

## HVAC&R CAREERS IN WALES

The heating, ventilation, air conditioning and refrigeration (HVAC&R) industry offers a range of highly skilled, exciting and dynamic career opportunities. The industry covers the following main occupations:

H & V engineers install and commission complex heating and ventilating systems to ensure that large buildings (office blocks, hospitals, factories, schools etc.) provide a comfortable living or working environment.

**HEATING AND  
VENTILATING  
ENGINEER**

**AIR CONDITIONING  
ENGINEER**

An air conditioning engineer is responsible for controlling and maintaining the quality, temperature and humidity of air within modern buildings.

**REFRIGERATION ENGINEER**

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

**DOMESTIC HEATING ENGINEER**

Domestic heating engineers ensure domestic central heating systems are installed and maintained correctly and function efficiently.

**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 HVAC&R sector.

**CONTROLS ENGINEER**

A skilled controls engineer develops and install the control systems within a building. The control system is the 'brain' or control point of any building engineering services system.

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 with a high degree of skill and accuracy, this is the function of the fitter / welder.

**FITTER/WELDER**

**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.

**COMMISSIONING ENGINEER**

Commissioning engineers ensure that the engineering service systems within a building meet the original design specification and all the HVAC&R systems fulfil the desired operation criteria.

**DUCTWORK INSTALLER**

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



## WHAT SORT OF PERSON DO YOU NEED TO BE?

- Are you good at working with your hands?
- Are you prepared to undertake a physically demanding job, working in a variety of environments, often on site, at heights and in all sorts of weather?
- Do you have full colour vision?\*
- Are you presentable and of smart appearance?
- Are you able to work both on your own initiative as well as in a team?
- Are you able and willing to follow all safety instructions given by persons in authority?
- Are you a good communicator with the ability to take direction and advice from supervisors, managers and other people in positions of authority?

\* For safety reasons, if you are colour blind or colour confused you may have to undergo specialist assessment to ascertain your suitability

## WHERE DO I GO NEXT?

You can contact your local careers advisor and / or contact one of the following organisations to seek advice on your next step towards working in the HVAC&R industry.

- SummitSkills Careers Advice Line: 08000 688 336
- SummitSkills website: [www.summitskills.org.uk](http://www.summitskills.org.uk)
- JT Limited: [www.jtlimited.co.uk](http://www.jtlimited.co.uk) or telephone 08000 852 308
- BEST: [www.best-ltd.co.uk](http://www.best-ltd.co.uk) or telephone 01902 497606
- Your local careers office: [www.careerswales.com](http://www.careerswales.com)
- Education and Learning Wales: [www.elwa.org.uk](http://www.elwa.org.uk), can also give you details of local training providers in your area.

You can also start looking for a suitable apprenticeship by sending a letter with your CV to employers in your area.



## TRAINING AND QUALIFICATIONS

For those aged between 16 and 19 years old an apprenticeship scheme is the best way to start a career in the HVAC&R industry. For those outside this age group, modern apprenticeship schemes may be available depending on certain entrance criteria. Please call the Careers Advice Line for specific details.

### What does this involve?

- A foundation modern apprenticeship is a work-based training programme that offers you paid employment while you learn.
- During your apprenticeship you will gain valuable work experience to develop all the practical and technical skills you will need to become a competent plumber while you will also work towards a National Vocational Qualification (NVQ) Level 2 in your specialist HVAC&R area.
- In addition to training for specific jobs, apprentices also gain core skills and have the opportunity to progress to a modern apprenticeship.
- As a modern apprentice, you'll be fully employed by a committed employer in the industry and with an appropriate wage, aiming for an advanced craft or technical role as a qualified plumber.
- A modern apprenticeship, generally, takes four years to complete and leads to an NVQ Level 3 in your chosen career area. NVQs are widely recognised by employers.
- In return you'll be expected to show commitment and attend the training centre to gain your qualifications.
- Your training will be structured so that you spend some of your time at a training centre completing your NVQ as well as the Key or Core Skills and Technical Certificates. The rest of your time will be on-the-job learning from skilled colleagues.
- Generally, a training provider will appoint a training officer who will monitor your progress, help and support you, your employer and the training centre staff. They will work out a training programme for you and make sure that all the training you receive is beneficial to you achieving your goal.
- Above all it is very important that both you and your employer make a commitment to complete the full course of training.



## HOW LONG DOES IT TAKE?

Your training will take between three and four years.

# QUALIFICATION CHART

The chart shows you what you will be studying while on your apprenticeship programme. Your learning and training programme will depend on the occupation route chosen.

Programme	Occupation Route	Technical Cert.	Key Skills	Other Learning
Foundation Modern Apprenticeship	NVQ Level 2 – MES Heating and Ventilating Installation ● Industrial and Commercial <b>or</b> ● Domestic <b>or</b> ● Ductwork _____ <b>or</b> _____ NVQ Level 2 – MES H & V: Maintenance of System Components _____ <b>or</b> _____ NVQ Level 2 – MES Small Commercial Refrigeration and Air Conditioning Systems ● Installation <b>or</b> ● Service and Maintenance	Certificate in Heating and Ventilating Installation ● Domestic Installation <b>or</b> ● Industrial and Commercial Installation <b>or</b> ● Ductwork _____ <b>or</b> _____ Certificate in Heating and Ventilating: Maintenance of System Components _____ <b>or</b> _____ Certificate in Small Commercial Refrigeration and Air Conditioning Systems	Communication Level 2  Application of Number Level 2  Information Technology Level 1	Employment Rights and Responsibilities (mandatory)  Safe Handling of Refrigerants (Mandatory for Refrigeration & Air Conditioning qualifications only)  Gas ACS  Unvented Hot Water Systems  Oxy-Acetylene/Metal Arc Welding – SKILLcard Registration  First Aid – College Certificate  Fire Safety – College Certificate
	NVQ Level 3 – MES Heating and Ventilating Installation ● Industrial and Commercial <b>or</b> ● Domestic <b>or</b> ● Ductwork _____ <b>or</b> _____ NVQ Level 3 – MES Heating and Ventilating: Rectification of Systems _____ <b>or</b> _____ NVQ Level 3 – MES Refrigeration and Air Conditioning Systems ● Commercial and Industrial Air Conditioning Systems <b>or</b> ● Commercial and Industrial Refrigeration Systems Non-Ammonia <b>or</b> ● Ammonia Refrigeration Systems	Certificate in Heating & Ventilating Installation ● Domestic Installation <b>or</b> ● Industrial & Commercial Inst. <b>or</b> ● Ductwork Systems Installation _____ <b>or</b> _____ Certificate in H & V: Rectification of Systems _____ <b>or</b> _____ Certificate in Complex Commercial Refrigeration and Air Conditioning Systems ● Comm. and Ind Air Conditioning Systems <b>or</b> ● Comm. & Ind Refrigeration Systems Non-Ammonia <b>or</b> ● Ammonia Refrigeration Systems		

*Any reference to training providers in this documentation does not imply endorsement or approval by SummitSkills. Other suitable training providers may also be available in your area.*