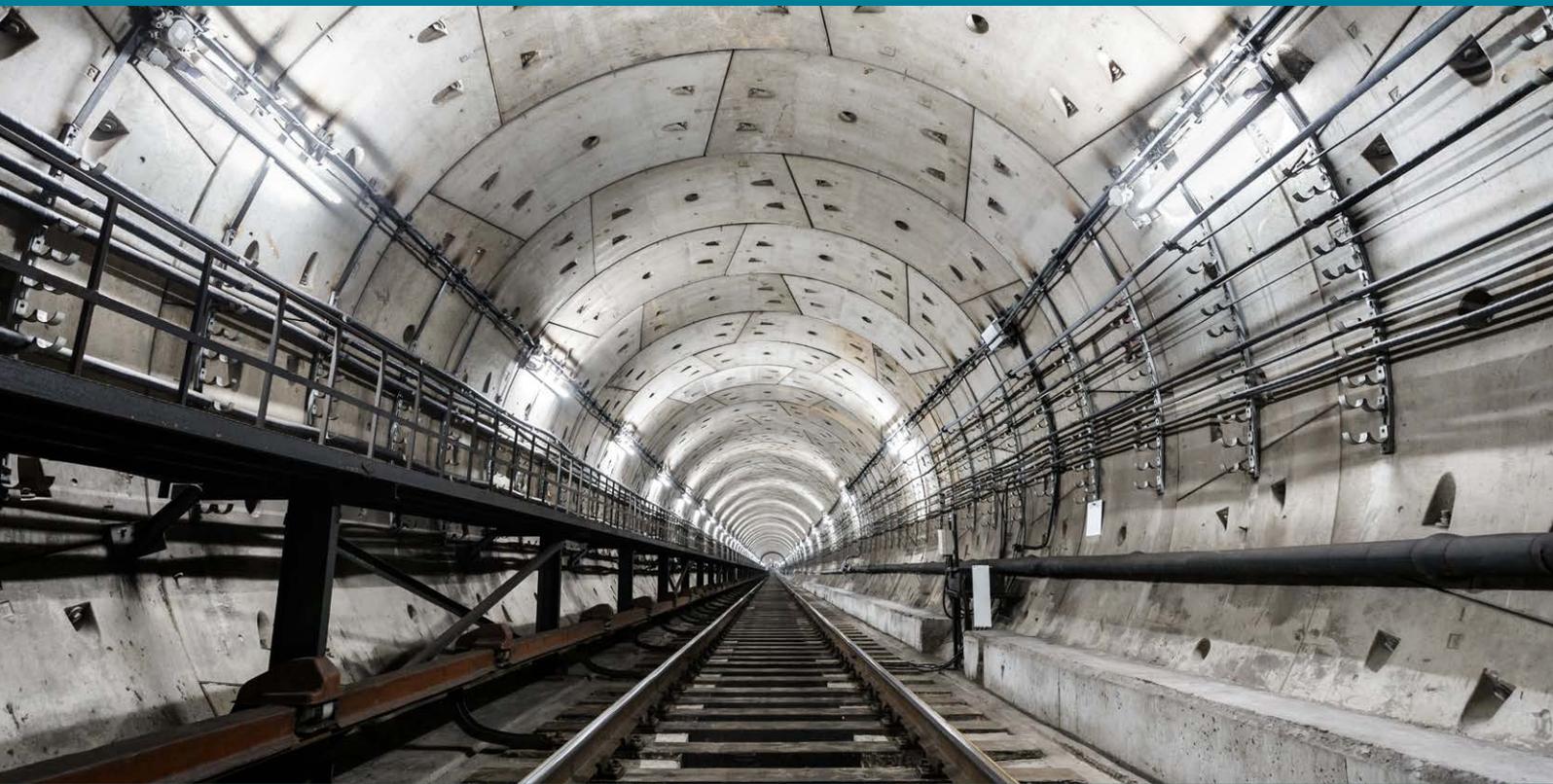


Tunnel Engineering



What does a Tunnelling Engineer do?

There are many methods of tunnel construction, each requiring specialist skills and equipment. These include techniques such as bored tunnels using Tunnel Boring Machines (TBMs), sprayed concrete lined tunnels, tunnels constructed by blasting with explosives, and tunnels constructed by pipejacking, piperamming, or thrustboring. This large variety means the tunnelling world and the skills it needs are constantly varied and challenging.

There are many reasons why tunnels or other underground excavations are required, and many methods for their construction. What they all have in common is the need to provide a conduit or space under or through an obstacle, be it a mass transit system under a busy city centre, a high-speed rail line underneath a mountain range or sea, a road link underneath a river, an oil, gas or electricity pipeline, or a water supply or sewer tunnel for a city. The method employed for the construction of a tunnel depends on the length and size, but most importantly on the ground and groundwater conditions through which the tunnel is built.



What is enjoyable about the role?

Tunnel engineering stems from the wider field of Geotechnical engineering. Many are attracted to engineering tunnels, by the problem solving aspect of this field of civil engineering. Engineers must take a scientific and analytical approach, which often return to the first principles of engineering. So, if you like to be challenged, this is a fantastic area to ply your trade.

Future projects

Tunnel construction in the UK has been increasing over the last few years, with a range of major projects currently underway and in the pipeline, and there has never been a better time to embark or return to a career in tunnelling. These projects include HS2, Crossrail, Thames Tideway Tunnel to name but three!

What if I don't have a civil engineering degree?

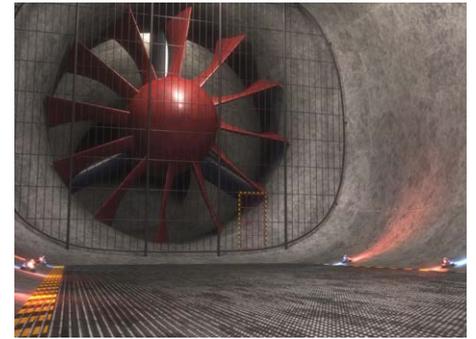
Qualified Civil Engineers from almost any discipline can enter the industry, but there is a variety of industry standard specifications. If you do not have a civil engineering degree, or would prefer to take a vocational route into the profession, how about becoming a civil engineering technician. Civil engineering technicians are at the cutting edge of designing, constructing and maintaining everything from airports to sewage systems.

Did you know...



The longest undersea tunnel in the world (as of 2010) is the Seikan Tunnel in Japan. Connecting the Japanese islands of Honshu and Hokkaido, the tunnel is 53.85 kilometres (33.46 miles) in length.

As well as being built for human use, tunnels can also be built for the safety and convenience of animals. More than 600 tunnels have been built under roads in the Netherlands to help increase the population numbers of endangered animals such as the European Badger.



Get in touch



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About ICE



Established in 1818 and with over 90,000 members worldwide, ICE is the independent voice of infrastructure and the leading source of expertise in infrastructure and engineering policy. Under our Royal Charter, ICE has a public duty to provide advice to all political parties and work with industry to ensure that civil engineering remains at the forefront of society.