



BECOME A

BUILDING SERVICES ENGINEER

Design, build and innovate with
building services engineering

A guide for university
students in Australia
and New Zealand

WHAT IS BUILDING SERVICES ENGINEERING?

Building services engineering offers the potential to build a rewarding career in a sector that is growing in importance and opportunity.

Building services transform the way in which we experience buildings. The services - lighting, heating, lifts, security systems and a host of other technologies - are key to making buildings comfortable and safe for people living and working in them.

It is building services engineers who enable buildings, from homes to hospitals, to function efficiently. They design systems to help manage infection risk in operating theatres, crowds in football stadiums and security in airport terminals. It's their job to ensure these systems operate effectively, sustainably and unobtrusively and blend with the architectural design of the building.

Building services engineers generally work in teams, alongside other built environment professionals to deliver projects for clients. Those clients may be major industries or businesses, global property companies, local authorities or other building owners, such as universities.

Energy consumed in the buildings sector accounts for 20% of the total delivered energy consumed worldwide. Building services engineers therefore have a key role to play in helping us, and our buildings, use natural resources wisely. They help buildings and occupants tackle the new and emerging challenges presented by major issues including global urbanisation, our changing climate and cybersecurity.

Building services engineering is a broad field, covering areas including:

 Energy use and technologies

 Daylight and artificial lighting

 Heating, ventilation and air conditioning

 Water, drainage and plumbing

 Escalators and lifts

 Communications technology

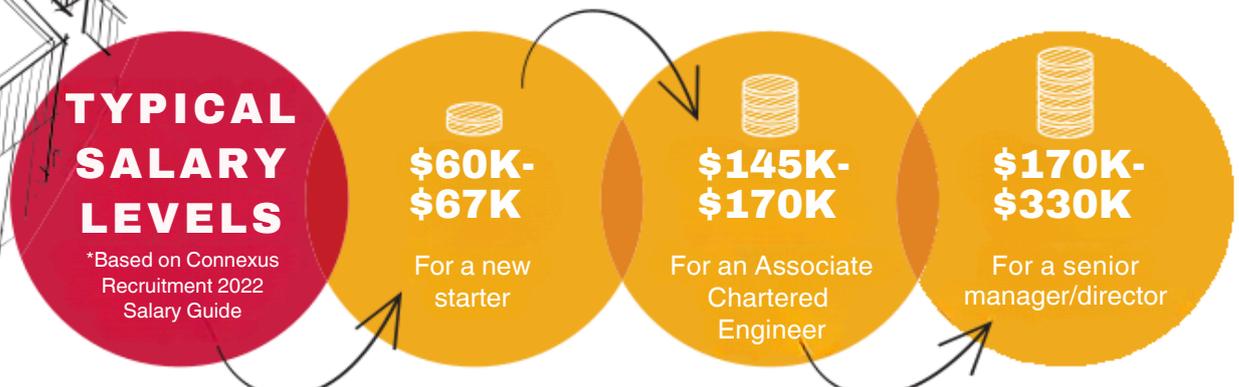
 Protective systems - for fire, security and other risks

REALISE YOUR POTENTIAL

By becoming a building services engineer, you'll have the chance to develop a range of skills and talents, realise your potential and pursue career opportunities in Australia, New Zealand and overseas. At the same time, you'll have the satisfaction of knowing that you're making a difference to the way people live and work in buildings, and to the environment.

Construction is a global industry, so it is fairly commonplace for building services engineers to travel not only across Australia and New Zealand, but also further abroad for business. Opportunities could range from working on skyscrapers in Dubai or the USA, to meetings with manufacturers in Germany or China to discuss innovative environmental technologies for buildings.

The industry has many career paths, progressing through such roles as project engineer to senior manager, director or partner or you may want to establish your own business. Building services engineering offers you the chance to pursue your career goals.



TYPICAL WORKING LIFE

The work of a building services engineer may typically include:



Scoping out a new building project with its architects



Solving engineering problems using latest design, modelling and visualisation software



Presentations to potential and existing clients



Guiding an installation team on site



Managing the operation and maintenance of building services in a completed facility



Site visits to see how designs are working in practice

HOW THEY GOT THERE



SIAN WILLMOTT

Principal Sustainability Consultant

Career path: Studied full time at Victoria University (Bachelor of Architectural Engineering); before starting a career at a global multidisciplinary consultancy as a sustainability consultant. Has worked as a sustainability consultant for the last 8 years.

Sian says: "My role is diverse; and opportunities ever changing; I love working with clients to help them understand how they can make a positive influence on people and places."



JERRIN PIUS

Mechanical Engineer - Building Services

Career path: Studied BE(Hons) in Mechanical Engineering at The University of Auckland. I discovered the potential of Building Information Modeling (BIM) in construction and thus I was captivated into building services.

Jerrin says: "The role we play has a significant impact on the lives of everyday people. As we live in a fast-moving society, it encourages us to be innovative problem solvers, which is what I like about building services."



IAN VAN EERDEN

Group Manager Sustainability

Career path: Studied renewable energy engineering and worked in compliance and policy for government before moving into building services consultancy and sustainability.

Ian says: "I love my job because I get to see how my involvement in projects helps solve problems and make buildings perform better, environmentally, socially and economically."

STUDYING AT UNIVERSITY

An engineering or science degree is the typical starting point for a career in building services engineering.

Degree courses are typically three to five years in duration. There are many study options across the region with the main study options being:

**Bachelor of Engineering -
BEng (Hons) / BE(Hons)**

Four-year, full-time equivalent course

**Bachelor of Building Science -
BBSc (offered in NZ only)**

Three-year, full-time equivalent course

**Master of Engineering -
MEng/ ME or Master of Building
Science - MBSC**

One to two year course if studied full-time

Relevant course titles, and content, may vary and cover such areas as:

- building services engineering
- mechanical engineering
- electrical engineering
- architectural engineering
- environmental engineering

If you want to become an Incorporated or Chartered Engineer, you could enter a graduate trainee scheme with an employer and continue your studies on a part-time basis. Graduate trainee schemes are offered by many organisations, including major construction firms, multi-disciplinary consultancies and dedicated building services consultancies.

WHAT TO EXPECT FROM A DEGREE COURSE

Degree courses use a variety of learning approaches, including lectures, laboratory work, one-to-one tutorials and design studios, where students may work together in teams to solve real-world engineering problems. Students are likely to be using advanced design and modelling software, and perhaps even familiar tools, like SketchUp.

There could also be the opportunity to use technologies such as thermal imaging cameras, which highlight the heat loss from buildings, or 3D printing to produce building components. Study visits to construction sites and opportunities to travel overseas for exchange visits and events could also be part of your course.

SET YOUR CAREER ON TRACK FOR SUCCESS

The Chartered Institution of Building Services Engineers (CIBSE) is the professional body for building services engineers and accredits some degree courses. You can start your route by studying in an engineering discipline and applying for CIBSE student membership - Free to full-time students.

Once you have gained work experience in a Building Services Engineering field you can apply for Chartered Engineer status and corporate membership.

CIBSE offers a variety of routes to become Chartered depending on work experience and qualifications. Candidates who do not hold a Masters qualification can still gain corporate membership and Chartered Engineer status via the alternative route by demonstrating relevant experience.

CIBSE also has a mutual recognition agreement which allows members of Engineers Australia (EA) or IPENZ to 'fast track' into CIBSE corporate membership.

More information: www.cibse.org/join-cibse

CIBSE BY NUMBERS



23,000

Members of the Chartered Institution of Building Services Engineers



94 Countries around the world where CIBSE members can be found



19 Knowledge sharing groups that CIBSE hosts for members or non-members. They include the Young Energy Performance Group



1897 CIBSE's history dates back to this year, when the Institution of Heating and Ventilating Engineers was founded

WANT TO KNOW MORE?

CHARTERED INSTITUTION OF BUILDING SERVICES ENGINEERS

The Chartered Institution of Building Services (CIBSE) is the professional body for building services engineers. CIBSE approves courses and work-based training programmes, providing routes to professional registration and membership. It is a global network, providing professional support to building services engineers, and sets the criteria for best practice in the profession.

Check out: www.cibse.org.au

WOMEN IN BUILDING SERVICES ENGINEERING (WIBSE)

CIBSE's WIBSE network has been established to support and encourage women who are joining, working and progressing in the building services sector. Membership is free, and you don't have to be a CIBSE member in order to join. The network is open to men as well as women.

CIBSE YOUNG ENGINEERS NETWORK (YEN)

The CIBSE Young Engineers Network (YEN) is a network of regional centres aimed at young professionals. There are no costs or strings attached to membership, and you don't have to be a CIBSE member to join - although you can begin your CIBSE membership as a Student. CIBSE YEN has its own LinkedIn networking group, while its regional centres organise a range of activities including technical tours and social events, CIBSE YEN has regional centres across the ANZ as well as overseas.

Check out: www.cibse.org/YenANZ



www.cibse.org

