

Construction and the Built Environment

The construction and the built environment job sector covers a huge range of employment - with hundreds of different job roles involved in designing, planning and constructing the built environment as well as making sure that it's functional, safe, fits in with building and environmental legislation, looks good and has all the services it needs for example, water, gas and/or electricity.

The built environment covers everything around us that is designed, planned, and built by people for example houses, shopping complexes, energy production plants, factories, hospitals, schools, sports facilities, landscaping, street furniture such as bus stops and street lamps, pavements, roads, pipelines, bridges, airports and underground transport systems.

To make it easier to find the information you need for your career planning we have split this wide sector into the main job areas of:

- **Architecture, Surveying and Planning on pages 2 to 4**
- **Building Services on pages 5 to 6**
- **Civil and Structural Engineering on pages 7 to 8**
- **General Construction on pages 9 to 11**

For each job area you'll be able to find out more about:

- **Jobs**
- **How much people earn**
- **The ways into jobs**

Plus at the end of this document, on pages 12 to 17, we've put together information about the whole construction and the built environment sector including:

- The job market
- Future trends
- Website addresses of specialist sites that you can explore if you'd like to find out more.

Architecture, Surveying and Planning

- **Architects** work in the construction industry designing new buildings, restoring and conserving old buildings and developing new ways of using existing buildings. They are involved in construction projects from the earliest stages, preparing and presenting design proposals, right through to completion often working alongside the project manager of a building project dealing with any problems and making site visits.
- **Architectural technicians/technologists** work closely with architects and other building professionals, providing architectural design services and solutions on construction projects. They may design part of a project, preparing and presenting design proposals using computer-aided design (CAD) and traditional methods. Architectural technicians/technologists also evaluate and advise on refurbishment, repair, reuse, recycling and deconstruction of buildings. An architectural technologist has a broader range of skills than a technician, and will contribute more to the design and construction process, including contract management.
- **Chartered surveyors** work in many different types of construction. They may be:
 - 1) **Building surveyors**, who advise on the design and construction of buildings.
 - 2) **Construction surveyors**, who oversee construction projects
 - 3) **Residential property surveyors**, who advise on the purchase, sale and development of houses and apartments
 - 4) **Quantity surveyors**, who assess and manage the costs related to building projects.
- **Surveying technicians** support chartered surveyors by carrying out a range of practical tasks including measuring, logging and interpreting data, drawing up charts, maps and diagrams, and valuing property and equipment.
- **Home inspectors** are qualified and accredited to produce Home Condition Reports (HCRs) and Energy Performance Certificates (EPCs) on residential properties offered for sale in England and Wales. HCRs are one of the optional documents within Home Information Packs (HIPs), which will have to be provided by sellers or their agents on all homes coming onto the market. EPCs by law have to be completed for all properties offered for sale or rent.
- **Planning is** about preparing plans to shape the future of our towns, cities and rural areas for the benefit of society. Planners prepare long-term plans, make proposals for new developments or examine the proposals of others, and give professional advice to decision makers, such as government departments and local councillors.

Want to know more?

The information in this jobs section is a summary of what's involved in each of the jobs and only a few jobs are highlighted to give a snapshot of this sector.

You can also use the National Careers service website

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobfamily/Pages/default.aspx>

to find out about 100s of jobs and careers, including the ones listed above and many, many more.....

Pay

- **Architects** may earn from around £20,000 to £45,000 a year up to £60,000 or more for partners and directors.
- **Architectural technicians/technologists** may earn from around £20,000 to £40,000 or more.
- **Chartered surveyors** may earn from around £24,000 for a graduate entrant to up to £70,000 a year for a qualified and experienced surveyor.
- **Surveying technicians** may earn from around £16,000 to £30,000 or more.
- **Home Inspectors** may earn from around £20,000 to over £35,000.
- **Planners** may earn from around £20,000 to £80,000 a year.

Ways In To Architecture, Surveying and Planning

- **Entry is possible usually at technician and degree levels** - with the exception of the job of home inspector which has no set academic entry requirements for training.
- Although there are no set academic entry requirements to start training as a home inspector, applicants with advanced or degree level qualifications and /or experience are likely to be at an advantage and be able to cope with studying for the Diploma in home inspection. Training must be through an accredited course provider and is a combination of training courses, the development of a portfolio of practical experience, written reports on home inspections and an external exam. Length of training will depend on the background and knowledge of the candidate.
- **For jobs at technician level** such as architectural technicians and surveying technicians' young people can either start through a technician Apprenticeship, or study for an HNC/HND or a degree before starting work. A range of construction-related subjects may be acceptable, but architectural design, architectural technology, quantity surveying practice, valuation, spatial data management or town planning, as appropriate, are the most relevant.
- **To become a qualified architect** it is necessary to complete a degree at a school of architecture, followed by experience in an architect's office.
- **Entrants to town planning** usually have a degree or postgraduate qualification in planning accredited by the Royal Town Planning Institute (RTPI).

For more information about the courses on offer locally for 14-19 year olds see:

- Walsall – www.ucasprogress.com
- Wolverhampton – www.area-prospectus.com

For courses in higher education check out the UCAS website - www.ucas.com

- **For Apprenticeships** check out vacancies on the National Apprenticeship site www.apprenticeships.org.uk

- **For job vacancies check out your local Connexions site:**
 - ❖ www.connexionssandwell.co.uk
 - ❖ www.connexionswalsall.co.uk
 - ❖ www.connexionswolverhampton.co.uk

Building Services

- **Building services engineers** are responsible for designing, installing and maintaining all kinds of systems, including heating and lighting, refrigeration, acoustics, air conditioning and ventilation, water supplies and plumbing, in new and existing buildings
- **Cavity wall insulation technicians** insulate the space between the walls of new and existing buildings by pumping in insulating materials to make them more energy efficient.
- **Heating and ventilating engineers** work alongside other members of a construction team, designing and supervising the installation of heating, ventilating and air conditioning systems in both new and refurbished buildings.
- **Refrigeration engineers** design and install refrigeration and air conditioning systems. They are responsible for creating and maintaining a comfortable, energy-efficient and safe environment inside buildings, and ensuring that chilled or frozen produce is kept at the correct temperature.
- **Thermal insulation engineers** play a vital part in energy conservation. They work on commercial sites, such as offices, factories, hospitals and schools, and large-scale industrial projects, including petrochemical works, power stations, oil refineries and ships. They specialise in insulating hot pipes and boilers to keep heat in or in refrigeration and air conditioning installations to keep heat out.

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Pay

- **Building services engineers** may earn from around £25,000 to over £70,000 a year.
- **Cavity wall insulation technicians** may earn from around £12,000 to £35,000 a year.
- **Heating and ventilating engineers** may earn from £9,000 for an apprentice to £35,000 a year for a senior engineer.
- **Refrigeration engineers** may earn from around £12,000 to £35,000 a year.
- **Thermal insulation engineers** may earn from £9,000 for a first-year apprentice to £35,000 a year or over for a qualified engineer.

Ways In To Building Services

- **Entry is possible usually at technician and degree levels** - with the exception of the jobs of cavity wall insulation technician and thermal insulation engineers which have no set academic entry requirements for training.
- The usual entry qualification for a **building services engineer** is an accredited degree in a relevant subject, such as building services engineering, environmental engineering, building design engineering or architectural engineering. An alternative route for young people is to train as a building services trainee engineer (sometimes called a technician engineer). There is an Advanced Apprenticeship for building services engineering technicians.
- **For Cavity wall insulation technicians** there are no set academic qualifications are required for entry. GCSEs (A-E) in English and maths are an advantage, as cavity wall insulation technicians need to be able to calculate quantities and keep written records. It may be possible to do an Apprenticeship. Adult entry is very common. Trainees work with experienced cavity wall insulation technicians and may be required to attend short classroom courses run by manufacturers.
- **Heating and ventilation engineer.** Entry may be by a degree, accredited by the Chartered Institution of Building Services Engineers (CIBSE), or training to become an engineering technician through a BTEC national certificate or diploma, or through an Apprenticeship as a craftsperson or operator, and working towards relevant NVQs at Levels 2 to 3.
- There are no specific academic requirements needed to become a **thermal insulation engineer**, though some companies may ask for four GCSEs (A*-C), including maths, English and a science. Apprenticeships are available through the Insulation and Environmental Training Agency (IETA). The Apprenticeship leads to an NVQ Level 2 in thermal insulation, a technical certificate and key skills certificates.
- The most usual way to train as a **refrigeration engineer** is through an Apprenticeship. Entry requirements for Apprenticeships vary, but some employers may ask for four GCSEs (A-C) in subjects such as maths, physics, English, and design and technology.

Civil and Structural Engineering

Civil and structural engineers are involved in the design and construction of a range of structures such as coastal and marine, environmental, airports/ports, power and water facilities, large buildings, bridges and tunnels

- **Civil engineering** involves creating, improving and protecting the environment in which we live. Civil engineers are involved in seeing an engineering project from conception, design stage, construction, through to completion and its maintenance.
- **Civil engineering technicians** provide technical support to civil engineers in the design, construction and management of a variety of projects, from widening a motorway to building the world's tallest structure.
- **Structural engineers** often work alongside architects, and are responsible for working out how buildings will be made to stand up to the stresses and strains placed upon them. For example they test models on the computer to ensure that the structure can withstand forces such as wind, gravity and earth tremors.

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Pay

- **Civil engineers** may earn from around £24,000 to over £70,000 a year.
- **Civil engineering technicians** may earn from between £12,000 and £19,000 a year for newly qualified technicians, to £37,000 a year or more for senior technicians.
- **Structural engineers** may earn from around £22,000 to £55,000 a year.

Ways In To civil and structural engineering

- Accredited degree programmes form the required educational base for becoming a professionally qualified civil or structural engineer. Minimum qualifications are generally two A levels including maths and five subjects at GCSE (A*-C) or equivalent.
- It may also be possible to start as a trainee technician with four GCSE's (A*-C) via an Apprenticeship scheme. Engineering qualifications not accredited with the ICE can be 'topped up' with further learning. The Diploma in engineering or the Diploma in construction and the built environment may be relevant.

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General Construction

General construction work covers the majority of the jobs in this sector and includes a wide range of different skilled and semi- skilled professions:

- **Project or construction supervisors and managers** are employed right across the industry. They supervise all the workers, including contractors who come on to site, to make sure a building project is completed safely, on time and within budget.
- **Skilled craft and technician level jobs** including; bricklayer, carpenter, painter and decorator, roofer. Often self-employed, skilled and qualified craft or technician level workers are employed, or contracted, by a range of companies and/or private individuals to carry out specific skilled work. A painter and decorator may be employed, for example, by a large house-building company to decorate internally and externally all the houses in a new development; or a plumber may be employed, for example, by a private home owner to build a new bathroom.
- **Multi-skilled general construction workers** have a wide range of different job-related skills - although they may not have all these skills to a high level. The growing popularity of modern construction methods - where a building is pre-fabricated (built partly in a factory) and then delivered to the building site partly constructed - means that it has to be finished off on site. Multi skilled general construction workers would use a range of skills such as carpentry and plumbing to finish the construction project - they would not usually be fully trained in more than one trade.
- **Construction operatives** work as part of a team of skilled and multi-skilled construction workers who along with a construction manager build houses, factories, offices, roads, bridges, airports and other structures.

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Pay

- **Construction managers/ supervisors** may earn from around £20,000 to over £42,000 a year, with the potential for a senior manager to earn £70,000 a year.
- **Skilled craft and technician level employees** may earn from around £15,000 to over £25,000 a year for experienced technicians.
- **Multi-skilled general construction workers** may earn from around £12,000 to £22,000 a year.
- **Construction operatives** may earn between £10,000 and £24,000 a year.

Ways In to General Construction work

- Entry is possible at all levels. While some vacancies, for example Apprenticeships, are open to people who have few formal qualifications, but who can demonstrate a keenness to learn and a reasonable level of literacy and numeracy, other roles require more qualifications, for example technician level vacancies. Some management level jobs may require a degree or equivalent qualification.
- Team working, practical and problem-solving skills are vital. It is also important to like working outdoors in all weathers, be physically fit and be comfortable working at heights when needed.
- Apprenticeships are a common route into the construction industry - particularly for skilled based jobs at craft and technician level.
- Training at operative level is usually on the job, working with more experienced operatives, but new entrants also receive more formal training in health and safety. Construction Skills Certification Scheme (CSCS) cards are used in the construction industry to demonstrate that the card holder has been trained in health and safety and is competent in a particular occupation, or is working towards becoming competent.

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The Job Market

General Construction

- Construction and the built environment is a huge sector with more than 2.35 million people - 8% of the UK workforce currently work in construction.
- Construction contractors make up around 30% of the UK's top thirty companies.
- Of those working in construction at least 2 out of 5 work in the skilled trades such as electricians, carpenters and plumbers and most of these trained on a Apprenticeship.
- 92% of all employment in construction is in small businesses with less than 11 workers.
- Currently about 40% of construction workers are self- employed - compared with 13% of the working population as a whole. This is likely to continue but stay at this level, accounting for more than 2 in 5 jobs.
- The majority of jobs are full-time and are likely to remain so in this industry.
- The construction industry is particularly sensitive to the economic cycle and so has suffered during the recent recession. However some areas of construction have done better than others - private housing builds, especially of developments of flats, have experienced difficulties, whereas government funding for big build projects such as schools, hospitals, houses and new transport infrastructure for example stations and motorway widening continues.
- The bringing into line the existing housing stock into line with environmental and energy standards, which has been supported by government grants to homeowners and tenants, continues to be a growth industry for firms locally and nationally who are involved in upgrading homes with cavity wall and loft insulation. There is also a market for the fitting of alternative energy sources such as solar panels and wind turbines on existing houses as well as new builds.
- In the Black Country, like the rest of the UK, the construction industry continues to be one of the most male dominated industries in the UK with Females only accounting for 1 in 10 of all jobs.
- In the region the £500m New Street Station redevelopment, known as Birmingham Gateway, will increase the station passenger capacity and provide a gateway to Birmingham and the region and will hopefully bring new construction jobs to the region.

Architecture, surveying and planning

- There are around 31,000 **qualified architects** in the UK. The majority work in private practice as partners, associates and salaried architects. Private practice range from small firms with just one architect to large firms with up to 50 architects.
- **Architectural technicians/technologists** work in architectural technology practices, architecture practices or local authorities. Other employers include government agencies, housing associations, commercial companies, manufacturers and construction organisations.

- **For Surveyors In the private sector**, employers include surveying practices, property companies, consultancies, construction companies, estate agents, housing associations and large organisations which own land. In the public sector, employers include local authorities, government departments, hospital trusts and universities. Surveying technicians are employed throughout the UK, but there are more jobs in large cities. There is considerable competition for graduate jobs with leading surveying firms.
- **As Home Inspection** is a new role; it is too early to say what the long-term prospects will be for home inspectors. Some are likely to combine this work with other professional roles in the property and construction industries. Some may decide to set up their own business.
- **Planners** are employed by local authorities and government departments, planning consultancies, large firms, such as house builders, supermarket chains and water companies, government agencies for economic development, environment, housing, heritage and the countryside, and voluntary and environmental organisations.
- **Local authorities and government departments employ the majority of town planning support staff.** Other employers include planning consultancies, large firms, such as house builders, supermarket chains and water companies, government agencies for heritage and the countryside, and voluntary and environmental organisations.

Building services

- **There are 11,000 heating, ventilating, air conditioning and refrigeration businesses in the UK and over 95,000 people employed in the sector.** There is a shortage of engineers in the building services industry as a whole, and there are opportunities for refrigeration engineers in all areas of the UK. Air conditioning is a growing area of work. **Heating and ventilating engineers** are employed by specialist mechanical and electrical contractors and consultancies across the UK, with a concentration in London and the South East.
- **Building services engineers** work for design consultancies, major building services contractors and organisations such as local authorities, government departments, hospitals, factories and power stations. **There is a severe shortage of qualified engineers in this field.**
- **Thermal insulation engineers** Employers include large construction companies and specialist subcontractors in construction and in other areas of industry, such as petrochemical plants, oil refineries and power stations. **There is currently a demand for skilled workers.**
- **The cavity wall insulation business** is made up of firms of varying sizes, some large and some very small. Most firms are located in urban areas. Many cavity wall insulation technicians are self-employed.

Civil and Structural engineers

- **Civil and structural engineering employers** include civil and structural engineering consultancy companies, building and civil engineering contractors, local and central government, transport authorities, rail operators and gas and electricity supply companies. Jobs are available nationwide. There are also good opportunities for experienced engineers to work abroad.

Future Trends

- Although there are currently problems in the construction industry - and in particular in the housing commercial and industrial markets - caused by the downturn in the housing market and lack of investment opportunities, moderate employment growth is still predicted for the industry as the sector recovers. **Current prediction is that growth will be an average of around 2 percent per annum over the period up to 2020.**
- General construction workers will increasingly need to offer a range of skills - as the sector moves towards more use of factory-built (prefabricated) components. This move means that new builds will be quicker and need on-site workers who have a range of skills rather than specialist skills at a high level. This will mean less growth in some of the traditional skilled construction trades. However, there will also be a big replacement demand as many skilled craft workers are nearing retirement age. The estimated replacement demands for this group are nearly one third of a million.

Projection figures from 'Working Futures 2010 – 2020 ' Warwick Institute of Employment Research.

Find out more about Construction and the Built Environment

General

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobfamily/Pages/default.aspx>

You can use this site to find out about all the jobs in this sector in more detail.

<http://www.bconstructive.co.uk/en/careers/>

Site all about careers in the construction industry with an A- Z job finder

www.cscs.uk.com

The CSCS site with has all the information you need about obtaining a CSCS card to work on a building site

<http://fiss.org/sector-skills-council/directory-of-sscs/>

This site has a link to all sector skills councils.

Specific careers in the industry

www.apm.org.uk

The association of project management - carers information about project management

www.assetskills.org

Asset Skills sector skills council for Property, management, housing and cleaning

www.citb.co.uk

The Construction Industry Training Board

www.constructionskills.net

Construction Skills Directory

www.cibse.org

The Chartered Institution of Building services Engineering has careers factsheets.

www.euskills.co.uk

Sector Skills council for the electricity, gas, waste management and water industries

www.ice.org.uk

Institution of Civil Engineering has an education zone with careers information

www.iphe.org.uk

The Institution of Plumbing and Heating Engineering

www.nce.co.uk

New civil engineer site with careers and HE information

www.rics.org

Royal Institution of Chartered Surveyors information on training and starting out

www.rtpi.org.uk

Royal Town Planning Institute information about planning as a career

www.summitskills.org.uk

Sector Skills Council for Building Services Engineering

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