

National Apprenticeship - Occupational Profile

Craft Occupation

Industrial Insulation

Industry Served

Engineering Industry

Mechanical Services Sector: Air-Conditioning, Plumbing and Refrigeration, Power Plants, Petrochemical, Pharmaceutical, Chemical, Food Processing, Brewing and Distilling

Building

Commercial and Industrial, Cold Storage, Dairy and Ship Repair Industries, Fire Protection

Environment

Noise Abatement: Sound Enclosures and Acoustic Panels.

Profile of Craft

The Industrial Insulator's job involves measuring, cutting and fitting a variety of insulation materials to pipe work, valves, pressure vessels, tanks, ducting, flues or on any hot or cold surfaces for the purpose of thermal insulation, fireproofing or soundproofing.

It also involves the cladding of the insulation material with suitable coverings such as sheet metal, aluzinc, stainless steel, or other specified coverings and finishes such as felt, cement, various rubbers, canvas and foils. Metal cladding involves pattern layout and development of sheetmetal (mild steel, galvanised mild steel, stainless steel, aluminum and other alloys) up to 1.2mm and the use of various machines. These patterns would include pipe work, vessels, domed ends, valve and flange boxes, tee pieces, reducers, transformers etc. The patterns are then fabricated by hand and with the aid of machines. They are then joined and assembled using self-securing joints, rivetting, fasteners, flanging, swaging and banding suited to the appropriate finishing techniques. Non-metallic finishing may be joined by adhesives, banding or strapping as appropriate. With the onset of new technology, modern cutting and cladding involves the use of CNC machinery. Planning, costing/estimating, quality control and environmental considerations (energy conservation) are areas in which the Industrial Insulation will operate to ensure cost effectiveness throughout the industry.

At the end of the apprenticeship, the craftsperson will be able to demonstrate competence in the following skills:

Core Skills

Use, care and setting of the following:

- Guillotine, folding machines, hand and electric swaging machines, hand and electric rolling machines, electric hand shears, hand drills, rotary shears and lock forming machines.

Insulation applications such as:

- Selecting, measuring and cutting of appropriate insulation materials with regard to energy considerations using hand and power tools (incl. CNC).
- Insulating pipe work, ductwork, valves, flanges and pressure vessels.

Sheet metal operations including:

- Cutting, folding, rolling, crimping, wiring, flanging, punching, drilling, swaging, banding, rivetting and screwing

Drawing pattern development:

- Fabrication of all forms of cladding
- Safety

Specialist Skills

- Insulation materials - identification and selection
- Cements, mastics, adhesives, fabrics and fasteners
- Metal cladding including stainless steel
- Cold work applications with unbroken vapour barriers and seals
- Handling of hazardous materials

Common Skills

- Workshop practice including - safe use and maintenance of tools and equipment (hand and power operated), marking out, drilling, punching, swaging, rivetting and fastening
- Technical drawings, including:- interpretation of first and third angle, isometric, oblique and freehand drawings and symbols.
- Safety: - hazard avoidance, good workshop practices, basic first aid, fire extinguishers, electrical shocks, evacuation, Safe Pass for construction sites and manual handling.
- Measuring and quantifying - industrial insulation and cladding materials.

Personal Skills

- Interpersonal communications
- Customer relations
- Teamwork
- Flexibility and adaptability
- Initiative
- Problem solving
- Planning and estimating
- Report writing
- Adaptability to the working environment

NOTE: Integrated curriculum includes maths, science and theory.
