Welding Fabrication										
I. Identify safety standards on a test in accordance to ANSI Z49.										
Tasks Instructions:										
Each number to the right refers to a single student/candidate (1-10). Place a										
check ( $\checkmark$ ) in the respective column for the appropriate student/candidate										
number (1-10) if the skills listed below are observed as stated. Leave blank if	1	2	3	4	5	6	7	8	9	10
not observed. Student/candidate will only get credit for the skills they have										
demonstrated.										
Demonstrate proper use and inspection of equipment used for protection of										
personnel										
Model proper work area operation										
Demonstrate proper use and inspection of equipment used for ventilation										
Demonstrate proper Hot Zone operation										
Demonstrate proper working in confined spaces										
Understand precautionary labeling										
Model proper use and inspection of equipment used for each required welding										
or thermal cutting process										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (9)										
II. Demonstrate an understanding of practical measurement.										
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10

Identify basic metal-working tools used in measuring										
Use visual measuring tools to accuracy of 1/64 of an inch										
Employ the components of a combination square set										
Use layout and marking tools as required										
Determine wire feed speed as indicated on drawing										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (7)										
						•		•		
III. Read and interpret blueprints.										
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing provided	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing provided Read and understand three-dimensional drawings	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing provided         Read and understand three-dimensional drawings         Identify the basic views used in blueprints including assembly, detail and fit-	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing provided Read and understand three-dimensional drawings Identify the basic views used in blueprints including assembly, detail and fit- up drawings	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing provided         Read and understand three-dimensional drawings         Identify the basic views used in blueprints including assembly, detail and fit- up drawings         Identify common types of lines, abbreviations and symbols in accordance with	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing provided         Read and understand three-dimensional drawings         Identify the basic views used in blueprints including assembly, detail and fit- up drawings         Identify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI)	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing providedRead and understand three-dimensional drawingsIdentify the basic views used in blueprints including assembly, detail and fit- up drawingsIdentify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI)Identify basic welding symbols and components of a symbol (such as an	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing providedRead and understand three-dimensional drawingsIdentify the basic views used in blueprints including assembly, detail and fit- up drawingsIdentify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI)Identify basic welding symbols and components of a symbol (such as an arrow, reference line, tail, size or length) in accordance with the current	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing provided Read and understand three-dimensional drawings Identify the basic views used in blueprints including assembly, detail and fit- up drawings Identify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI) Identify basic welding symbols and components of a symbol (such as an arrow, reference line, tail, size or length) in accordance with the current national welding symbol standard, AWS A 2.4 current edition	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing providedRead and understand three-dimensional drawingsIdentify the basic views used in blueprints including assembly, detail and fit- up drawingsIdentify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI)Identify basic welding symbols and components of a symbol (such as an arrow, reference line, tail, size or length) in accordance with the current national welding symbol standard, AWS A 2.4 current editionSafety and infection control are adhered to during all aspects of this task.	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing providedRead and understand three-dimensional drawingsIdentify the basic views used in blueprints including assembly, detail and fit- up drawingsIdentify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI)Identify basic welding symbols and components of a symbol (such as an arrow, reference line, tail, size or length) in accordance with the current national welding symbol standard, AWS A 2.4 current editionSafety and infection control are adhered to during all aspects of this task.The student completed task within the time limited.	1	2	3	4	5	6	7	8	9	10
Apply information found in the information block of the drawing providedRead and understand three-dimensional drawingsIdentify the basic views used in blueprints including assembly, detail and fit- up drawingsIdentify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI)Identify basic welding symbols and components of a symbol (such as an arrow, reference line, tail, size or length) in accordance with the current national welding symbol standard, AWS A 2.4 current editionSafety and infection control are adhered to during all aspects of this task.The student completed task within the time limited.Points earned		2	3	4	5	6	7	8	9	10

## IV. Produce welds using a Shielded Metal Arc Welding (SMAW) process to AWS QC10 standards.

Tasks Instructions:

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	1	2	3	4	5	6	7	8	9	10
Demonstrate safety procedures for SMAW										
Demonstrate ability to correctly set up SMAW power sources, related welding										
equipment and do basic process and equipment troubleshooting										
Correctly identify basic metal prior to welding										
Set up and shut down equipment for welding of carbon steel and/or stainless										
steel										
Select correct type of filler metal size of electrode based on carbon steel										
and/or stainless steel plate (1/4 inch to 1/2 inch thickness)										
Prepare carbon steel and/or stainless steel for welding										
Start, stop and restart stringer beads on carbon steel and/or stainless steel in										
the flat. Horizontal, vertical up and down and overhead positions										
Weld a pad with a multiple-pass weld on carbon steel and stainless steel										
plate in the flat. Horizontal, vertical up and down and overhead positions										
Weld a lap joint with a single-pass weld on carbon steel and stainless steel										
plate in the flat. Horizontal, vertical up and down and overhead positions										
Weld a lap joint with multiple-pass, fillet weld on carbon steel and stainless										
steel plate in the flat. Horizontal, vertical up and down and overhead positions										
Weld a T-joint with a single-pass, fillet weld on carbon steel and stainless										
steel plate in the flat. Horizontal, vertical up and down and overhead positions										
Weld a T-joint with a multiple pass, fillet weld on carbon steel and stainless										
steel plate in the flat. Horizontal, vertical up and down and overhead positions										
Weld a butt joint with a single-pass, square groove weld on carbon steel and										
stainless steel plate in the flat. Horizontal, vertical up and down and overhead										

positions										
Weld a butt joint with a partial joint penetration, single pass, double V-groove										
weld on carbon steel and stainless steel plate in the flat. Horizontal, vertical										
up and down and overhead positions										
Weld a butt joint with a multiple-pass, V-groove weld on carbon steel and										
stainless steel plate in the flat. Horizontal, vertical up and down and overhead										
positions										
Weld a butt joint with complete joint penetration, multiple pass, double groove										
weld on carbon steel and stainless steel plate in the flat. Horizontal, vertical										
up and down and overhead positions										
Weld 2 to 8 inch diameter, schedules 40 to 80 carbon steel and stainless										
steel pipe, single/multiple pass V-groove weld in 2G, 5G, and 6G positions										
Lay out, weld, cut and prepare coupons for evaluation										
Test the prepared coupon										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (21)										
V. Produce welds using a Gas Metal Arc Welding (GMAW) process to AWS	QC1	0 sta	anda	rds.	1					
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10
	-		)	_					-	
Demonstrate correct safety procedures for GMAW										
Demonstrate ability to correctly set up GMAW power sources, related welding										
equipment and do basic process and equipment troubleshooting										
Correctly identify base metal prior to welding										
Set up and shut down equipment for short circuiting, globular, spray and										

pulsed transfer welding of carbon steel, stainless steel and/or aluminum					
Select correct type of filler metal size of electrode, type of shielding gas, wire					
feed speed and voltage based on carbon steel, stainless steel and/or					
aluminum sheet and/or plate (1/16 inch to 3/8 inch thickness)					
Prepare the carbon steel, stainless steel and/or aluminum for welding					
Start, stop, and restart stringer beads on carbon steel, stainless steel and					
aluminum steel sheet/plate in the flat, horizontal, vertical up and down, and					
overhead positions					
Weld a pad with a multiple-pass weld on carbon steel, stainless steel and					
aluminum steel sheet/plate in the flat, horizontal, vertical up and down, and					
overhead positions					
Weld a lap joint with a single-pass, fillet weld on carbon steel, stainless steel					
and aluminum steel sheet/plate in the flat, horizontal, vertical up and down,					
and overhead positions					
Weld a lap joint with a multiple-pass, fillet weld on carbon steel, stainless					
steel and aluminum steel sheet/plate in the flat, horizontal, vertical up and					
down, and overhead positions					
Interrupt root pass at mid point and restart arc					
Weld a T-joint with a single-pass, fillet weld on carbon steel, stainless steel					
and aluminum steel sheet/plate in the flat, horizontal, vertical up and down,					
and overhead positions					
Weld a T-joint with a multiple-pass, fillet weld on carbon steel, stainless steel					
and aluminum steel sheet/plate in the flat, horizontal, vertical up and down,					
and overhead positions					
Weld a butt joint with a single-pass, square groove weld on carbon steel,					
stainless steel and aluminum steel sheet/plate in the flat, horizontal, vertical					
up and down, and overhead positions					
Weld a butt joint with a partial joint penetration; single-pass and double V-					
groove weld on carbon steel, stainless steel and aluminum plate in the flat,					
horizontal, vertical up and down, and overhead positions					

Weld a butt joint with a multiple-pass, V-groove weld on carbon steel,										
stainless steel and aluminum plate in the flat, horizontal, vertical up and down,										
and overhead positions										
Weld a butt joint with complete joint penetration; multiple-pass and double V-										
groove weld on carbon steel, stainless steel and aluminum plate in the flat,										
horizontal, vertical up and down, and overhead positions										
Weld 2 to 8 inch diameter, schedule 40 to 80 carbon steel, stainless steel										
and aluminum pipe, single/multiple pass V-groove weld in the 2G, 5G, and										
6G positions										
Lay out, weld, cut and prepare coupons for evaluation										
Test prepared coupons										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (22)										
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VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV	vsc	QC10	) sta	ndar	rds.	<u> </u>		I	I	I
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV Tasks Instructions:	VS C	QC10	) sta	ndar	rds.	I		I	I	I
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV Tasks Instructions:	VS C	QC10	) sta	ndar	ds.					
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV Tasks Instructions:	VSC	QC10	) sta	ndar	rds.					
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV Tasks Instructions:	vs c	2	) sta 3	ndar 4	rds.	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV Tasks Instructions:	vs c	2	) sta 3	ndar 4	rds. 5	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV         Tasks Instructions:         Demonstrate correct safety procedures for FCAW	vs c	2	) sta 3	ndar 4	rds. 5	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV         Tasks Instructions:         Demonstrate correct safety procedures for FCAW         Demonstrate ability to correctly set up FCAW power sources, related welding		2	) sta 3	ndar 4	rds.	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV         Tasks Instructions:         Demonstrate correct safety procedures for FCAW         Demonstrate ability to correctly set up FCAW power sources, related welding         equipment and do basic process and equipment troubleshooting		2	) sta	4	5	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV         Tasks Instructions:         Demonstrate correct safety procedures for FCAW         Demonstrate ability to correctly set up FCAW power sources, related welding         equipment and do basic process and equipment troubleshooting         Correctly identify base metal prior to welding		2	) sta 3	4	5	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV         Tasks Instructions:         Demonstrate correct safety procedures for FCAW         Demonstrate ability to correctly set up FCAW power sources, related welding         equipment and do basic process and equipment troubleshooting         Correctly identify base metal prior to welding         Set up and shut down equipment for welding of carbon steel and/or stainless		2	) sta 3	4	5	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV         Tasks Instructions:         Demonstrate correct safety procedures for FCAW         Demonstrate ability to correctly set up FCAW power sources, related welding         equipment and do basic process and equipment troubleshooting         Correctly identify base metal prior to welding         Set up and shut down equipment for welding of carbon steel and/or stainless steel		2	) sta 3	4	5	6	7	8	9	10
VI. Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AV         Tasks Instructions:         Demonstrate correct safety procedures for FCAW         Demonstrate ability to correctly set up FCAW power sources, related welding equipment and do basic process and equipment troubleshooting         Correctly identify base metal prior to welding         Set up and shut down equipment for welding of carbon steel and/or stainless steel         Select correct type of filler metal, size of electrode, type of shielding gas (if		2	) sta 3	4	5	6	7	8	9	10

stainless steel sheet and/or plate (1/16 inch to 3/8 inch thickness)					
Prepare carbon steel and/or stainless steel for welding					
Start, stop and restart stringer beads on carbon steel and stainless steel					
sheet/plate in the flat, horizontal, vertical up and overhead positions					
Weld a pad with a multiple-pass weld on carbon steel and stainless steel					
sheet/plate in the flat, horizontal, vertical up and overhead positions					
Weld a lap joint with a single-pass, fillet weld on carbon steel and stainless					
steel sheet/plate in the flat, horizontal, vertical up and overhead positions					
Weld a lap joint with a multiple-pass, fillet weld on carbon steel and stainless					
steel sheet/plate in the flat, horizontal, vertical up and overhead positions.					
Start and restart in the middle of the joint					
Weld a T-joint with a single-pass, fillet weld on carbon steel and stainless					
steel sheet/plate in the flat, horizontal, vertical up and overhead positions					
Weld a T-joint with a multiple-pass, fillet weld on carbon steel and stainless					
steel sheet/plate in the flat, horizontal, vertical up and overhead positions					
Weld a butt joint in a single-pass, square groove weld on carbon steel and					
stainless steel sheet/plate in the flat, horizontal, vertical up and overhead					
positions					
Weld a butt joint with a partial joint penetration, single pass, double V-groove					
weld on carbon steel and stainless steel plate in the flat, horizontal, vertical up					
and overhead positions					
Weld a butt joint with a multiple-pass, V-groove weld on carbon steel and					
stainless steel plate in the flat, horizontal, vertical up and overhead positions					
Weld a butt joint with complete joint penetration, multiple-pass, double V-					
groove weld on carbon steel and stainless steel plate in the flat, horizontal,					
vertical up and overhead positions					
Weld 2 inch to 8 inch diameter, schedules 40-80 carbon steel and stainless					
steel pipe, single/multiple pass V-groove weld in the 2G, 5G, and 6G					
positions					
Lay out, cut and prepare coupons for evaluation					

Test prepared coupons										
Safety and infection control are adhered to during all aspects of this task										
The student completed task within the time limited.										
Points earned										
Total possible points (21)										
VII. Produce welds using a Gas Tungsten Arc Welding (GTAW) process to A	ws	QC1	I0 st	and	ards	•				
Tasks Instructions:										
					_		_			
		2	3	4	5	6	/	8	9	10
Demonstrate safety procedures for GTAW										
Demonstrate ability to correctly set up GTAW power sources, related welding										
equipment and do basic process and equipment troubleshooting										
Correctly identify base metal prior to welding										
Set up and shut down equipment for regular and pulsed welding of aluminum,										
stainless steel and/or carbon steel										
Select the correct size and type of tungsten and/or filler metal based on										
aluminum, stainless steel or carbon steel sheet and/or plate (1/16 inch to $\frac{1}{4}$										
inch thickness)										
Prepare aluminum, stainless steel and/or carbon steel for welding										
Start, stop and restart stringer beads on aluminum, stainless steel and carbon										
steel sheet/plate in a flat, horizontal, vertical up and down and overhead										
positions										
Weld a pad with multiple-pass weld on aluminum, stainless steel and carbon										
steel sheet/plate in a flat, horizontal, vertical up and down and overhead										
positions										
Weld a lap joint with a single-pass, fillet weld on aluminum, stainless steel										
and carbon steel sheet/plate in a flat, horizontal, vertical up and down and										

overhead positions					
Weld a lap joint with a multiple-pass, fillet weld on aluminum, stainless steel					
and carbon steel sheet/plate in a flat, horizontal, vertical up and down and					
overhead positions					
Weld a T-joint with a single-pass, fillet weld on aluminum, stainless steel and					
carbon steel sheet/plate in a flat, horizontal, vertical up and down and					
overhead positions					
Weld a T-joint with a multiple-pass, fillet weld on aluminum, stainless steel					
and carbon steel sheet/plate in a flat, horizontal, vertical up and down and					
overhead positions					
Weld a butt joint with a single-pass, square groove weld on aluminum,					
stainless steel and carbon steel sheet/plate in a flat, horizontal, vertical up					
and down and overhead positions					
Weld a butt joint with a partial joint penetration, single-pass, double V-groove					
weld on aluminum, stainless steel and carbon steel sheet/plate in a flat,					
horizontal, vertical up and down and overhead positions					
Weld a butt joint with a multiple-pass, V-groove weld on aluminum, stainless					
steel and carbon steel sheet/plate in a flat, horizontal, vertical up and down					
and overhead positions					
Weld a butt joint with a complete joint penetration, multiple-pass and double					
V-groove weld on aluminum, stainless steel and carbon steel sheet/plate in a					
flat, horizontal, vertical up and down and overhead positions					
Weld 2 to 8 inches diameter, schedules 40 to 80 aluminum, stainless steel,					
carbon steel pipe, single/multiple pass V-groove weld in the 2G, 5G, and 6G					
positions					
Lay out, weld, cut and prepare coupons for evaluation					
Test prepared coupons					
Safety and infection control are adhered to during all aspects of this task					
The student completed task within the time limited					
Points earned					

Total possible points (21)

VIII. Produce cut materials using an Oxygen Fuel Cutting (OFC) process to AWS QC10 standards.

Tasks Instructions:

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	1	2	3	4	5	6	7	8	9	10
Demonstrate safety procedures for OFC										
Demonstrate ability to correctly set up the OAC equipment for cutting and do										
basic process troubleshooting										
Correctly identify base metal prior to cutting										
Set up and shut down equipment for cutting carbon steel plate										
Select correct tip size and gas pressure for serving carbon steel plate (1/4										
inch to $\frac{1}{2}$ inch thickness)										
Prepare carbon steel for cutting										
Demonstrate cutting operations that will be specified in drawings and										
procedure sheets provided by the evaluator										
Properly light, adjust the flame, and shut down the oxygen fuel equipment										
Use a straight edge and soapstone laying out the prescribed pattern										
Make a square cut on carbon steel in flat, horizontal, vertical and overhead										
positions										
Make a bevel cut (45 degree angle) on carbon steel in flat, horizontal, vertical										
and overhead positions										
Pierce a hole on carbon steel in the flat, horizontal, vertical and overhead										
positions										
Make a pipe and tubing cut on carbon steel in flat, horizontal, vertical and										
overhead positions										
Make a gouge and groove cut on carbon steel in flat, horizontal, vertical and										
overhead positions										

Lay out, weld, cut, and prepare coupons for evaluation										
Test prepared coupons										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (18)										
IX. Produce cut materials using a Plasma Arc Cutting (PAC) process to AWS	s QC	C10 s	stan	dard	ls.					
Tasks Instructions:										
		2	_		_	_	_			10
		2	3	4	Э	0	/	ŏ	9	10
Demonstrate safety procedures for PAC										
Demonstrate ability to correctly set up the PAC power sources, related cutting										
equipment and do basic process and equipment troubleshooting										
Correctly identify base metal prior to cutting										
Set up and shut down equipment for cutting carbon steel, stainless steel										
and/or aluminum										
Select correct cutting head and gas pressure for severing carbon steel,										
stainless steel or aluminum plate and/or sheet (1/16 inch to $\frac{1}{4}$ inch										
thickness)										
Prepare carbon steel, stainless steel and/of aluminum for cutting										
Demonstrate cutting operations that will be specified in drawings and										
procedure sheets provided by the evaluator										
Properly adjust and use the plasma arc equipment										
Use a straight edge and soapstone laying out the prescribed pattern										
Make a square cut on carbon steel, stainless steel and aluminum sheet/plate										
in flat, horizontal, vertical and overhead positions										
Make a bevel cut (45 degree angle) on carbon steel, stainless steel and		1		1			1			

aluminum sheet/plate in flat, horizontal, vertical and overhead positions										
Pierce a hole on carbon steel, stainless steel and aluminum sheet/plate in										
flat, horizontal, vertical and overhead positions										
Make a pipe and tubing cut on carbon steel, stainless steel and aluminum										
sheet/plate the horizontal, vertical and overhead positions										
Make a gouge and groove cut on carbon steel, stainless steel and aluminum										
sheet/plate in the flat position										
Lay out, cut and prepare coupons for evaluation										
Test prepared coupons										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (18)										
								1	11	
X. Demonstrate knowledge of visual inspection.										
Tasks Instructions:										
	1	2	2	1	5	6	7	Q	٥	10
	•	2	5	-	J	Ū	<b>'</b>	0	5	10
Examine and measure undercut										
Examine and measure porosity										
Measure fillet size										
Examine and measure weld reinforcement										
Determine acceptability of welded samples in accordance with provided										
acceptance criteria										
Safety and infection control are adhered to during all aspects of this task.			1	1	1					
The student completed task within the time limited.										
The student completed task within the time limited. Points earned										

Total points earned for all sections (A)					
Total possible points for all sections (B) 151					
Student/candidate score (divide A/B)					