

**UNIVERSITY OF NOTRE DAME**  
**DEPARTMENT OF AEROSPACE AND MECHANICAL ENGINEERING**  
AME30362: Design Methodology, Fall 2009

**P7 Prototype Tools Certification Project**

**Machine Shop Safety Guidelines:**

**Safety Glasses**

EVERYONE MUST WEAR SAFETY GLASSES

Wear safety glasses when operating equipment AND when you're in the vicinity equipment being operated by others.

**Clothes and Hair**

If you have long hair or a beard, tie it up.

No loose clothing: Roll up long sleeves, tuck in baggy shirts, etc.

Ties, scarves, etc, are prohibited.

No gloves

Remove jewelry

Wear appropriate shoes: No open toed sandals. Wear shoes that give a sure footing. If you are working with heavy objects, steel toes are recommended.

**Safe Conduct in the Shop**

Don't operate a machine if you feel crowded and give others lots of room.

Concentrate on what you're doing. If you're tired or unable to focus on the work, leave.

Don't hurry the work – take your time.

Listen to the machine. If something doesn't sound right, turn the machine off.

Don't attempt to measure a part when the equipment is moving.

**Machining**

If you don't know how to do something, ask.

Before you start the machine:

Study the machine. Know which parts move, which are stationary, and which are sharp.

Be absolutely sure that the workpiece and cutting tool are securely held.

Remove chuck keys and wrenches.

Do not leave machines running unattended.

**CLEAN UP MACHINES AFTER YOU USE THEM:**

A dirty machine is unsafe and uncomfortable to operate. Do not use compressed air to clean machines. This endangers people's eyes and can force dirt into machine bearings.

These guidelines were prepared by Mr. Leon Hluchota, AME Tool and Die Maker.

## Lathe Certification:

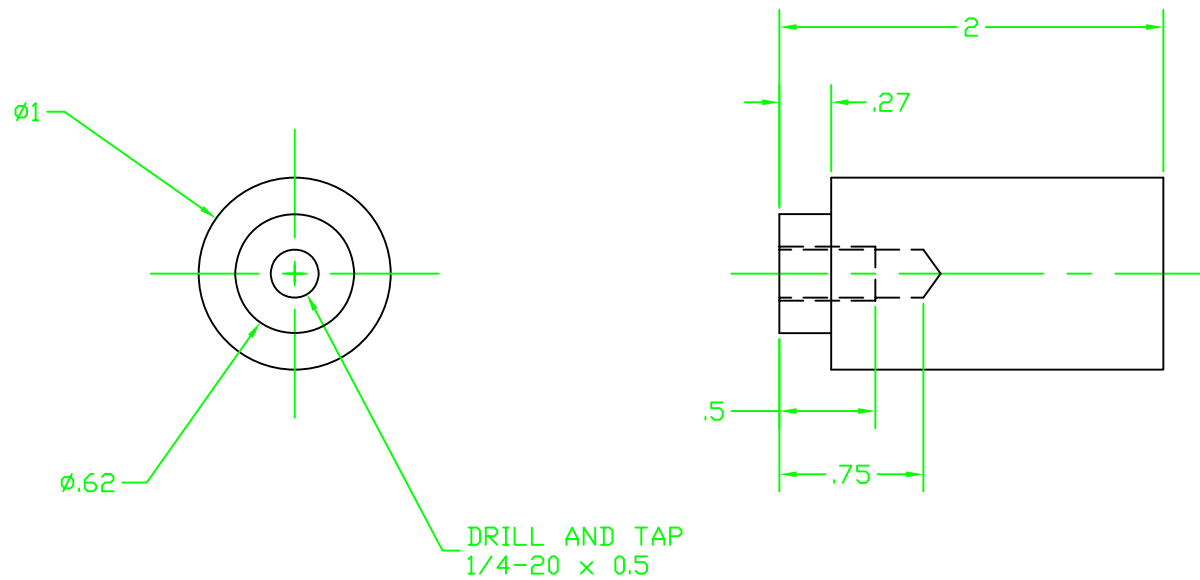
*Reference the attached lathe certification drawing for dimensions and material*

1. Turn the 2" length dimension (face both ends)
2. Turn the 0.62" diameter x 0.27" boss
3. Drill and tap the 1/4-20 hole using lubricant for each operation:
  - a. Center drill #3
  - b. Drill 13/64 diameter x 0.75 deep (a #7 drill may also be used)
  - c. Chamfer the hole with a countersink
  - d. Tap 1/4-20 x .5 deep

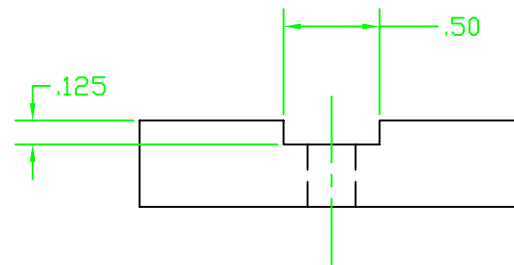
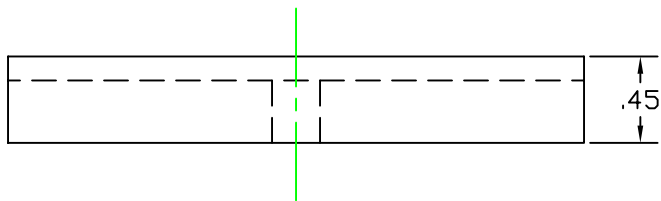
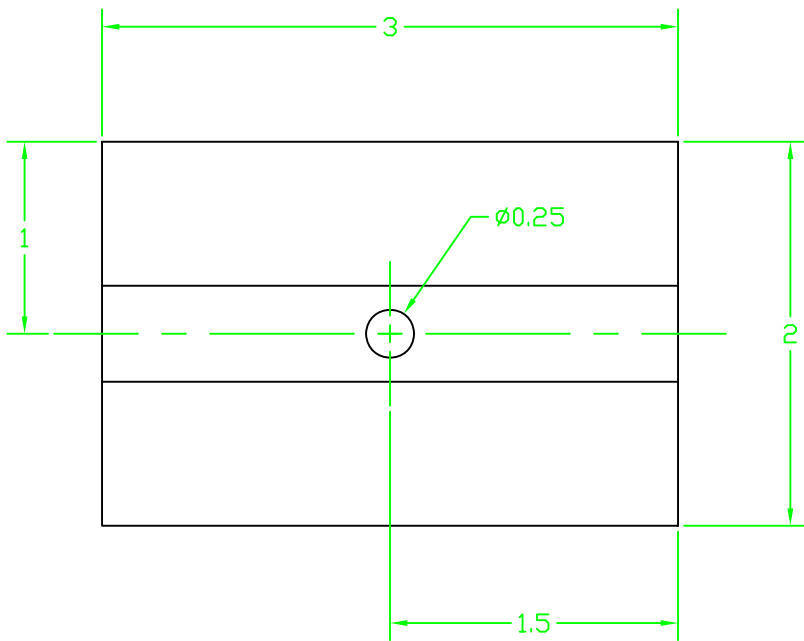
## Mill Certification:

*Reference the attached mill certification drawing for dimensions and material*

1. Mill the .45" thickness dimension using facing tool
2. Mill the 3" length dimension using 1/2" diameter end mill
3. Mill the 1/2" wide x 1/8" deep slot on the centerline using 1/2" end mill
4. Center drill #3 for 1/4 diameter hole at center of block – use lubricant
5. Drill 1/4" diameter hole through center of block – use lubricant



AME40463 Lathe Certification  
Material: 1" diameter Aluminum  
August 24, 2006



AME40463 Mill Certification  
Material: 2" x 3" x 1/2" Aluminum  
August 24, 2006