

CERRITOS COLLEGE WELDING TECHNOLOGY

NEW STUDENT * WELD 100, 120, 130 * GENERAL SAFETY TEST

PART "A"

- This Safety Test must be successfully completed by each student taking Weld 100, 120, and 130.
- This is PART "A" of the test information. This PART "A" only contains safety information, rules, and policies. This PART "A" on blue paper, does not contain any safety questions.
- PART "B" of the Safety Test contains 160 safety questions. PART "B" is on green paper.
- This Safety Test must be completed by each student before they can participate in any laboratory activities.
- The following Safety Instructions and questions have been compiled to inform you of the Safety Rules and Policies of the Welding Center.
- All students must follow all Safety Rules and Policies at all times.
- Non-observance or habitual carelessness of these safety rules is sufficient cause for dismissal from the Program.
- Safety Instructions and information will be given to students on a daily basis. They may be given in the form of verbal instructions, written information, and or demonstrations.
- Instructors will provide Safety Instructions and give a hands-on demonstration on each piece of power equipment in the laboratory before students may use that specific equipment.
- Students must read and understand all Safety Instructions posted on machines and equipment.
- Students will be provided with Safety Data Sheets for each new welding process and for each new machine they will be using. The instructor will go over the Safety Data Sheet and give a Safety Demonstration on each piece of equipment.
- Students that miss the Safety Demonstration will not be able to use that specific equipment.
- After reading the Safety Data Sheet, and attending the instructor Safety Demonstration, students will be required to sign an Instructor Safety Record Sheet. The Instructor Safety Record Sheet verifies that you have been fully safety trained on that specific equipment.
- Students must acquire all tools and personal safety equipment required for the class they are enrolled in. A specific list will be given to students on the first day of class.
- Students that don't have all of their personal safety and welding equipment by the first class meeting of the second week of school will be dropped. The next student on the waiting list will be added to fill this available spot.
- The first week of school is dedicated to orientation and safety training.
- Students will be personally engaging in welding activities at the first class meeting of the second week of school.
- Report all accidents and/or injuries immediately to your instructor no matter how small they might be.
- The Program's Instructor's take Safety Very Serious.
- Students will not get a second warning when it comes to safety issues.
- Students that violate the Department's Safety Rules and Policies will be removed from class and possibly dropped.
- A dropped student has no legal right to attend class.
- Therefore a dropped student will be permanently removed from the class right then and there.
- This Safety Test, The Continuing Students Safety Test, and all of the Departments Safety Data Sheets for welding processes and equipment are available on the welding website at Cerritos.edu/welding.

GENERAL SAFETY INFORMATION

1. Students must obtain directions, safety precautions, permission, and complete the Safety Data Sheet requirements and sign the Instructors Safety Record Sheet before starting any new welding process or using a new piece of equipment.
2. Students are not permitted to use shears or iron workers without the help and presence of their instructor.
3. Guards and safety devices shall not be removed from any machine and must be used at all times.
4. Safety glasses must be worn at all times inside as well as in the outside laboratory areas.
5. Safety glasses must be worn when performing all cutting or welding operations.
6. Safety glasses and a face shield must both be worn when working with angle grinders, belt sanders, abrasive saws, and or metal blade saws.
7. Students are not allowed to work with, cut with, or weld with any equipment before or after their designated class times.
8. Students are not permitted to make, weld, cut, or fabricate projects that are not part of their official Class Syllabus and Project Assignment Sheet.
9. The Welding Department does not allow welding on cars, trucks, motorcycles or the components of them such as rims, fuel tanks, mufflers, suspension components, etc..
10. Students cannot weld on personal projects or things from home.
11. Eating, drinking, listening to stereos, and or talking on cell phones is not allowed in the laboratory or lecture rooms.
12. Students may not smoke regular or electronic cigarettes in the lecture rooms or laboratory. Smoking is only permitted outside of the large welding entrance gates.
13. Students may not attend or weld in a class that they are not officially enrolled in.
14. If you are under the influence of any drugs, alcohol, or medication that could affect your ability to work safely, inform your instructor and do not perform any work.
15. Special welding procedures and safety measures must be taken when welding on metals that have a coating such as zinc, cadmium, or galvanized. Metals with these types of coatings will only be welded on by instructors during demonstrations.
16. Never take apart or attempt to repair equipment or machines.
17. If a machine or piece of equipment is broken, malfunctioning or not working correctly inform your instructor and do not use it.
18. Do not borrow other student's tools or equipment without permission.
19. Students must wear the required safety clothing and equipment for the welding or cutting process they will be using.
20. Hard leather safety boots that cover the ankle bone as well as OSHA approved safety glasses are mandatory for all students in laboratory classes.

21. All protective clothing must be 100% cotton. Polyesters, nylons, and other synthetics may not be worn as they could burst into flames and melt onto your skin.
22. Ear plugs should be worn at all times and are mandatory when welding out of position.
23. When Flux Cored Arc Welding, students must wear both a long sleeve 100% cotton shirt and a leather jacket or cape sleeves with bib.
24. Students welding with the Flux Cored Arc Welding process must also wear an approved metal fume respirator.
25. All metals should be considered to be hot. Never grab or touch metals without gloves on.
26. Gloves must be worn at all times when performing welding or cutting operations.
27. Gloves must be worn at all times when handling all metals.
28. Gloves must be worn when handling sheet metals to avoid the possibility of lacerations.
29. Never come up from behind and scare, yell at, or startle a person using any type of power equipment.
30. Familiarize yourself with the location of all fire extinguishers in the building.
31. When lifting heavy objects, never lift and twist, and always use your legs to lift - not your back.
32. If an object or piece of metal is too heavy to lift with one hand, get the assistance of additional students and or get the assistance of your instructor.
33. Heavy objects and metals might need to be moved with hand carts, rolling tables, the forklift, and or crane.
34. Students may not operate the forklift or overhead cranes.
Only instructors can operate this equipment for liability reasons.
35. Always keep your mind on your work. Inattention may result in a serious accident and years of regret.
36. Do not hide or stack metal on top of lockers, machines or cabinets. These metals could fall and cause serious injury.
37. Do not stack or place metals or student projects vertically on tables.
38. Never stand metals or welding projects vertically. They could fall and injure other students or instructors.
39. Do not weld or flame cut on concrete floors or structures. They will crack and or explode.
40. Keep all flammable materials off of welding tables and away from the welding and cutting areas.
41. Never cut or weld on a container that is full or empty or has held a flammable type substance.
42. Students must use caution when working with welding equipment and must not ever touch electrically hot components of the equipment. This could cause the student to receive an electric shock.
43. Never leave a piece of fabrication equipment unattended while it's turned on or still in motion.
44. Always keep your head out of the flow of smoke and exhaust systems and avoid breathing fumes.

COMPRESSED GAS CYLINDERS AND LIQUID GASSES

45. The Department has, and utilizes the following high pressure compressed cylinder gasses: Oxygen, Argon, Carbon Dioxide, Helium, and mixed 75% Argon & 25% Carbon Dioxide. All of these cylinders should be identified by their label and not by the paint color of the cylinder.
46. All of these high pressure cylinder gasses have back seating valves, which means they must have the valve opened all the way open or all the way closed to prevent the valve from leaking.
47. All of the high pressure cylinder gasses have regular right hand valve threads.
48. The Department also has two types of fuel gasses: Propylene and Acetylene. These two fuel gases have backwards or left handed threads. The Propylene cylinders are stored in a locked room and are turned on and off by staff only. Students will be using Acetylene gas on a regular basis. Acetylene Safety will be fully covered under the OAW and OAC areas of this Safety Test.
49. The Department also has two types of liquid gasses: Oxygen and Argon. These two gases are liquid at approximately minus 300 degrees F and are therefore very dangerous. They are contained in special vacuum vessels.
50. The liquid Oxygen is stored in a vacuum vessel called a Dewar.
51. The liquid Argon is stored in a vacuum vessel called a Micro Bulk Vessel.
52. These two liquid gasses are extremely dangerous. Students must not touch or adjust these dangerous vessels.
53. Students should stay at least five feet away from these liquid gas vacuum vessels at all times. The vessels have automatic purge valves that can discharge gas and or minus 300 degree liquid without warning, which could cause severe bodily injury. To stay Safe – Please stay five feet away.

OXYACETYLENE WELDING (OAW) AND OXYACETYLENE CUTTING (OAC) SAFETY

54. Students will receive a comprehensive Oxyacetylene Safety Data Sheet that will cover all safety aspects of the process in their specific classes before using the process for welding and or cutting. The Safety Data Sheet will reinforce and add to the following general safety Information.
55. A minimum number five filter lens is required for all oxyacetylene welding, brazing, and cutting operations.
56. Use of a full face shield or arc welding hood with #5 lens in combination with safety glasses is recommended for oxyacetylene welding and cutting.
57. Cutting goggles alone may not be used. If using cutting goggles, safety glasses must also be worn.
58. Never use a butane lighter (cigarette lighter) or matches to light oxyacetylene equipment.
59. Never light a torch off of another student's torch. Only use friction lighters to light torches.
60. Cylinders should always be kept in a vertical position and chained up to protect them from falling.
61. Cylinder valve protection caps should always be in place whenever cylinders are moved or in storage.
62. Always leave cylinder valves closed when cylinders are empty to prevent outside air contamination.
63. Acetylene cylinders must be stored in a specified location away from oxygen cylinders when either full or empty.
64. Acetylene and Oxygen cylinders may be together when secured on a cart with regulators attached. This is considered an OAC system ready for use.

65. Always use a specially designed cylinder handcart to transport or move cylinders.
Never move a cylinder without a safety cap in place.
66. Cylinder contents should be identified by the label near the top of the cylinder and not by the color of the cylinder.
67. Acetylene cylinders have fuse plugs that melt at 212° F.
These fuse plugs will disperse the gas in a fire and prevent the cylinder from over pressurizing and exploding.
68. Oxygen cylinders have bursting discs that are pressure activated and burst at 3775 PSI.
In case of fire, they will rupture and disperse the oxygen before the cylinder can over pressurize and explode.
69. Always open all cylinder valves very slowly to avoid exploding the regulator.
70. Open acetylene cylinder valves one and a half turns. They are low pressure single seated valves.
71. Open oxygen cylinder valves all the way open. They are high pressure double seated valves.
These valves will leak if not all the way open or all the way closed.
72. Never use oil, grease, or any other petroleum lubricant on oxyacetylene fittings. They could violently self ignite.
73. Before opening cylinder valves, make sure regulator pressure adjusting knobs are backed out and no pressure is on the regulator diaphragm.
74. After valves have been turned on and pressures set, always purge both hose lines one at a time before lighting the torch.
75. Always check to make sure equipment is in good condition and all fittings are tight before lighting torch.
76. Use soapy water to check for gas leaks in oxyacetylene systems.
77. Acetylene cylinders are filled to a maximum pressure of 250 PSI.
78. Oxygen cylinders are filled to a maximum pressure of 2200 PSI.
79. Although 15 PSI is the maximum safe working pressure for acetylene.
Most welding and cutting operations require only 5 PSI.
80. To preform OA cutting on 1/4" to 1/2" steel plate, use the following settings: Acetylene 5 PSI and Oxygen 35 PSI.
81. To preform OA welding on 1/16" to 1/8" steel plate, use the following settings: Acetylene 5 PSI and Oxygen 10 PSI.
82. All acetylene fittings have left hand threads and may be identified by a "notch" on the fittings.
83. Oxygen fittings and all other non-fuel gasses have right hand threads.
84. Never stand directly in front of regulators while turning them on. They could explode.
85. Never use oxygen or any other compressed cylinder gases to blow off dust or use in place of compressed air.
86. Never leave a lit torch unattended or lay a lit torch on a table.
87. When oxyacetylene welding or cutting be cautious as to where the flame is pointing so as to not burn yourself or others.
88. Do not perform cutting in close proximity to the cylinder or cart.
Make sure the cylinder cart is at least six feet from the cutting zone.
89. When flame cutting, make sure the sparks and molten slag don't fall on or come in contact with the torches hoses or yourself. Always have the torch lines come up from behind you like a fire fighters hose.
90. Never use oxyacetylene to cut on or in close proximity to concrete.
The high heat will cause the concrete to expand, which will cause it to crack and or explode.
91. Before starting to make an oxyacetylene cut, make sure that the cutting path will not cut into the cutting table, cutting table grating, cross bars, or other parts.

THE FOLLOWING QUESTION NUMBERS 92 THRU 120 COVER THE FOLLOWING PROCESSES:

- SHIELDED METAL ARC WELDING (SMAW)
- GAS METAL ARC WELDING (GMAW)
- FLUX CORED ARC WELDING (FCAW)
- GAS TUNGSTEN ARC WELDING (GTAW)
- PLASMA ARC CUTTING (PAC)
- CARBON ARC CUTTING (CAC) SAFETY

92. All welding and cutting processes require students to wear clear safety glasses and a face shield or welding hood with the appropriate filter lens for that specific process.
93. Leather sleeves or a leather jacket must be worn at all times. (except for students performing GTAW)
94. GTAW requires the same personal safety clothing as the other processes, except that a long sleeve heavy cotton shirt may be worn in place of leathers.
95. When welding with FCAW, students must also wear a long sleeve shirt under their leather sleeves.
96. Students welding with FCAW should wear a metal fumes respirator.
97. Gauntlet style welding gloves are the only approved gloves for these processes.
98. GTAW students, may wear thinner specially designed GTAW gauntlet gloves.
99. Use of a minimum number ten or darker filter lens is required for all arc welding operations.
100. Never look at an arc from any distance without the proper eye protection and/or filter lens.
101. Never change electrodes or touch equipment without your gloves on. You could get an electrical shock.
102. Never change the amperage or polarity on arc welding machines while the machine is in use or under load. You will damage the internal components of the machine.
103. Avoid arc welding in wet or damp conditions. This could cause an electric shock.
104. Never arc weld on or let arc welding leads, electrode holders, guns, or electrodes come in contact with compressed gas cylinders. This could cause them to explode.
105. Make sure curtains, partitions, and doors are in place before starting arc welding operations to guard others from arc flash.
106. Suspend or hang electrode holder in a manner that will protect it from touching any metal that could ground it. Everything metal in the building is live and will create an arc if touched with an arc welding electrode.
107. Avoid touching the welding booth's metal ventilation cover, table, pipes, and fixture arms with the electrode. Anything metallic that is touched with an electrode will arc and cause damage.
108. Never handle or take out low hydrogen electrodes from the rod oven without wearing gloves. The oven is held at a temperature of 250° F and the electrodes will burn your hands.

PLASMA ARC CUTTING (PAC)

109. PAC and CAC require the same personal safety clothing as the earlier mentioned arc welding processes.
110. Plasma cutting requires a dark filter lens number 5 to 8.
111. Students are not permitted to use the Plasma Arc to pierce thru or make holes in plate.
The sparks will back flash up into the nozzle and tip destroying the torch components.
112. Before starting any cutting operations, make sure the torch lines are coming from behind you and will not be exposed to the shower of sparks.
113. Before initiating the Plasma Arc, check to see what is underneath the plate or sheet metal that is going to be cut.
Make sure the arc is not going to cut through the cutting table grating or cross bars or other metal parts.
114. Before initiating the cut, give a loud verbal warning to “watch your eyes” or say “cover” to the people in the immediate vicinity or area so they are not caught off guard or flashed.

CARBON ARC CUTTING (CAC)

115. Remove the electrode from the electrode holder or stinger after every use.
116. Do not set the stinger down with the electrode in the holder because it could accidentally arc.
117. Carbon Arc Cutting requires a dark filter lens number 10 to 13.
118. Position the work piece and point the electrode so the sparks from the cut will be directed away from other students.
119. Make sure that all flammable materials are at least 35 feet away from the cutting area.
120. Before initiating the cut, give a loud verbal warning to “watch your eyes” or say “cover” to the people in the immediate vicinity or area so they are not caught off guard or flashed.

HYDRAULIC SHEAR SAFETY

121. Shears may only be operated under the direct supervision of the instructor.
122. Never double up or stack metal being sheared.
123. Never cut metal thicker than the shear is rated for.
124. Make sure metal being cut is under a hold down before initiating a cut.
125. Hands must be clear of the bed or shears table and the metal being sheared before initiating each cut.
126. Never use fingers to feed metal under the guard. Use another piece of metal.
127. Do not slam metal into the backstop or fence. This will knock it out of calibration.
Feed or push the metal into the shear slowly and smoothly.
128. Use extreme caution when operating all shears and do not rush or try to hurry up the speed of the job.
This is when accidents happen most of the time. Take your time and think about what you are doing.
No matter how slow you go, it will still be way faster than a hack saw.
129. Before making a cut, make sure no one is behind the shear and everyone is outside of the danger zone.
130. When making multiple cuts, do not feed metal into the shear until it has completed its cycle and the blade has come to a complete stop in the up position.
131. Feeding metal too fast can cause the metal to jam and get bent up in the machine and or damage the back stop.
132. Never feed material into a shear from the back side of the machine. This is an unsafe practice.

PORTABLE HAND AND OR ANGLE GRINDER SAFETY

133. Safety glasses and a clear face shield or welding hood with clear lens must both be worn.
134. Place the portable grinder on its back and look to see that the switch is in the off position before plugging in the power cord.
135. All portable grinders must be used with original factory safety guards and side handles.
136. When grinding, do not use excessive force on the grinding disc or stall out the motor.
137. Keep the power cord away from the grinding disc so it does not become entangled.
138. Always direct grinding sparks away from other people that are in the area.
139. Never use a grinding disc that is chipped, cracked, or broken.
140. Always unplug the grinder before attempting to change the grinding disc.
141. Wire wheels, knotted wire wheels, and or wire cup brushes are strictly prohibited.

ABRASIVE CUT OFF SAW

142. Safety glasses and a clear face shield or welding hood with clear lens must both be worn at all times.
143. Never operate any saw equipment with the guards raised or removed.
144. Check the condition of the disc prior to use. Do not use the machine if the disc is chipped, cracked, or broken.
145. Never force the disc through the part being cut. Let the disk do the cutting by using a gradual steady pressure.
146. Never attempt to remove a small cut off piece or try to remove a jammed piece unless the power is turned off and the disk has come to a complete stop.

BELT SANDER

147. The two belt sanders located inside the shop by the GTAW lab are for tungsten's only.
Please do not sand other metals or materials on these two belt sanders.
148. Do not use sanding belts that are torn or frayed.
149. Never crowd or startle a person using the belt sanders.
150. Do not wear gloves when using the belt sanders.
151. Keep fingers and hands a safe distance from the sanding belt.
152. When sanding small parts, make sure to use pliers or vice grips to hold on to the small parts.
153. The belt sanders outside of the shop or in the outside laboratory areas can be used for sanding steel parts only.
Do not sand any nonferrous metals like aluminum. Do not sand on other materials like wood or plastic.

IRON WORKER & PIRANHA SAFETY

154. Because of the complexity, danger, and special tooling of these machines, ironworkers must be set up and operated only under the direct supervision of an instructor.

METAL BLADE SAWS

155. Because of the complexity, danger, and special tooling required for these machines, they must be set up and operated only under the direct supervision of an instructor.

VERTICAL AND HORIZONTAL BAND SAWS

156. Because of the complexity, danger, and special tooling required for these machines, they must be set up and operated only under the direct supervision of an instructor.

CLOSING STATEMENT

157. If you are not sure about the safe operation of any machine, tool, or piece of equipment or have questions regarding anything on safety, it is your responsibility to ask your instructor for assistance and guidance.

158. Do not rely on safety information or safety instructions from other students. Your safety may depend on it.

159. The Welding Instructors consider safety to be the most important aspect of the Program. Safety is included in every lecture and in every demonstration.

160. To keep this General Safety Test to a manageable size, each student will also:

- Receive a specific Safety Data Sheet on every welding process.
- Receive a specific Safety Data Sheet on every piece of laboratory equipment.
- Receive verbal safety information from the Instructor on every process and piece of equipment.
- Receive a live Instructor demonstration on every piece of laboratory equipment.
- Students will have the opportunity to have all of their safety questions answered before starting new welding processes and or using new laboratory equipment.

Welcome to the Program and please always think about safety and make it your first priority. 😊



CERRITOS COLLEGE WELDING TECHNOLOGY

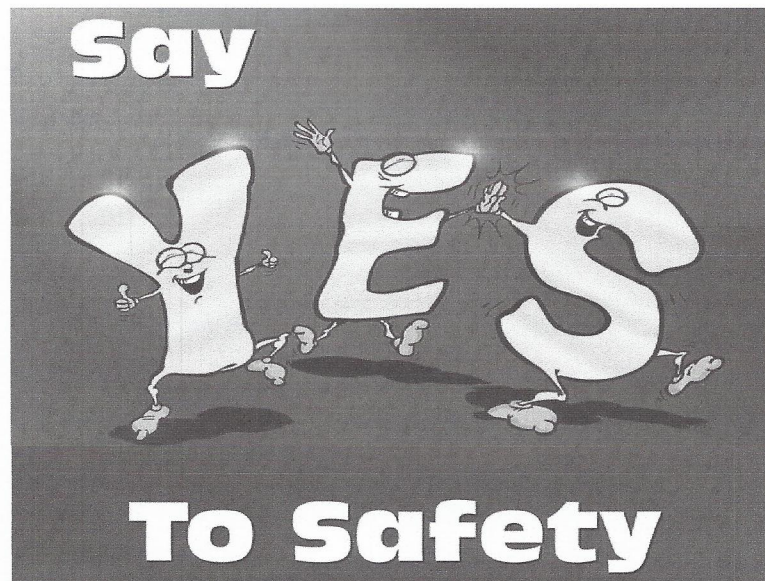
NEW STUDENT * WELD 100, 120, 130 * GENERAL SAFETY TEST

PART "B"

Directions:

1. Please refer to PART "A" of the General Safety Test to find the answers to the following 160 questions.

2. The answer to every question can be easily located.
Reference the same line item number in PART "A" for the question you are trying to answer in PART "B".
The missing word is the correct answer.
3. Please neatly write your answer on PART "C".
PART "C" is the provided yellow answer sheet.
PART "C" has two sides – 80 answer spaces on the front and 80 answer spaces on the back to equal 160 spaces which is the length of the Safety Test.
4. Please do not write on or make marks on PART "A" or PART "B" of the General Safety Test.
These two parts of the General Safety Test are recycled and used semester after semester to save paper.
5. All Welding Department Safety Tests are available on the welding website - www.cerritos.edu/welding



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2. Students are not permitted to use shears or iron workers without the help and ???????? of their instructor.
3. Guards and safety devices shall not be ???????? from any machine and must be used at all times.
4. Safety ???????? must be worn at all times inside as well as in the outside laboratory areas.
5. Safety glasses must be worn when performing all ???????? or welding operations.
6. Safety glasses and a face shield must both be ???? when working with angle grinders, belt sanders, abrasive saws, and or metal blade saws.
7. Students are not allowed to work with, cut with, or weld with any equipment before or after their ???????????? class times.
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63. Acetylene cylinders must be ??????? in a specified location away from oxygen cylinders when either full or empty.
64. Acetylene and Oxygen cylinders may be together when secured on a ???? with regulators attached. This is considered an OAC system ready for use.

65. Always use a specially designed cylinder handles to transport or move cylinders.
Never move a cylinder without a safety cap in place.
66. Cylinder contents should be identified by the label near the top of the cylinder and not by the color of the cylinder.
67. Acetylene cylinders have fusible plugs that melt at 212° F.
These fuse plugs will disperse the gas in a fire and prevent the cylinder from over pressurizing and exploding.
68. Oxygen cylinders have pressure discs that are pressure activated and burst at 3775 PSI.
In case of fire, they will rupture and disperse the oxygen before the cylinder can over pressurize and explode.
69. Always open all cylinder valves very slowly to avoid exploding the regulator.
70. Open acetylene cylinder valves one and a half turns. They are low pressure seated valves.
71. Open oxygen cylinder valves all the way open. They are high pressure seated valves.
These valves will leak if not all the way open or all the way closed.
72. Never use grease, grease, or any other petroleum lubricant on oxyacetylene fittings. They could violently self ignite.
73. Before opening cylinder valves, make sure regulator pressure adjusting screws are backed out and no pressure is on the regulator diaphragm.
74. After valves have been turned on and pressures set, always open both hose lines one at a time before lighting the torch.
75. Always check to make sure equipment is in good condition and all fittings are checked before lighting torch.
76. Use soapy water to check for gas leaks in oxyacetylene systems.
77. Acetylene cylinders are filled to a maximum pressure of 3000 PSI.
78. Oxygen cylinders are filled to a maximum pressure of 3775 PSI.
79. Although 3000 PSI is the maximum safe working pressure for acetylene.
Most welding and cutting operations require only 5 PSI.
80. To preform OA cutting on 1/4" to 1/2" steel plate, use the following settings: Acetylene 5 PSI and Oxygen 35 PSI.
81. To preform OA welding on 1/16" to 1/8" steel plate, use the following settings: Acetylene 5 PSI and Oxygen 35 PSI.
82. All acetylene fittings have left hand threads and may be identified by a "left" on the fittings.
83. Oxygen fittings and all other non-fuel fittings have right hand threads.
84. Never open directly in front of regulators while turning them on. They could explode.
85. Never use oxygen or any other compressed cylinder gases to blow off sparks or use in place of compressed air.
86. Never leave a lit torch unattended or lay a lit torch on a table.
87. When oxyacetylene welding or cutting be cautious as to where the torch is pointing so as to not burn yourself or others.
88. Do not perform cutting in close proximity to the cylinder or cart.
Make sure the cylinder cart is at least 5 feet from the cutting zone.
89. When flame cutting, make sure the torch and molten slag don't fall on or come in contact with the torches hoses or yourself. Always have the torch lines come up from behind you like a fire fighters hose.
90. Never use oxyacetylene to cut on or in close proximity to concrete.
The high heat will cause the concrete to expand, which will cause it to crack and or explode.
91. Before starting to make an oxyacetylene cut, make sure that the cutting table will not cut into the cutting table, cutting table grating, cross bars, or other parts.

THE FOLLOWING QUESTION NUMBERS 92 THRU 120 COVER THE FOLLOWING PROCESSES:

- SHIELDED METAL ARC WELDING (SMAW)
- GAS METAL ARC WELDING (GMAW)
- FLUX CORED ARC WELDING (FCAW)
- GAS TUNGSTEN ARC WELDING (GTAW)
- PLASMA ARC CUTTING (PAC)
- CARBON ARC CUTTING (CAC) SAFETY

92. All welding and cutting processes require students to wear clear safety glasses and a face shield or welding hood with the appropriate ????? lens for that specific process.
93. Leather sleeves or a ?????? jacket must be worn at all times. (except for students performing GTAW)
94. GTAW requires the same personal safety clothing as the ????? processes, except that a long sleeve heavy cotton shirt may be worn in place of leathers.
95. When welding with FCAW, students must also ???? a long sleeve shirt under their leather sleeves.
96. Students welding with FCAW should wear a metal fumes ???????????.
97. Gauntlet style welding ?????? are the only approved gloves for these processes.
98. GTAW students, may wear thinner specially designed ???? gauntlet gloves.
99. Use of a minimum number ??? or darker filter lens is required for all arc welding operations.
100. Never look at an arc from any distance without the proper ??? protection and/or filter lens.
101. Never change electrodes or touch equipment without your gloves on. You could get an ??????????? shock.
102. Never change the amperage or ????????? on arc welding machines while the machine is in use or under load. You will damage the internal components of the machine.
103. Avoid arc welding in wet or ???? conditions. This could cause an electric shock.
104. Never arc weld on or let arc welding leads, electrode holders, guns, or electrodes come in ??????? with compressed gas cylinders. This could cause them to explode.
105. Make sure curtains, partitions, and ????? are in place before starting arc welding operations to guard others from arc flash.
106. Suspend or hang electrode holder in a manner that will protect it from touching any metal that could ground it. Everything metal in the building is ???? and will create an arc if touched with an arc welding electrode.
107. Avoid touching the welding booth's metal ventilation cover, table, pipes, and fixture arms with the electrode. Anything ????????? that is touched with an electrode will arc and cause damage.
108. Never handle or take out low hydrogen electrodes from the rod oven without wearing gloves. The oven is held at a temperature of ???° F and the electrodes will burn your hands.

PLASMA ARC CUTTING (PAC)

109. PAC and CAC require the ???? personal safety clothing as the earlier mentioned arc welding processes.
110. Plasma cutting requires a dark ?????? lens number 5 to 8.
111. Students are not permitted to use the Plasma Arc to pierce thru or make ????? in plate.
The sparks will back flash up into the nozzle and tip destroying the torch components.
112. Before starting any cutting operations, make sure the ????? lines are coming from behind you and will not be exposed to the shower of sparks.
113. Before initiating the Plasma Arc, check to see what is underneath the plate or sheet metal that is going to be cut.
Make sure the arc is not going to cut through the cutting table ???????? or cross bars or other metal parts.
114. Before initiating the cut, give a loud verbal ??????? to “watch your eyes” or say “cover” to the people in the immediate vicinity or area so they are not caught off guard or flashed.

CARBON ARC CUTTING (CAC)

115. Remove the electrode from the electrode holder or ???????? after every use.
116. Do not set the stinger down with the electrode in the holder because it could accidentally arc.
117. Carbon Arc Cutting requires a dark filter lens number ?? to ??.
118. Position the work piece and point the electrode so the sparks from the cut will be directed away from other students.
119. Make sure that all flammable materials are at least ?? feet away from the cutting area.
120. Before initiating the cut, give a loud verbal warning to “watch your eyes” or say “?????” to the people in the immediate vicinity or area so they are not caught off guard or flashed.

HYDRAULIC SHEAR SAFETY

121. Shears may only be operated under the direct ?????????????? of the instructor.
122. Never double up or ????? metal being sheared.
123. Never cut metal thicker than the ????? is rated for.
124. Make sure metal being cut is under a ????? down before initiating a cut.
125. Hands must be clear of the ??? or shears table and the metal being sheared before initiating each cut.
126. Never use fingers to feed metal under the ?????. Use another piece of metal.
127. Do not ????? metal into the backstop or fence. This will knock it out of calibration.
Feed or push the metal into the shear slowly and smoothly.
128. Use extreme caution when operating all shears and do not ????? or try to hurry up the speed of the job.
This is when accidents happen most of the time. Take your time and think about what you are doing.
No matter how slow you go, it will still be way faster than a hack saw.
129. Before making a cut, make sure no one is behind the shear and everyone is outside of the ?????? zone.
130. When making multiple cuts, do not feed metal into the shear until it has completed its ????? and the blade has come to a complete stop in the up position.
131. Feeding metal too fast can cause the metal to ??? and get bent up in the machine and or damage the back stop.
132. Never feed ???????? into a shear from the back side of the machine. This is an unsafe practice.

PORTABLE HAND AND OR ANGLE GRINDER SAFETY

133. Safety glasses and a clear face ?????? or welding hood with clear lens must both be worn.
134. Place the portable grinder on its back and look to see that the ?????? is in the off position before plugging in the power cord.
135. All portable grinders must be used with original ??????? safety guards and side handles.
136. When grinding, do not use excessive ?????? on the grinding disc or stall out the motor.
137. Keep the power ???? away from the grinding disc so it does not become entangled.
138. Always direct grinding sparks away from other ?????? that are in the area.
139. Never use a grinding disc that is chipped, ???????, or broken.
140. Always unplug the grinder before attempting to ?????? the grinding disc.
141. Wire wheels, knotted wire wheels, and or ???? cup brushes are strictly prohibited.

ABRASIVE CUT OFF SAW

142. Safety glasses and a clear face shield or welding hood with clear lens must both be ???? at all times.
143. Never operate any ??? equipment with the guards raised or removed.
144. Check the condition of the ???? prior to use. Do not use the machine if the disc is chipped, cracked, or broken.
145. Never ????? the disc through the part being cut. Let the disk do the cutting by using a gradual steady pressure.
146. Never attempt to remove a small cut off piece or try to remove a ??????? piece unless the power is turned off and the disk has come to a complete stop.

BELT SANDER

147. The two belt sanders located inside the shop by the ???? lab are for tungsten's only.
Please do not sand other metals or materials on these two belt sanders.
148. Do not use sanding belts that are ???? or frayed.
149. Never ????? or startle a person using the belt sanders.
150. Do not wear ????? when using the belt sanders.
151. Keep fingers and hands a ???? distance from the sanding belt.
152. When sanding small parts, make sure to use ?????? or vice grips to hold on to the small parts.
153. The belt sanders outside of the shop or in the outside laboratory areas can be used for sanding ??????? parts only.
Do not sand any nonferrous metals like aluminum. Do not sand on other materials like wood or plastic.

IRON WORKER & PIRANHA SAFETY

154. Because of the complexity, danger, and special tooling of these machines, ironworkers must be set up and operated only under the ?????? supervision of an instructor.

METAL BLADE SAWS

155. Because of the complexity, danger, and special tooling required for these machines, they must be set up and operated only under the direct ???????????? of an instructor.

VERTICAL AND HORIZONTAL BAND SAWS

156. Because of the complexity, danger, and special tooling required for these machines, they must be set up and operated only under the direct supervision of an ????????????.

CLOSING STATEMENT

157. If you are not sure about the ???? operation of any machine, tool, or piece of equipment or have questions regarding anything on safety, it is your responsibility to ask your instructor for assistance and guidance.

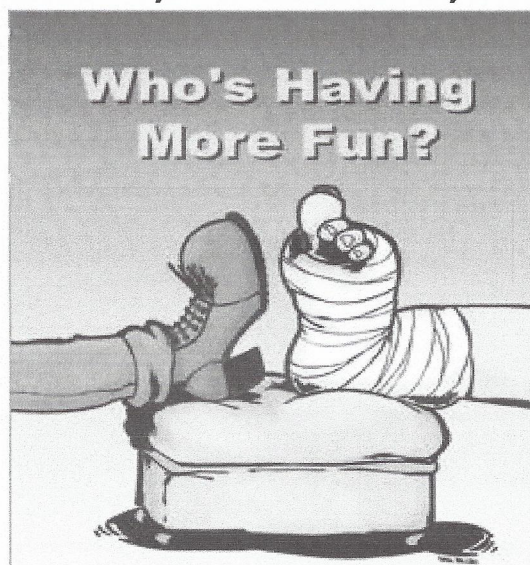
158. Do not rely on safety information or ?????? instructions from other students. Your safety may depend on it.

159. The Welding Instructors consider ?????? to be the most important aspect of the Program. Safety is included in every lecture and in every demonstration.

160. To keep this General Safety ???? to a manageable size, each student will also:

- Receive a specific Safety Data Sheet on every welding process.
- Receive a specific Safety Data Sheet on every piece of laboratory equipment.
- Receive verbal safety information from the Instructor on every process and piece of equipment.
- Receive a live Instructor demonstration on every piece of laboratory equipment.
- Students will have the opportunity to have all of their safety questions answered before starting new welding processes and or using new laboratory equipment.

Welcome to the Program and please always think about safety and make it your first priority. ☺



Cerritos College Welding Technology

**GENERAL SAFETY TEST
ANSWER SHEET PART "C"**

NAME:

INSTRUCTOR:

WELD CLASS #

SEMESTER:

YEAR:

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**GENERAL SAFETY TEST
ANSWER SHEET PART "C" page 2**

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| 82. | | 102. | | 122. | | 142. | |
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| 86. | | 106. | | 126. | | 146. | |
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| 88. | | 108. | | 128. | | 148. | |
| 89. | | 109. | | 129. | | 149. | |
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| 94. | | 114. | | 134. | | 154. | |
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| 96. | | 116. | | 136. | | 156. | |
| 97. | | 117. | | 137. | | 157. | |
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| 100. | | 120. | | 140. | | 160. | |