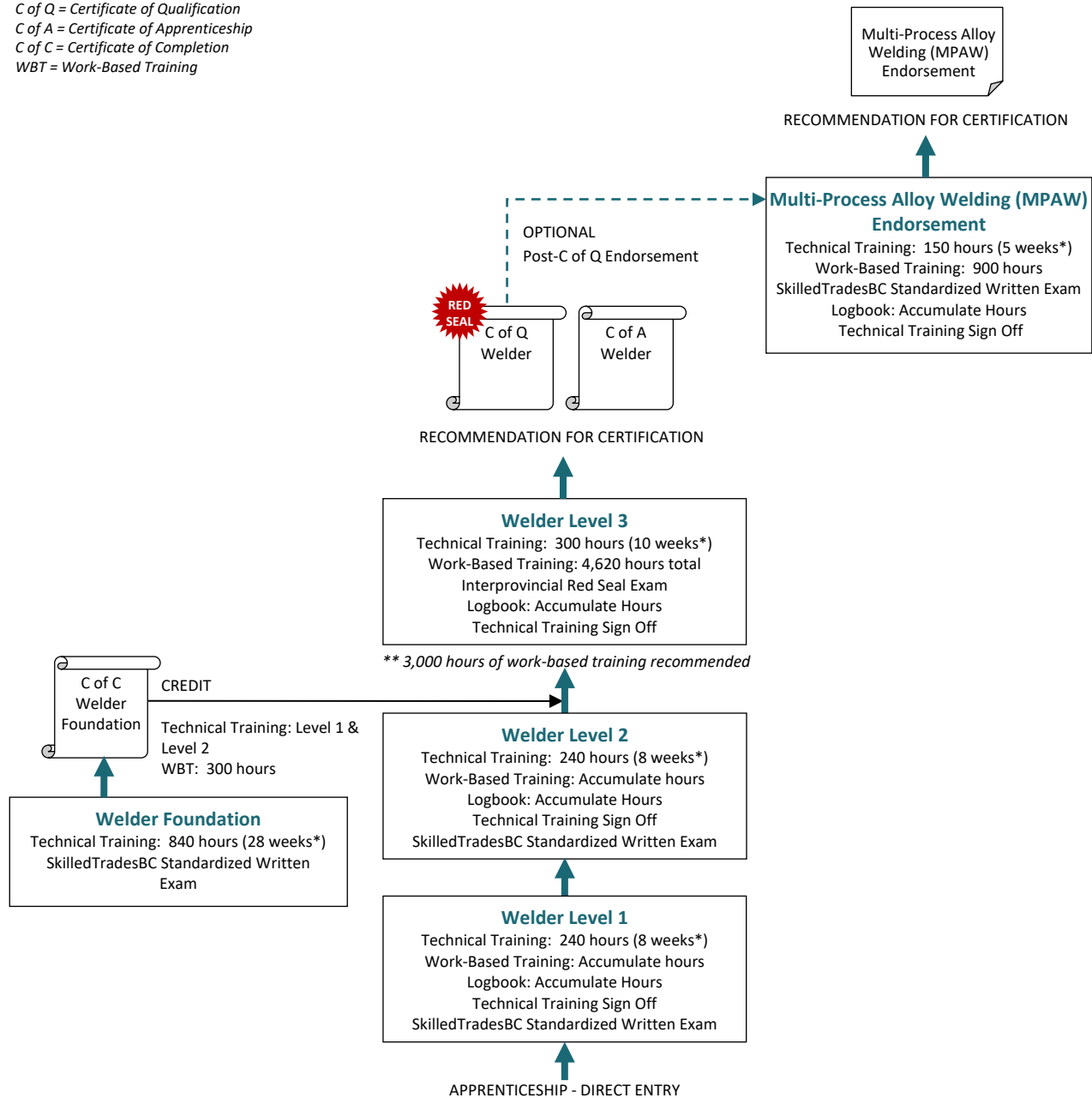


Program Credentialing Model

Apprenticeship Pathway

This graphic provides an overview of the Welder apprenticeship pathway.

*C of Q = Certificate of Qualification
C of A = Certificate of Apprenticeship
C of C = Certificate of Completion
WBT = Work-Based Training*



*Suggested duration based on 30-hour week

** 3,000 hours of work-based training recommended prior to entering Level 3 Technical Training (hours to be verified by Sponsor/Employer)

CROSS-PROGRAM CREDITS

Individuals who hold the credentials listed below are entitled to receive partial credit toward the completion requirements of this program

None

Training Topics and Suggested Time Allocation: Foundation

Welder – Foundation

		% of Time Allocated to:			
		% of Time	Theory	Practical	Total
Line A	Occupational Skills	7%	50%	50%	100%
A1	Describe welder apprenticeship and the scope of the trade in BC		✓		
A2	Describe safe working practices		✓		
A3	Perform basic trade related mathematical calculations		✓		
A4	Use and maintain measuring and layout tools		✓		
A5	Use and maintain hand tools		✓	✓	
A6	Use and maintain power tools (electric and pneumatic)		✓	✓	
A7	Describe shop materials		✓	✓	
A8	Apply lifting, hoisting and rigging procedures		✓	✓	
Line B	Cutting and Gouging Processes	6%	20%	80%	100%
B1	Describe Oxy-Fuel Cutting (OFC) processes and their applications		✓		
B2	Describe Oxy-Fuel Cutting (OFC) equipment and its operation		✓		
B3	Perform freehand and guided cuts on low carbon steel (OFC)			✓	
B4	Use automatic and semi-automatic cutting machines (OFC)			✓	
B5	Describe CAC-A and PAC processes, equipment and their applications		✓		
B6	Use CAC-A and PAC cutting and gouging processes and equipment		✓	✓	
Line C	Fusion and Braze Welding (TB) Using the Oxy-Fuel (OFW) Process	3%	20%	80%	100%
C1	Describe fusion welding, braze welding and brazing processes and their applications		✓		
C2	Describe fusion welding, braze welding and brazing equipment and its operation		✓		
C3	Describe filler metals, fluxes and tips used for fusion welding, braze welding and brazing		✓		
C4	Describe joint design and weld positions for OFW		✓		
C5	Fusion weld on low carbon steel sheet			✓	
C6	Braze weld (TB) using the OFW process		✓	✓	
C7	Silver alloy braze on similar and dissimilar metals		✓		

Line D Shielded Metal Arc Welding (SMAW)		42%	20%	80%	100%
D1	Describe the SMAW process		✓		
D2	Describe SMAW equipment and its operation		✓		
D3	Select electrodes for SMAW		✓		
D4	Describe basic joint design and weld positions for SMAW		✓		
D5	Describe weld faults and distortion in fabrications in SMAW		✓		
D6	Use the SMAW process on low carbon steel plate and pipe			✓	
D7	Use the hardsurfacing process on low carbon steel		✓		
D8	Describe the SMAW process on grey cast iron			✓	
D9	Use the SMAW process on stainless steel and/or low carbon steel plate and pipe		✓		
Line E Semi-Automatic and Automatic Welding		30%	25%	75%	100%
E1	Describe GMAW, GMAW-P, FCAW, MCAW and SAW processes and their applications		✓		
E2	Describe semi-automatic and automatic welding equipment and its operation		✓		
E3	Describe filler metal and shielding gases for semi-automatic and automatic processes		✓		
E4	Use the GMAW and GMAW-P process			✓	
E5	Use the FCAW process			✓	
E6	Use the MCAW process			✓	
E7	Use the SAW process		✓		
Line F Gas Tungsten Arc Welding (GTAW)		4%	15%	85%	100%
F1	Describe the GTAW process and its application		✓		
F2	Describe GTAW equipment and its operation		✓		
F3	Describe the application of GTAW for ferrous metals		✓		
F4	Use the GTAW process for ferrous metals		✓		
F5	Use the GTAW process for stainless steel			✓	
Line H Basic Metallurgy		1%	90%	10%	100%
H1	Describe production processes for manufacturing metals		✓		
H2	Describe mechanical and physical properties of ferrous and non-ferrous metals		✓		
H3	Describe common ferrous, non-ferrous, reactive metals and their weldability		✓	✓	

		7%	15%	85%	100%
Line I	Welding Drawings, Layout and Fabrication				
I1	Identify common welding symbols and bolted connections		✓		
I2	Read and interpret drawings		✓		
I3	Perform basic drafting		✓	✓	
I4	Perform mathematical calculations		✓		
I5	Interpret and apply mechanical drawings and layout components		✓	✓	
I6	Fabricate weldments		✓	✓	
I7	Costing and estimating		✓	✓	
Total Percentage for Welder Foundation		100%			