

National Apprenticeship - Occupational Profile

Craft Occupation

Sheet Metalworking

Industry Served

Engineering, manufacturing, construction, heating, ventilating and air-conditioning. Aircraft, computer, catering, food processing, tank and vessel manufacture, electronics, sign manufacture, transportation.

Profile of Craft

Sheet Metalwork

The Sheet Metalworker's job involves marking out, cutting, punching and forming/bending patterns on flat sheet metal up to 4mm thick using metals such as mild steel, galvanized mild steel, stainless steels, aluminium and alloys, copper and brass.

These patterns are used for such items as ventilation ductwork, kitchen canopies, catering and food processing equipment, machine guards, computer and data communications hardware (cabinetry), aircraft precision sheet metal, sign manufacture, copper roofwork, vehicle manufacture (bus and rail), energy conservation and metal cladding, noise control/acoustic enclosures.

The manufactured items are joined and assembled using self-secured joints, riveting, fasteners, flanging, welding, soldering and brazing as well as incorporating the appropriate finishing techniques i.e. grinding, sanding, polishing. Installation and fixing of items such as ductwork systems including air-handling units, fans, louvres, grilles, filters, canopies, copper roofwork, metal cladding, sound enclosures. With the onset of new technology, modern Sheet Metalworkers are engaged in the programming, setting and operation of CNC machinery, CAD systems, planning, costing, estimating, and quality control systems thus enabling the craftsperson to operate cost-effectively within the craft and throughout the engineering designation.

Sheet metal workers use machinery such as guillotines, folders, press brakes (manual and CNC), bending rolls, lockformers, swaging machines, flypresses and CNC punching machines as well as CNC plasma, laser and duct making machinery.

At the end of the apprenticeship the Craftsperson will be able to demonstrate competence in the following:

Core Skills

Use, Care and Setting of the following:

Guillotine, pressbrake, folding m/c, bending rolls, swaging m/c, lockformer etc

Sheet Metal Operations including:

Cutting, folding, rolling, crimping, wiring, notching, drilling, swaging, punching, stretching, shrinking, hollowing, planishing, self-secured joints

Drawing and Pattern Development:

Fabrication and installation of ductwork and fittings for heating, ventilating and air conditioning systems, guards, canopies and general sheet metalwork

Specialist Skills

- Metal finishing
- Precision sheet metalwork using CNC equipment
- Stainless steel work
- Aircraft work
- Metal cladding
- Maintenance
- Copper roofwork
- Testing, adjusting and balancing of ductwork systems

Common Skills

- Workshop practice including:- safe use and maintenance of tools and equipment, marking out, drilling, tapping, seaming, riveting, fasteners
- Technical drawing including:- interpretation of first and third angle orthographic projection as well as isometric, oblique and freehand drawings/sketches
- Safety: hazard avoidance, good workshop practices, basic first aid, fire extinguishers, electrical shocks, lifting, evacuation, basic

Personal Skills

- Communications
- Customer Relations
- Adaptability to teamwork
- Initiative
- Problem solving
- Planning
- Report writing

NOTE: Integrated curriculum includes maths, science, theory and information technology
