Careers in manufacturing: engineering fabrication

Structural steel and welding

Structural steel and welding workers cut, shape, join and repair iron and steel frames and structures, pipes, tanks and pressure vessels, transportation and haulage vehicles and vessels, and an almost limitless range of products in both the light and heavy fabrication industry.

Tasks include:

- interpreting blueprints, drawings and specifications to determine job requirements
- selecting, cleaning and preparing metal stock
- cutting marked-out metal sections and shapes using hand tools, flame cutting torches and metal cutting machines
- shaping and bending metal sections and pipes using hand and machine tools, and by heating and hammering
- aligning parts to be joined using hand tools and measuring instruments
- joining metal sections using various welding techniques, bolting and riveting
- examining welds for width of bead, penetration and precision
- finishing products by cleaning, polishing, filing and bathing in acidic solutions
- cleaning and smoothing welds by filing, chiselling and grinding.

Occupations in the light and heavy fabrication sector include:

- Metal fabricator (boilermaker)
- Pressure welder
- Welder (First Class)
- Sheetmetal worker.

Metal fabricator (boilermaker)

Metal fabricators are specialist engineering fabrication tradespersons. They cut, shape, join and finish metal to make, repair or maintain a variety of metal structures products. Metal fabricators work in the heavy machinery and equipment sector.

Metal fabricators (heavy fabrication) work with heavy gauge metals to manufacture or repair structures and containers that may have to withstand intense pressure, such as ships, boilers and storage tanks.

They use hand tools, flame cutting torches and metalworking machines, such as guillotines and shearing machines. They also uses machine tools, such as vices, hydraulic presses and rolling machines, to shape and bend components which are then assembled by welding, bolting or riveting.

Metal fabricators may go on to specialise as:

- Boilermaker-welder
- Brass finisher
- Metal fabricator-welder
- Metal template maker
- Structural steel trades worker.

Relevant qualification:

- Certificate III in Engineering (Fabrication Trade)

Structural steel and welding

Pressure welder

Pressure welders assemble, weld and repair pressure vessels and pipes to relevant standards.

Relevant qualifications:

- Certificate II in Engineering
- Certificate III in Engineering (Fabrication Trade)

Welder (First Class)

A welder (first class) constructs or repairs metal products by joining parts either manually (using a variety of welding methods, including electric arc, metal inert gas (MIG) and tungsten inert gas (TIG) welding or oxyacetylene welding) or by machine. These parts are used to complete structures and equipment, such as ships, bridges, pipelines, vehicles and domestic appliances.

Relevant qualifications:

- Certificate II in Engineering
- Certificate III in Engineering (Fabrication Trade)

Sheetmetal worker

Sheetmetal workers (light fabrication) manufacture a wide variety of products and components using thin sheet-metal, such as galvanised steel, mild steel, stainless steel, aluminium, copper and brass.

They use hand tools, power tools and other sheetmetal shaping and forming machinery to shape and join parts and components by welding, brazing, soldering, riveting or bolting. They may also use set up and program computer numerically controlled (CNC) machines.

Relevant qualification:

- Certificate III in Engineering (Fabrication Trade)

This information sheet has been produced with assistance from the Australian Government.