

Refrigeration & Air Conditioning (RAC) Engineer

What does this career involve?

Making sure the air around us is not too hot and not too cold is a specialist technique. From keeping people comfortable in a multi-screen cinema, to storing blood at just the right temperature for lifesaving operations, people working in air conditioning and refrigeration play a crucial part in our lives.

It's a highly skilled, environmentally-friendly and very technical industry that needs dedicated and enthusiastic people to not only look after all the systems we usually take for granted, but also ensure we're helping to save the planet at the same time.

In this industry you'll be at the forefront of protecting the environment, because RAC engineers make sure we're using energy as efficiently as possible.

You'll be working with renewable technology, special types of gas that don't harm the ozone layer, and looking at how customers can reduce their energy consumption. Overall you'll be playing a key part in the solutions that are helping our buildings become more eco-friendly.

The careers are roughly divided into two areas:

- As a **refrigeration engineer** you'll be installing, servicing and maintaining refrigeration systems in places like supermarkets, hospitals, food processing plants and research establishments.
- As an **air conditioning engineer** you'll install, service and maintain the systems that control and maintain the air quality, temperature and humidity inside offices, schools, leisure complexes and other modern buildings.

What sort of person do I need to be?

If you join this industry you'll be inspecting and testing equipment and ultimately making the systems work, spotting any faults along the way and fixing them. You'll need to provide information about the systems and describe what work you've been doing. Being able to strike up a good relationship with customers and colleagues is also important and, depending on what level you reach, you may also look after other people in the team to monitor their work.

Whether you're male or female, the air conditioning and refrigeration industry is looking for people that:

- have good practical and hand skills
- can follow technical drawings, building plans and other instructions
- can work carefully, methodically and safely
- can measure accurately
- have a head for heights and are prepared to work in all sorts of weather
- are willing to work in confined spaces
- are presentable with a pleasant manner
- have good written and verbal communication skills
- are good team players but also able to work on their own initiative
- can adapt to change
- have good problem-solving skills.

If you'd like to work at a slightly higher level you'll also need to plan and organise the work for a team, motivate people and have good analytical and evaluation skills to solve complex tasks and problems.

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What hours will I do and what's the working environment like?

You could be needed at any time to help fix a problem, so you might sometimes be asked to work outside of the usual working week of 37 to 40 hours, Monday to Friday.

You could be working in places like supermarkets, hospitals or shopping centres to install and maintain refrigeration and air conditioning systems. Depending on what type of work you specialise in, you might also work on construction sites, which can be noisy, dusty and cold. Sometimes it may mean working in cramped and uncomfortable conditions in order to access the air conditioning and refrigeration units and you might work on scaffolding or the roof of a building.

Working in this industry usually means you're based locally, travelling from one project to the next. But some companies work across the whole country for their customers, so if you work for one of these firms you might be asked to stay overnight for short or long periods if a project is far from home.



When you're on a construction site you'll have to wear hard hats, high-visibility jackets, safety shoes and other similar equipment to make sure you stay safe.

What salary and other benefits can I expect?

Your salary will vary depending on your employer and where you live in the UK, but as a guide you might expect:

- First-year apprentices may start on around £10,000 a year.
- Newly-qualified workers may earn between £20,000 and £27,000 a year.
- Experienced workers may earn around £30,000 a year.

Some employers pay more, and you might get bonuses and overtime pay. There are national set rates that will cover your travelling time, travel expenses and accommodation costs.

What other interests would fit well with this career?

The work you'll do as an air conditioning and refrigeration engineer is underpinned by maths, engineering and science. So if you're interested in these subjects, have an interest in environmental matters, and enjoy using your practical skills, this career could be a good fit for you.

What is the industry profile like?

There are around 4500 refrigeration and air conditioning companies that between them employ about 24,000 employees. This ranges from local employers with only a few employees to national companies with several branches employing thousands. Many operate worldwide. There are also RAC engineers working for employers like local councils, supermarket chains and larger building services companies.

Even though the industry has been training more people, there's still a shortage of skilled workers.

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How do I get into this industry?

Depending on which level you'd like to work at, you'll need a National Vocational Qualification (NVQ) Level 2 or 3, or Scottish Vocational Qualification (SVQ) at Level 2 and 3. There's also other training on top of the NVQ/SVQ that you'll have to complete in order to become fully qualified.

Most people start as an apprentice straight from school or college and train on the job.

Apprenticeships give you the underpinning knowledge and skills you need to work effectively and professionally.

You'll do both off-the-job training, where you learn at a college or training centre, and on-the-job training, where you apply your skills and knowledge while working on-site for your employer.

Generally training will take between two and four years to complete, depending on the apprenticeship scheme.

We have produced guidance booklets, based on where you live, that provide more information on the different types of apprenticeship, entry requirements and the specific training you'll do:

- [England](#)
- [Northern Ireland](#)
- [Scotland](#)
- [Wales](#)

If you're not able to do an apprenticeship straight away, there are programmes around the UK that can help you to progress to an apprenticeship, further learning or a job.

Speak to your local careers adviser to find out more.

What if I'm an adult that wants to join this industry?

Some apprenticeship schemes across the UK are open to people over 25, although the number of places might be limited. Local colleges may have their own training schemes aimed at adults.

If you're over 25 you can still undertake the NVQ/SVQ without doing an apprenticeship. To gain an NVQ/SVQ, you must be in employment or have the ability to be assessed on site, carrying out work on real installations. Similar to an apprenticeship scheme, you should be prepared to gain the qualification over a number of years, not weeks or months. There is no quick fix to gaining the right qualifications and it will take around four years to complete.

Vacancies for qualified workers are usually advertised in local newspapers, job centres, and on websites such as [Monster](#) or [Workthing](#).

How can I progress in this career?

Most large employers have a formal progression structure. If you work for one of these companies you may have the chance to take on more important projects and managerial responsibilities as you progress and gain experience.

Once you're qualified to NVQ/SVQ Level 3, you could progress to higher qualifications like NVQ/SVQ Level 4 or even a degree, which will lead to job opportunities at [technician](#) or management level. If you want to do a foundation degree or degree course, many universities or similar institutions will accept a relevant qualification, or take your work experience into account instead of traditional academic qualifications.

You could also have the chance to move into design consultancy, teaching, or perhaps run your own business if you become self-employed.