

HOW TO USE THE CAREERS MAP

The map shows typical routes from entry (section 1), through training and experience (section 2), to professional status (section 3) and career functions (section 4). Use the arrows to follow through possible qualification routes into the wide range of careers offered by the BSE sector.

In addition to the main progression routes shown, it is possible to progress between different specialisms and/or levels through further training.

Some of the many job functions within the BSE sector are summarised in section 6 Typical Job Roles.

When you reach the far side of the map, you should look at the list of typical career functions (section 5) and at the bottom of the map for typical job roles (Section 6). Here you can see the various types of careers you can follow.

▲ Denotes further learning and/or experience.

Recognition offered by Professional Bodies, links to registered grades within the Engineering Council.

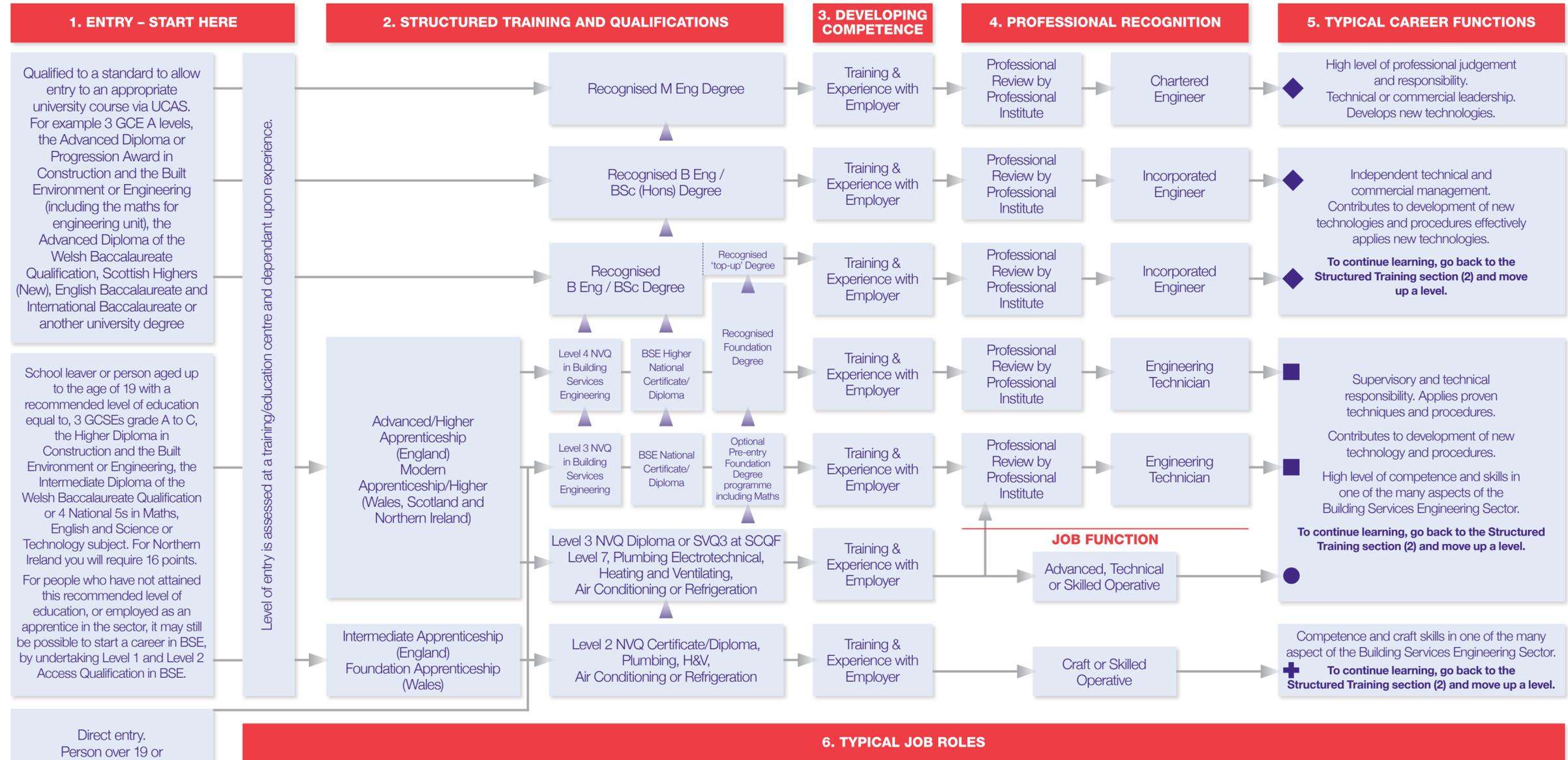
Building Services Engineering plays an important part in our lives. All the systems you take for granted, such as plumbing, heating, electrical power, air conditioning, ventilation and refrigeration, provide the comfortable environment that we live and work in. It's the people working in BSE that design, install and maintain these systems.

In the world of today, society is looking at ways to reduce our dependence on fossil fuels and chemical refrigerants and enhance our world with environmental technology products and systems. The majority of these are part of the world of BSE. Technologies include solar photovoltaics, solar thermal hot water, heat pumps and rainwater harvesting/greywater recycling systems.

Building services engineering needs a constant supply of highly skilled and professional people with an environmental conscience.

The sector offers interesting and rewarding career opportunities. Depending on your existing qualifications, there are different stages on the career ladder of BSE. Where your career starts will depend upon a number of things, for example what type of work you want to do and what qualification you achieve.

Craft and technician engineers generally start on an apprenticeship scheme. Incorporated and chartered engineers usually study a full time or part time foundation, bachelors or masters degree at a university.



6. TYPICAL JOB ROLES

Highway Electrical Systems Installer + ●

Highway electrical systems play an important part in our everyday lives; highly trained public street engineers ensure that our street lighting, including traffic management systems are maintained to a high standard.

Installation Electrician ●

An installation engineer is responsible for installing and commissioning modern electrotechnical systems within buildings. This can include power, lighting, structured cabling and renewable energy generating systems such as solar PV (photovoltaic) panels and small-scale wind turbines.

Instrumentation Installer/Engineer ●

The job of an instrumentation engineer involves commissioning, testing, fault finding and repairing of building environmental control systems, such as large air conditioning units, heating and refrigeration.

Maintenance Electrician ●

Maintenance electricians ensure that modern electrical systems and the equipment they serve run effectively and efficiently.

Electrotechnical Panel Builder ●

An electrotechnical panel builder uses programmable logic controllers and information technology to build and manage the electrical control panels that ultimately control building services systems and equipment.

Domestic Plumber + ●

Modern buildings require sanitation, heating, hot and cold water and fuel systems in addition to sheet metal weathering. A qualified plumber is responsible for the installation and maintenance of these systems. They are also beginning to install and maintain energy efficient systems such as rainwater & greywater harvesting systems.

Fire Protection Systems Installer ●

Install and commission complex mechanical fire protection systems such as sprinklers, wet / dry risers to maintain a safe environment

Machine Repair and Rewind Electrician ●

Skilled electrical repair and rewind specialists are required to repair and maintain equipment and machinery such as transformers compressors, pumps and fans within buildings.

Securities and Emergency Systems Installer + ●

This can include the installation, testing, commissioning, fault finding of fire protection and intruder alarms.

Industrial and Commercial Plumber ●

Industrial and commercial plumbers concentrate on designing, installing and maintaining complex sanitation systems and providing hot and cold water services to large buildings such as offices, schools, hospitals and factories.

Heating and Ventilating Installer + ●

H&V installers install and commission complex heating and ventilating systems to ensure that large buildings provide a comfortable living environment. This may include energy efficiency equipment such as heat recovery systems and heat pumps which are monitored by smart meters.

Air Conditioning and Heat Pump Installer + ●

An air conditioning and heat pump installer is responsible for installing, controlling and maintaining the quality, temperature and humidity of air within modern buildings.

Computer Aided Designer ■

Modern building services engineering systems need to be accurately drawn on architectural drawings to show how they should be installed according to the design specification. The CAD designer will ensure that drawings are accurately produced, and kept up to date should any changes be made on site.

Design Engineer ■ ◆

BSE design engineers design systems to ensure they meet the requirements of the building's inhabitants, this could be designing an air conditioning system in a modern office complex, heating for a hospital, ductwork ventilation system in a factory or lighting in a school. Increasingly these systems are beginning to include renewable energy systems such as roof mounted solar panels, district heating systems, biomass systems and energy efficient lighting systems.

Contract or Project Manager ■ ◆

The installation of systems must be managed to ensure that its installation proceeds with the buildings construction. Planning and managing the project will mean labour, materials and equipment is available as needed and work is carried out to the design requirements accurately and efficiently.

Commissioning Engineer ● ■

Commissioning engineers ensure that the engineering service systems within a building meet the original design specification and all the heating, ventilation, air conditioning and refrigeration systems fulfil the desired operation criteria.

Site Supervisor ● ■

A building services engineering supervisor manages the day-to-day running of projects. Usually progressing from a trade background, they are responsible for specialist subcontractors, resource planning, health and safety, quality and signing off parts of the project as they are completed.

Consulting Engineer ■ ◆

Each industry will have a range of specialist engineers. These consulting engineers provide commercial services and advice to other members of the building team.

Estimator/Quantity Surveyor ● ■ ◆

Before installing a building services engineering project the amount of materials that will be used (pipe, cable, equipment, machinery etc) needs to be accurately calculated and costed to ensure that the installation is carried out in a cost effective manner.

Business Manager or Proprietor ● ■ ◆

The building services engineering sector has many opportunities for individuals to develop their skills, career and opportunities further, after gaining valuable experience it may be possible to start your own business. The building services engineering sector is predominantly made up of small businesses.

Educator and Trainer ● ■ ◆

Education and training is vital within the sector, whether it's someone starting out in their career or a qualified person updating their skills and knowledge, keeping up to date with many advances in technology. Educators and trainers and industry specialists professionally deliver the training required.

Service and Maintenance Engineer ● ■

Skilled service and maintenance engineers are required to programme and carry out regular maintenance and repairs on all equipment within the heating, ventilation, air conditioning and refrigeration industry.

Ductwork Installer + ●

A ductwork installer installs the systems that provide clean air and/or remove used air as part of a building's ventilation system.

Fitter/Welder + ●

Many building services projects require large steel pipe work. This pipe work carries the fluids and gases required by the building and must be installed accurately, by a highly skilled fitter/welder.

Domestic Heating Engineer + ●

Domestic heating engineers ensure domestic central heating systems whether fuelled by gas, oil or renewable energy such as solar thermal hot water and biomass (sustainable wood burning) are installed, maintained correctly and function effectively often with a smart meter to measure energy efficiency.

Refrigeration Installer + ●

Refrigeration installers install and maintain refrigeration systems used widely throughout the UK in places such as supermarkets, hospitals, food processing and research establishments.