

BUILDING SERVICES ENGINEERING APPRENTICESHIP STANDARD

Occupation title

Building Services Engineering Ductwork Craftsperson

Occupational profile

Building Services Engineering makes buildings work. It is a specialist branch of engineering within the construction sector.

Ductwork systems provide clean air and/or remove used air, and move temperature controlled air around the inside of buildings as part of a building's ventilation and life safety systems.

Ductwork Craftspersons **plan, organise, undertake, complete and oversee** the installation and maintenance of ductwork systems in large industrial and commercial buildings including office blocks, factories, schools, airports and hospitals.

Ductwork Craftspersons use their skills to assemble, install, test, repair, pre-commission, **commission, handover and de-commission ductwork made from a wide range of materials, as well as overseeing the work of others, and understand the importance and function of the system to be installed.** Interaction with the latest technologies e.g. Building Information Modelling (BIM) and the ability to understand and interpret drawings are essential.

Ductwork Craftspersons have **detailed knowledge** of the system's operating principles as well as being able to:

- **identify, establish and set the requirements** of the job, whether from engineering drawings or client's other instructions;
- **liaise and work with other trades**, suppliers and clients, as appropriate;
- **solve problems** within the scope of the work they carry out;
- ensure that work undertaken by self and others complies with all relevant standards and required level of quality
- **plan, monitor and assist in the delivery of** work programmes
- contribute to client/other change as required.

They must be able to demonstrate competence in the health and safety, **communication, quality control** and environmental requirements appropriate to their scope of work. **Craftspersons are client facing as appropriate, representing their company.**

Craftspersons are able to work within new build construction sites and existing buildings **on their own, proficiently and without supervision** in the most efficient and economical manner. They must adhere to safe working practices without endangering themselves or others.

Requirements Knowledge, Skills and Behaviours

The Ductwork Craftsperson will understand:

Knowledge	What is required
Working Safely	Relevant safety legislation and safe working practices applying to themselves and others.
Ductwork principles	Scientific principles underpinning ductwork systems including relevant specifications e.g. measurement and pressure classification and materials.
	The design, layout and operating principles of ductwork systems.
	The need for ductwork system cleanliness during the installation process.
Working Sustainably	Environmental protection measures associated with ductwork installation in regards to effective use of material resources and waste management.
	Commercial implications of actions or omissions.
Planning and Preparing	How to plan and organise ductwork system work tasks, including the interpretation of engineering drawings.
	How to prepare work areas to undertake ductwork installation.
	How to: utilise resources effectively including the roles and responsibilities of relevant people; oversee work; and plan safe work programmes for self and small teams installing ductwork systems.
Installing Ductwork Systems	The installation, assembly, positioning, fitting, testing, pre-commissioning, commissioning, handover and decommissioning techniques and processes for ductwork systems, and associated plant and equipment.
	Rectangular, circular and flat oval, plastic, fire-rated, air handling units and local exhaust ventilation ductwork system components, including prefabricated and/or modularised components and distribution systems.
	How components relate to each other within ductwork systems.
Customer Service	The principles of high quality customer service and establishing the needs of others (colleagues, customers and other stakeholders).
Communication	Different communication methods, how to communicate in a clear, articulate and appropriate manner and how to adapt communication style to suit different situations.
	Understand the principles and opportunities for information communication technology (ICT) systems, e.g. smartphone, tablets, apps.

The Ductwork Craftsperson will:

Skills	What is required
Working Safely	Apply relevant safety legislation, codes of practice and safe working practices to self and others in building services engineering working environments.
Planning, Preparing and Working Sustainably	Plan and organise ductwork system work tasks.
	Prepare work areas in new and existing sites to undertake allocated ductwork component installation work tasks.
	Undertake the installation of ductwork system components in ways which use resources efficiently to complete work tasks, effectively, safely and with consideration to environmental impact using industry recognised standards.
Installing Ductwork Systems	Apply installation, assembly, positioning, fitting and testing techniques and oversee the work of others on: rectangular, circular and flat oval, fire-rated, air handling units and local exhaust ventilation ductwork system components, including prefabricated and/or modularised components and distribution systems, to industry recognised standards.
	Undertake work tasks in pre-commissioning, commissioning, handover and decommissioning of ductwork systems.
	Take site measurements to allow new items of ductwork to be manufactured.
	Carry out on-site modifications as appropriate.
Problem solving and decision making	Solve problems within their scope of responsibility and that of others under their control.
	Identify, evaluate and implement solutions to problems through the application of technical skills and knowledge, and report as appropriate.
Supervision	Oversee the programme of work and work environment, taking responsibility for the work, quality, safety and welfare of others.
	Mentor and support the learning and development of others.

Behaviours	What is required
Communicating effectively	Use oral, written and electronic methods to communicate information with work colleagues, other tradespeople, clients' representatives, supervisors, and other members of the building services engineering and wider construction team.
Working Effectively and Efficiently	Work reliably and effectively without supervision and be aware of the needs and concerns of others, especially where related to diversity and equality.
	Represent self and company in an appropriate manner.
Taking Responsibility	Accept responsibility for the work of self and others under their control.
Managing Tasks	Accept allocate and supervise technical and other tasks.
Working with Others	Work effectively with colleagues, the public, other tradespeople, clients' representatives, supervisors, and other members of the building services engineering and wider construction team.
Continuing Personal Development	Maintain and enhance competence in own area.
Working Ethically	Exercise responsibilities in an ethical manner.

Duration:

It is unlikely that individuals entering this apprenticeship without previous experience will complete the apprenticeship in less than 36 months, and a typical completion time is likely to be 48 months.

Entry Requirements and Qualifications:

Individual employers will identify any relevant entry requirements in terms of previous qualifications, trainability tests, or other criteria. Most candidates will have English and Mathematics at level 2 on entry. For apprentices that have not, they must achieve level 2 English and maths within their apprenticeship.

Level:

This is a level 3 Apprenticeship.

Review date:

This Apprenticeship standard will be reviewed in three years.