

## MAE Student Design Center

### **SAFETY STEWARD ASSESSMENT: ADMINISTRATION INSTRUCTIONS**

Proper administration of this assessment is crucial to the long-term safety and success of the SDC. Senior TAs who are approved to administer this examination should carefully read these administration instructions to ensure continuity and accuracy.

#### **Testing Procedures:**

Candidates have 30min to complete this assessment individually, in the presence of a proctor without any written aids. Proctors should remain with the candidate(s) the entire time. **The ONLY questions that should be answered are those requesting clarification on a question's wording.** Candidates who do not remember information should not be assisted in any way, as doing so jeopardizes the security of our students.

Once candidates complete the written assessment, the proctor should review their answers, and assign a grade to the student. **Candidates who score 90% or above will review the incorrect answers with the proctor so they understand their mistakes and the correct answers. Candidates who score less than 90% can arrange a time one week later to meet with the proctor to retake the assessment and should review the training documentation during this time.**

#### **Retesting Procedures:**

If a candidate does not score a 90% on the assessment their first time, they are allowed to retest one week after their initial assessment. For retesting, candidates will be asked short-answer versions of questions they missed. **Failure to correctly answer all retest questions will result in the candidate no longer being considered for safety steward.**

#### **Honesty:**

Candidates found cheating or discussing the assessment with anyone other than their proctor will lose facility use privileges. Safety is not a joke, and **teams whose safety stewards do not take the position seriously will also lose their facility use privileges.**

Name (print): \_\_\_\_\_

E-mail: \_\_\_\_\_

MAE Student Design Center  
**SAFETY STEWARD ASSESSMENT**

**The role of safety steward is an important job which must be taken seriously; proper enforcement of the SDC rules can be the difference between a successful work session and a trip to the hospital.**

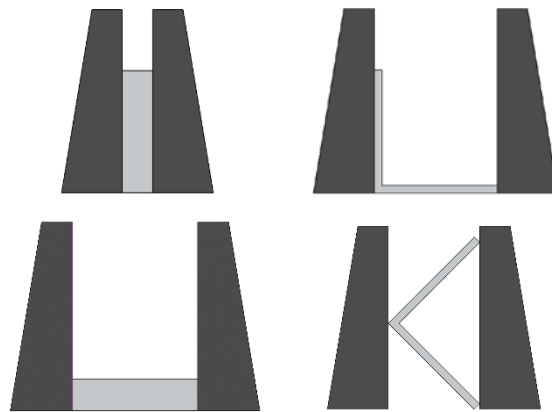
Candidates must achieve a minimum score of 90% on this written assessment; those who do not will be given an opportunity to retest one week later. Candidates who fail to pass the retest will no longer be considered for the position.

***Candidates have 30 minutes to complete this assessment. Answer ALL correct answers to each question. If a TRUE / FALSE statement is FALSE, correct the statement to make it TRUE.***

1. If a team does not clean their bay to the required standard before leaving at the end of a daily work session, the team's safety steward is:
  - a. not responsible for the mess if (s)he did not make it
  - b. responsible for cleaning the entire area themselves
  - c. responsible for reminding the team proper cleanup is a facility use requirement
2. If a team you are not a part of asks for your help as a safety steward:
  - a. you must help them since you are a safety steward
  - b. you cannot help them if they are not part of your design team
  - c. you are not required to help them, but can on occasion as long as you don't make a habit out of it (since each group should put forth their own members to be trained and certified as safety stewards instead of burdening other groups' stewards)
3. **TRUE / FALSE:** If a student says he already knows how to use a piece of equipment, it is ok to just let him use it without verifying he is on the *Approved Equipment Users List*.
4. **TRUE / FALSE:** If a student says she was in the SDC previously working on a machine and knows how to use it, it is ok to just let her continue working where she left off the previous time.
5. The higher speed Delta bandsaw can be used for cutting which materials?

a. mild steel	c. aluminum	e. brass
b. plastic	d. wood	f. foam
6. What item is necessary to keep with each bandsaw blade to ensure its pitch is always known?  
\_\_\_\_\_

7. What direction should a bandsaw blade's teeth point when correctly installed?
- towards the user and up
  - towards the user and down
  - away from the user and up
  - away from the user and down
8. TPI stands for:
- teeth per inch
  - teeth per iteration
  - total pitch increment
  - typical pitch increment
9. **TRUE / FALSE:** A larger tooth pitch (lower TPI) is used for thicker materials.
10. Harder/stronger materials require **higher / lower** speeds to cut than softer/weaker materials.
11. Circle the correct orientation for cutting flat and angled stock in a bandsaw:



12. How far above the part / vise (whichever is taller) should the blade guide be positioned?
- 2"
  - 1"
  - 0.5"
  - 0.25" (i.e. as close as possible)
13. When using the Roll-In bandsaw, the *trailing edge* of the blade should stop **before / after** passing the end of the workpiece.
14. If a student incorrectly stops the Roll-In bandsaw blade after it passes the end of the workpiece:
- \_\_\_\_\_ the machine
  - \_\_\_\_\_ the part and leftover material stock
  - \_\_\_\_\_ the blade
15. **TRUE / FALSE:** The MSC bandsaw blade speed must be changed while the machine is running.
16. **TRUE / FALSE:** Hardened materials are ok to cut on the bandsaw as long as they are thinner than  $\frac{1}{4}$ " or the student only needs to make a few cuts.

17. Always wear gloves when:
  - a. working with sheet metal on non-powered equipment
  - b. using an electric hand grinder
  - c. using an electric hand drill
  - d. drilling sheetmetal on a drill press
  - e. coiling / uncoiling bandsaw blades
18. **TRUE / FALSE:** Students who do not use the powered facility equipment do not need to sign the *Rules for Facility Use* agreement.
19. If a student is caught using a machine (s)he was not trained on, safety stewards must:
  - a. explain this rule is pivotal to the safe and respectful use of the SDC
  - b. record and e-mail their name and student group affiliation to Mike Braddock
  - c. calmly ask the student to clean up and leave the SDC because their facility use privileges are revoked
20. For a student to obtain a common use facility tool, (s)he must:
  - a. check out the item using the *Material & Tool Use List*
  - b. ask a safety steward to retrieve the item from its storage location
  - c. return the item to the safety steward before leaving the facility
  - d. use the item freely but return it before leaving the facility
21. Upon return of a common use item, safety stewards must:
  - a. ensure the item has been properly cleaned
  - b. ensure the item still functions properly and is not broken
  - c. mark the *Material & Tool Use List* properly to denote the tool's return
  - d. return the item to its proper storage location
22. **TRUE / FALSE:** Food is allowed in the SDC as long as it does not require heating, and isn't messy.
23. **TRUE / FALSE:** Proper language is required at all times for any group desiring to maintain facility use privileges.
24. Safety stewards should ensure students using facility equipment clean the workstations:
  - a. immediately after use, every time
  - b. before they leave the SDC for the day
  - c. only when there is an excessive mess or miscellaneous assortment of items on it
  - d. during the bi-weekly facility cleanings
25. Once a student is properly set up on a machine, safety stewards:
  - a. can leave them to work alone but should keep a watchful eye on them
  - b. should micromanage every action they make
  - c. can ask another team member to keep an eye on their peer
26. **TRUE / FALSE:** Failure to report broken or lost tools on the *Broken or Missing Tool List* will result in loss of facility use privileges.

27. **TRUE / FALSE:** Safety stewards must verify each student is trained and authorized on each machine by checking the **Approved Equipment Users List** if unsure.
28. **TRUE / FALSE:** Safety stewards must have a strong understanding of all machines used in the SDC (with the exception of the welding equipment, since it isn't used by all groups).
29. Proper eye protection for welding includes:
- a. closed eyes
  - b. darkly tinted glasses
  - c. a proper full-face welding mask
  - d. no need for tinted eyewear for occasional use, as the arc is not too bright
30. Proper eye protection for plasma cutting includes:
- a. closed eyes
  - b. darkly tinted glasses
  - c. a proper full-face welding mask
  - d. no need for tinted eyewear for occasional use, as the arc is not too bright
31. When MIG welding, filler wire should be approximately:
- a. flush with tip of gun
  - b.  $\frac{1}{4}$ " from tip of gun
  - c.  $\frac{1}{2}$ " from tip of gun
  - d. 1" from tip of gun
32. Acceptable materials to weld include:
- a. galvanized or painted metals
  - b. rusty or oxidized metals
  - c. greasy or oily metals
  - d. metals free of paint, oxidation, grease, and oil, and cleaned with alcohol or acetone
33. If a student asks to weld an empty, clean propane tank that has been cleaned well, you:
- a. can allow the student to proceed
  - b. must immediately tell the student no
  - c. must clean and inspect the tank yourself before proceeding
  - d. must use Brake Kleen® to ensure the tank is thoroughly cleaned before welding
  - e. must do a test weld on the tank before allowing the student to weld on it
34. Match the recommended heat and feed rating on the MIG welder:
- a. 1V / \_\_\_\_\_
  - b. \_\_\_\_\_ / 20IPM
  - c. \_\_\_\_\_ / 30IPM
  - d. 4V / \_\_\_\_\_
35. **TRUE / FALSE:** If students need to use a power tool not provided in the SDC (such as a circular saw or table saw) they can freely provide it themselves for use at the SDC.

36. Improper clothing when present in the SDC include:

- |                     |                           |                              |
|---------------------|---------------------------|------------------------------|
| a. close toed shoes | c. tight athletic wear    | e. long pants                |
| b. sandals          | d. loose fitting clothing | f. jewelry on hands / wrists |

37. Name three safety precautions students must abide by while working around powered equipment:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

38. **TRUE / FALSE:** The provided facility drill bits by the drill presses can be used with ferrous materials if the hardness is first checked using a file.

39. **TRUE / FALSE:** The provided facility drill bits by the drill presses can be used with hand drills as long as the user is careful.

40. What is the maximum drill bit step-up size when drilling?

- |           |           |
|-----------|-----------|
| a. 0.100" | c. 0.375" |
| b. 0.250" | d. 0.500" |

41. **TRUE / FALSE:** It is ok to clean metal chips without a rag if the drill bit is not rotating.

42. List four items in the first aid kits listed in the SDC rules document:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

43. Where should you dispose of oily/chemical soaked rags? \_\_\_\_\_