

Metal Fabricator – Competency Changes

Current Program Outline Competencies found in Harmonized Level 1

This document is to show the **60 additional hours** from current level 1 to harmonized level 1

Green = Added

Red = Removed/Moved/Combined

210 hours
(Increased by 60 hours)

A Introduction to the Trade

A1 Describe the Metal Fabrication Trade

B Use Safe Work Practices

- B1 Describe safe shop practices
- B2 Identify legislation which regulates safe working environments
- B3 Describe protective clothing and equipment
- B4 Use basic lifting techniques (body mechanics)
- B5 Describe fire safety
- B6 Describe safe work practices for confined work spaces**

C Solve Trade Math Problems

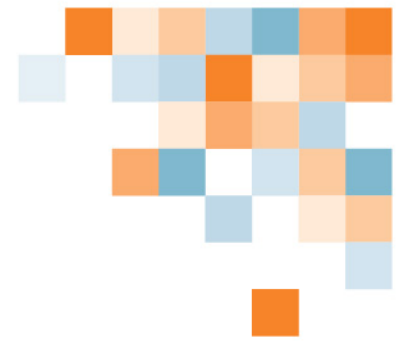
- C1 Solves problems involving fractions
- C2 Use a scientific calculator
- C3 Calculate a flat pattern layout for cylinders and forming
- C4 Calculate area and weights/mass for various plate shapes
- C5 Solves problems using ratio and proportion
- C6 Solve simple problems using geometric construction
- C7 Solve simple problems using Pythagorean theory
- C10 Solve problems involving weight, mass and the capacity of vessels (CL2 → HL1)**

D Use Trade Tools

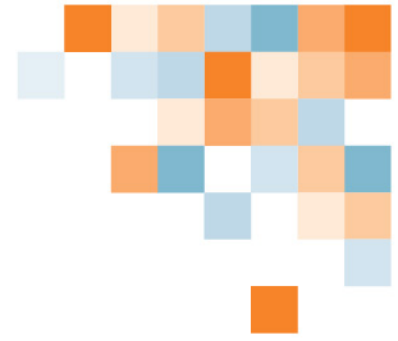
- D1 Use basic measuring, layout and hand tools
- D2 Use bench and hand grinders
- D3 Use and maintain portable power tools
- D4 Use specialized measuring tools (CL4 → HL1)**

E Use Shop Equipment

- E1 Use the power plate shears
- E2 Use the hydraulic brake press
- E3 Use the power plate rolls
- E4 Use the ironworker
- E5 Use shop saws



E6	Use drill presses
E7	Use thread cutting machine (CL2 → HL1)
F	Burn and Weld Metals
F1	Describe safe burning practices
F2	Use a portable oxy-fuel unit
F3	Describe safe arc welding practices
F4	Identify various arc welding practices
F5	Identify electrode characteristics and classifications
F6	Welder plate using manual arc welding equipment
F7	Use arc-air gouging/cutting methods (CL2 → HL1)
F9	Use semi-automatic welding machines (CL2 → HL1)
G	Read Drawings
G1	Sketch objects using isometric projection
G2	Sketch objects using orthographic projection
G3	Draw secondary views of simple objects
G4	Identify standard symbols and abbreviations
G5	Interpret standard weld symbols
G6	Interpret simple multi-view shop drawings
G7	Interpret simple structural drawings
H	Use Material Handling Equipment
H1	Use safe rigging practices
H2	Use material handling equipment and storage practices
H3	Use synthetic and natural fiber lines (CL2 → HL1)
H4	Describe safe work practices related to mobile equipment
H5	Describe safe work practices related to mobile equipment
I	Use Structural Layout Techniques
I1	Identify standard structural shapes
I2	Layout simple templates from a given structural shop drawing
J	Develop Plate and Structural Patterns
J1	Define basic layout terms
J2	Develop various patterns using parallel lines development
J3	Describe shop layout and processing for plate
K	Use Surface Preparation and Finishing Methods
K1	Describe common method of metal preparation
K2	Describe the types of paints used in industry
K3	Identify the common methods of paint application



L	Fabricate Plate and Structural Sections
L1	Describe common fitting consideration and procedures
L2	Fabricate a cylinder within a cylinder
L3	Layout and fit a structural beam (CL2 → HL1)
M	Describe Basic Metallurgy and Testing Techniques
M1	Describe the types, grades and properties of steels (CL4 → HL1)
M2	Describe the effects of heat and stress on metals (CL4 → HL1)
M3	Describe stress relieving techniques on metals (CL4 → HL1 & 2)
M4	Identify and use common metal testing methods (CL4 → HL1 & 2)
N	Use Testing and Inspection Methods
N1	Describe relevant provincial, national and international fabrication codes (CL4→HL1)
N2	Use standard non-destructive testing inspection techniques (CL4 → HL1)
O	On-site Installation
O2	Establish laydown area (CL4 → HL1)
O3	Determine required equipment (CL4 → HL1 & 3)