

Trade Profile

Metal Fabricator (Fitter)



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Trade profile

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Structure of the Trade Profile

This profile has two sections that provide a snapshot of the trade's description, and all trade activities as they are organized in the Red Seal Occupational Standard:

Description of the Metal Fabricator (Fitter) trade: an overview of the trade's duties, work environment, job requirements, similar occupations and career progression

Task Matrix: a chart which outlines graphically the major work activities, tasks and sub-tasks of this standard

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities

Task: distinct actions that describe the activities within a major work activity

Sub-task: distinct actions that describe the activities within a task

Description of the Metal Fabricator (Fitter) Trade

“Metal Fabricator (Fitter)” is this trade’s official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by metal fabricators (fitters).

Metal fabricators (fitters) make and repair metal parts used in the construction of buildings, bridges, tanks, towers, boilers, pressure vessels and other structures and products. They develop templates, patterns, jigs and fixtures. They lay out, cut and fabricate structural steel, plate, and miscellaneous ferrous and non-ferrous metals for use in a wide variety of manufacturing and construction industries. They also assemble and fit metal sections and plates together to form complete units or sub-units such as frames, plates, girders and chutes that are used later in the assembly process.

Metal fabricators (fitters) must have the ability to interpret fabrication drawings and specifications. They select materials to accomplish their work. Metal fabricators (fitters) use tools and equipment such as plate rolls, press brakes, saws, iron worker, plate shears, plasma cutters, oxy-fuel cutting torches, grinders and drills to bend, cut, punch, drill or form metal components. They may also use computer numerical controlled (CNC) equipment. They fasten components together by using methods such as welding and bolting. They also use material handling and rigging, hoisting and lifting equipment to move materials and completed assemblies.

Skills important to metal fabricators (fitters) include the ability to visualize in three-dimensions, good coordination, mechanical aptitude, manual dexterity and the ability to perform work-related mathematical calculations.

There are risks associated with this trade such as working in close quarters, at heights, and with power tools, welding equipment, elevated work platforms, access equipment, and heavy materials.

Metal fabricators (fitters) usually work indoors in fabricating shops or factories. Some may also work outdoors fitting and fastening sub-assemblies. They may be employed by welding or ironworking companies, or by manufacturers of structural steel, boilers, heavy machinery and transportation equipment. They can also find employment in other sectors including maintenance, shipbuilding, fishing, agricultural equipment, railways, aviation, mining and the oil and gas industry.

This standard recognizes similarities or overlaps with the work of welders, sheet metal workers, ironworkers, steamfitter/pipefitters, industrial mechanics (millwrights) and boilermakers. Metal fabricators (fitters) often hold one or more welding qualifications.

With experience, metal fabricators (fitters) may act as mentors and trainers to apprentices in the trade. They may advance to positions such as lead hand, supervisor, quality assurance/quality control inspector, or contract manager, or set up their own shops.

Metal Fabricator (Fitter)

Task Matrix

A – Performs common occupational skills

26%

Task A-1 Performs safety-related functions 17%	A-1.01 Maintains safe work environment	A-1.02 Uses personal protective equipment (PPE) and safety equipment	
Task A-2 Uses and maintains tools and equipment 19%	A-2.01 Uses hand, power, layout and measuring tools and equipment	A-2.02 Uses stationary machinery	A-2.03 Maintains cutting and welding equipment
	A-2.04 Uses access equipment		
Task A-3 Organizes work 17%	A-3.01 Interprets plans, drawings and specifications	A-3.02 Organizes project tasks	
Task A-4 Performs quality assurance throughout fabrication and assembly process 20%	A-4.01 Performs visual inspections	A-4.02 Verifies measurements, welds and layout	A-4.03 Tracks materials and parts for traceability
Task A-5 Handles materials 18%	A-5.01 Organizes material	A-5.02 Determines weights	A-5.03 Applies rigging practices
	A-5.04 Operates material handling equipment		
Task A-6 Uses communication and mentoring techniques 9%	A-6.01 Uses communication techniques	A-6.02 Uses mentoring techniques	

B – Fabricates components

43%

Task B-7
Performs layout
41%

B-7.01 Performs pattern development	B-7.02 Calculates material allowances for various processes	B-7.03 Determines dimensions
B-7.04 Transfers dimensions	B-7.05 Makes templates	

Task B-8
Cuts materials
31%

B-8.01 Cuts material using plasma cutting equipment	B-8.02 Cuts material using oxy-fuel cutting equipment	B-8.03 Cuts material using shears
B-8.04 Cuts material using saws	B-8.05 Cuts material using ironworkers	B-8.06 Cuts material using computer numerically controlled (CNC) equipment
B-8.07 Drills holes	B-8.08 Cuts threads	B-8.09 Prepares joints

Task B-9
Forms materials
27%

B-9.01 Forms materials using plate rollers	B-9.02 Forms material using shape rollers	B-9.03 Forms material using conventional and computer numerically controlled (CNC) press brakes
B-9.04 Forms materials using benders	B-9.05 Applies heat for forming	

C – Assembles components

31%

Task C-10
Fits and fastens sub-components and components
48%

C-10.01 Assembles jigs	C-10.02 Determines sequence for assembly	C-10.03 Assembles sub-components and components
C-10.04 Sets fabricated components in place	C-10.05 Joins components on-site	

Task C-11
Performs welding activities
31%

C-11.01 Applies heat prior to tack welding	C-11.02 Performs tack welding	C-11.03 Minimizes welding distortions
C-11.04 Applies welding processes	C-11.05 Corrects welding distortions	

Task C-12
Completes project
21%

C-12.01 Identifies type of finish	C-12.02 Prepares material for finishing
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