WHEN USING  
PNEUMATIC NAIL GUNS**

Maintain a safe and stable position with the air hose out of the way. Don't walk backwards.



Wear safety glasses and hearing protection





Keep your footing stable.

The hose can be a trip hazard along with trash or other materials.





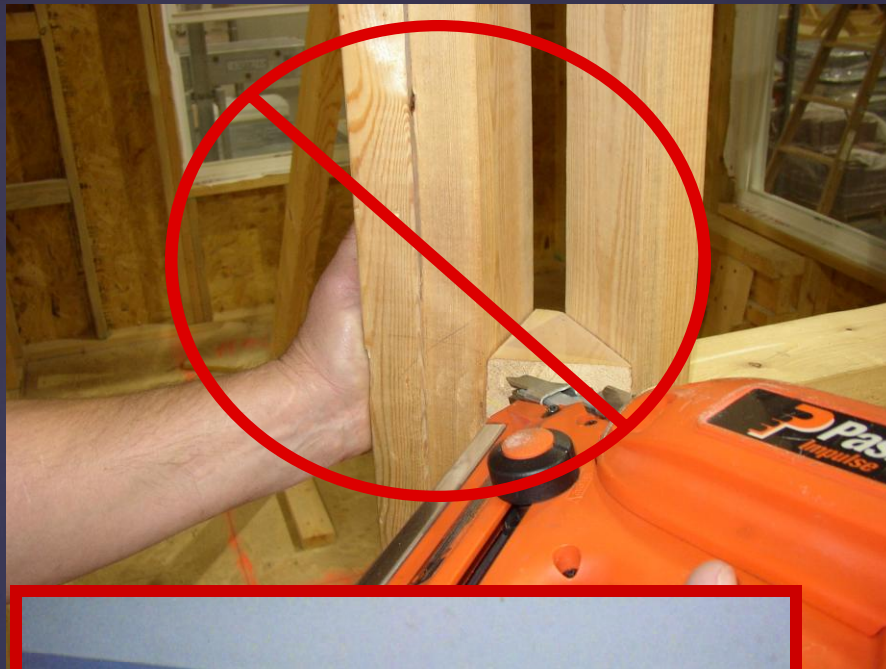


Never point the gun towards yourself or anyone else.



**Keep fingers  
and hands out  
of the way!**





Do not drive fasteners too close to the edge, into knots, or at too steep of an angle. The surface could split or nails could ricochet.







Maintain control of the gun at all times. Keep your finger off the trigger when walking around.





Maintain the proper angle when toe nailing.

Always wear safety glasses, hearing protection and hard hats when a nail gun is being used on the jobsite.



Use a specific 'positive placement' gun for metal clips.



- Don't frame walls with a nail gun across from another worker.
- If using a tool with a contact trip trigger, **keep your finger off the trigger** unless you are ready to fire a nail. Don't walk around with your finger on the trigger. Because the center of gravity is at the trigger this happens easily --

12 % of nail gun injuries are to people who are shot by another person.

- Never modify, disable or remove any parts of the gun.
- If the gun is malfunctioning – disconnect the gun from the air hose. Air pressure could remain in a pinched hose.
- Never attempt to repair or clean a gun that is connected to the air hose.
- Never attempt to clear a jam without disconnecting the tool from the air line and removing the remaining fasteners from the tool.
- Never assume the tool is empty – check the magazine.
- Never operate a dirty tool.

## Check the air pressure

- If you are using the tool, you should check the pressure.
- Know the recommended maximum pressure for the tool you are using.
- Never allow the air pressure to exceed the maximum marked on the tool.



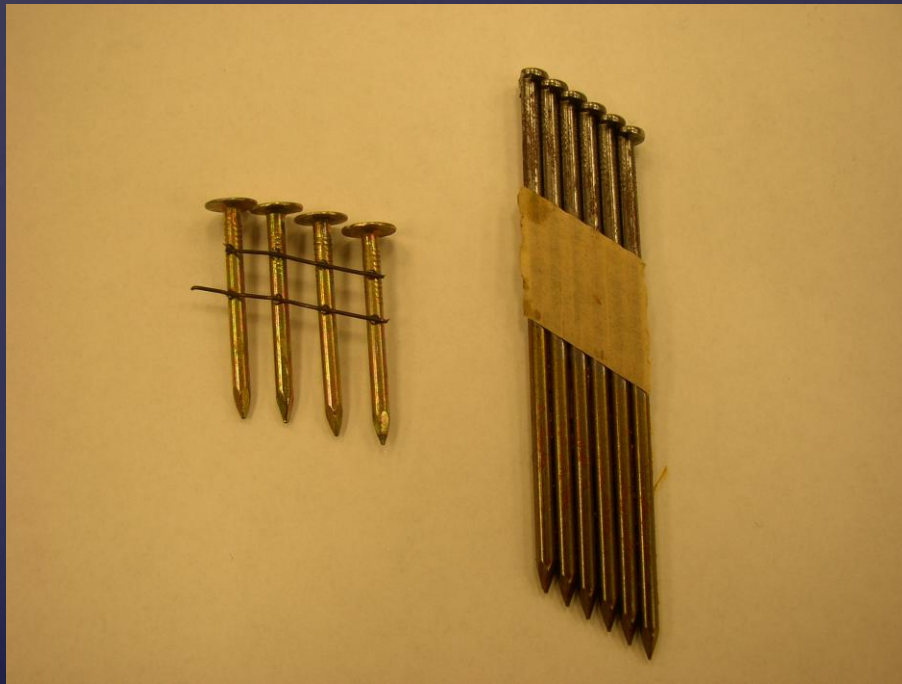
The tools can result in  
serious injury or death.

Never engage in horseplay ...  
it's a tool, not a toy.

If injured, seek medical attention immediately.

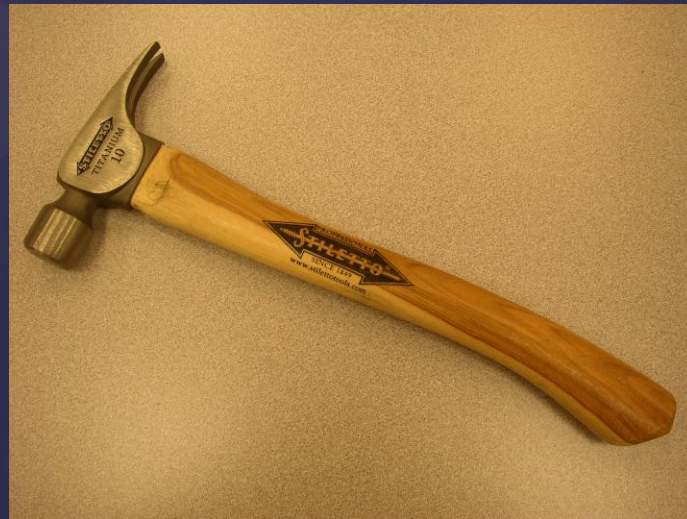
Do not remove a fastener if you or anyone else is injured.

- More tissue could be damaged because wires and/or paper can remain on the nails, potentially increasing your risk.



Never point a nail gun at yourself or others.

If the work you are doing requires the gun be pointed at you to accomplish the task, then it needs to be done in another manner!



Carpenters have used traditional hammers for thousands of years.

**Work safely**  
**Ask for sequential**