

Shop Safety

This study guide will cover **Shop Safety** that is applicable to APS in-house safety guidelines and/or most machine shops in industry today.

This study guide has been designed to directly represent the questions that will be found within all the open book machine specific written assessments, the Safety specific written assessment, and as an aid for the machine specific hands-on usability assessments.

Answering the questions found at the end of this study guide will enable the user to successfully pass the hands-on usability and open book written assessments.

All questions at the end of the study guide relate strictly to safety issues. The questions are of situations, general practices, common sense, and some are machine specific.

There are two absolute needs for any user of any machine shop machinery:

1. Knowledge of all safety guidelines.
2. Working knowledge of the specific machine.

APS User Machine Shop Rules and Safety Guide-lines can be found in

- “APS Policies and Procedures for User Shop Access”
- “User Shop Orientation”, which includes the User Shop Rules.
- The Accident Prevention Manual for Industrial Operations text National Safety Council (available from the APS Floor Coordinator).
- In the machine specific study guides.
- MANUF_1450 198 040 SUMMER 2003 Machine Shop Safety Management (available from the APS Floor Coordinator).

Use the above as reference material for study purposes.

APS User Shop Safety

In an effort to create a safe working environment, safety rules and procedures must be adhered to. In the following section those safety items listed are APS specific and OSHA standards. Many times common sense will tell you, if it looks dangerous, don't do it!

General Shop area safety measures include:

- Wear a face shield over safety glasses when using abrasive saws or grinders.
- Always maintain awareness of activity around you.
- Never wear gloves when working with equipment that has exposed moving/rotating parts.
- Deburr material before and after machining operations.
- Keep aisles clear and walk in aisles to the extent possible.
- Utilize chip guards at all times.
- Use exhaust trunks/rotoclone systems to capture mist/dust from grinding operations.

APS User machine shop safety measures include:

- You are responsible for maintaining your work area in a safe and reasonable condition.
- Shields or splashguards will be used on machines where cutting oils or coolants are used. Never adjust coolant hoses while machines are running
- The work area floor should be kept dry and clear of refuse at all times.
- Use spill-control absorbent immediately to control leakage or spills.
- Use brushes to brush off chips and shavings from machines; do not use your bare hands or an air hose.

- You must be aware of the various machine controls (start button, stop button, speed-change control) for each machine you are authorized to operate.
- Machine controls must be accessible and unobstructed at all times during operation of any machine.

General APS User Shop Rules

- Shop door must be propped open when working in the shop.
- Wear ANSI-approved safety eyewear with side shields whenever in the machine shop.
- Do not leave machines running unattended.
- Use only brushes, vacuum tools, or other special tools to clean debris from work pieces and machines.
- Do not use compressed air to blow chips and dust from work where a brush can be used for the task.
- Use vises and clamps to hold work pieces as appropriate.
- Do not manually adjust work pieces or attempt to measure a work piece while the machine is running.
- Do not wear jewelry or loose fitting clothing while operating machinery.
- Remove neckties and roll up shirtsleeves to above the elbow.
- Restrain (i.e., cover or tie back) long hair that could get caught in moving parts.
- Proper machine guards must be in place on machine tools such as drill presses, lathes, grinders, sanders, and saws while these tools are being used.
- Do not remove or circumvent any machine guarding.
- Do not use solvents to clean your hands.
- Treat even minor cuts or scratches as causing potential infection.

General Shop-Safety Tips

- Do not use the grinding wheels on the pedestal grinder to grind non-ferrous materials (e.g., aluminum, brass, plastics, or wood).
- Compressed air shall not be used for cleaning clothing.
- Never eat or drink in the machine shop.

Practice Test

The following questions have been designed to directly represent the questions that will be found on the open book shop safety and machine specific written assessments and as an aid for the hands-on machine specific usability assessments.

1. Never force a grinder wheel onto the machines mounting hole.
True False
2. While drilling a hole, never hold work piece with your hands.
True False
3. For best eye protection when grinding, always:
A. Use the grinder's glass eye shield
B. Use the grinder's glass eye shield and wear goggles
C. Use the grinder's glass eye shield and wear a face shield
D. Either B or C
4. Machine shields should be in place before actual machining takes place.
True False
5. Wear safety glasses, goggles, or a face shield when performing grinding operations, even though the machine is fitted with eye shields.
True False
6. Use vises or clamps to hold work piece.
True False
7. Use only brushes, vacuums or special tools for machine clean up.
True False
8. Machine safety guards are not required to be in place during some machining operations.
True False

9. Always keep hands at a safe distance from moving machine parts.
True False
10. It is not necessary to wear ANSI-approved safety eyewear upon entering the machine shop.
True False
11. Always use vises or clamps to hold work pieces while machining.
True False
12. Always prop the machine shop door open upon entering shop.
True False
13. Serious injury can result from a work piece that becomes loose and spins during a drilling operation in a drill press.
True False
14. It is not necessary to remove sharp edges from machined part.
True False
15. Never attempt to measure a part on a lathe while the spindle is turning.
True False
16. It is permissible to leave the chuck key in the chuck while drilling a hole.
True False
17. If it is really cold in the shop it is OK not to roll up your shirtsleeves before beginning to use any machine shop machinery.
True False
18. Treat any small cuts or skin punctures as potentially infections.
True False
19. Be thoroughly familiar with the placement of the machine's "stop" switch or lever.
True False
20. Never activate the rapid traverse while any cutter is making a cut.
True False
21. It is not necessary to keep the floor around your machine clear of chips.
True False

22. Proper machine guards must be in place on machine tools such as drill presses, lathes, grinders, sanders, and saws while these tools are being used.

True False

23. To avoid vibration while turning a long piece in a lathe, the work piece _____.

- A. can be supported with your hand
- B. does not need to be supported.
- C. Should be supported with a live center.

24. The countersink can be used to enlarge the end of hole for a flat-head screw.

True False

25. When reaming, the speed of the drill press should be:

- A. 1/3 of that used for drilling
- B. The same as the speed used for drilling
- C. Twice the speed of the drill
- D. As slow as possible

26. The work area should be cleaned up before leaving the shop.

True False

27. Never wear jewelry or loose clothing while operating machine.

True False

28. You should maintain awareness of activity in your surrounding area.

True False

29. Never stand directly in front of a grinding wheel whenever a grinder is started.

True False

30. Do not turn on a grinder if the grinder wheel looks damaged.

True False

31. Machine shields should be in place before actual machining takes place.

True False

32. Safety takes precedence before work.
True False
33. Always debur all materials before and after machining.
True False
34. Which of the following can cause serious injuries _____?
A. Materials with sharp edges
B. Materials stored in racks above head level
C. Potential tripping hazards
D. Equipment with moving parts
E. None of the above
F. All of the above
35. It is OK to wear gloves when working with equipment that has exposed moving/rotating parts so you can keep your hands clean.
True False
36. Always turn on the exhaust trunks/systems before any grinding operation.
True False
37. The shop door should be propped open upon entering the shop.
True False
38. Treat even minor cuts or scratches as causing potential infection.
True False
39. All machine users must be authorized to operate specific shop machines.
True False
40. Do not use solvents to clean your hands.
True False
41. It is OK to wear jewelry or loose clothing while operating machine if you are very careful.
True False
42. Use air hoses for a fast and quick machine clean up.
True False
43. Always clean up the work area before leaving the shop.
True False

Study Guide
Answer Sheet

- | | |
|-----------|-----------|
| 1. True | 23. C |
| 2. True | 24. False |
| 3. D | 25. A |
| 4. True | 26. True |
| 5. True | 27. True |
| 6. True | 28. True |
| 7. True | 29. True |
| 8. False | 30. True |
| 9. True | 31. True |
| 10. False | 32. True |
| 11. True | 33. True |
| 12. True | 34. F |
| 13. True | 35. False |
| 14. False | 36. True |
| 15. True | 37. True |
| 16. False | 38. True |
| 17. False | 39. True |
| 18. True | 40. True |
| 19. True | 41. False |
| 20. True | 42. False |
| 21. False | 43. True |
| 22. True | |