What is Architectural Engineering?

Architectural engineering is a program for students who are interested in contributing to the structural design and the design and constructability of essential services in buildings. In addition, architectural engineers are often employed as project and construction managers.

The architectural engineer and the architect

The role of the architectural engineer meshes with the role of the architect. But, while the architect develops a design that meets the client's requirements in terms of the function and appearance of a building, the architectural engineer ensures that the building's necessary, often hidden, component parts are integrated into the whole.

Just a 'short' list of what architectural engineers can choose to focus on in their careers will show you how diverse their roles, and their education, can be:

- structural integrity
- construction management
- project management
- green building (energy efficiency; energy conservation and energy demand management)
- intelligent buildings
- heating, ventilating and air conditioning (solar and other renewable energies; indoor air quality; thermal comfort)
- plumbing and piping
- fire protection
- building power systems
- lighting
- building transportation systems
- acoustics, noise and vibration control
- building information modelling

Qualification and career

Architectural engineering graduates are fully fledged structural engineers, eligible for membership of Engineers Australia. You can help build bridges if you want to; or dams; or football stadiums. But at a time when building design and construction are changing rapidly as a result of improved technologies and a new awareness of the impact of a building's design, construction and operation on the environment, your degree will enable you to collaborate with architects in a range of exciting ways.

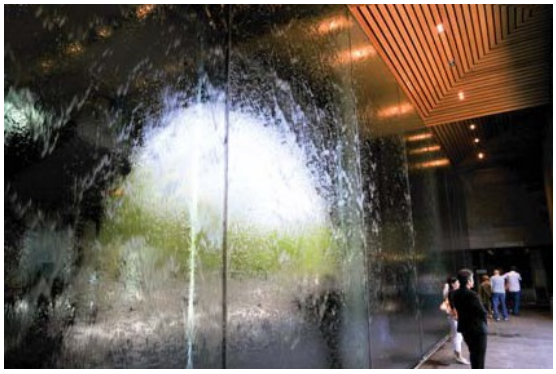
There is, in fact, a growing trend for building construction to involve teams of specialists as buildings become more sophisticated in terms of their relationship to the environment. Architectural engineers often decide to focus on just one of a building's systems that interests them the most – plumbing (just try piping water up to the top of a ten story building for a rooftop garden, or getting waste water down and out in environmentally friendly ways!), air conditioning, heating, fire protection, power – or on just a few internal systems simultaneously.

Importantly, because they have taken courses in architecture, architectural engineers relate well to architects and have an appreciation of the issues that impact on building design and aesthetic appeal. Architects can call on architectural engineers to help them make their vision for a building a reality that is attractive, comfortable, safe, cost effective and compliant with a host of building regulations.

Architectural engineering is a very dynamic profession for creative problem solvers with good communication skills. Why not try it?

One of the important skills architectural engineers, as well as architects, learn is how to model the structures they propose using everyday materials such as cardboard, matchsticks, wire, paper and paint. This model was completed by a first year architectural engineering student.

The recently constructed $100 million Faculty of Engineering, Mathematical and Computer Sciences building, Innova21, has a six star rating for environmentally sustainable design. The architects and engineers have included solar photovoltaic panels on the roof to provide 2kW of renewable power to the building. There is an extensive rainwater harvesting system of 500,000 litres capacity that supplies water for flushing the toilets and any internal irrigation.



The entrance to the National Gallery of Victoria includes a beautiful water wall where water continuously cascades down the seven panes of glass. Each pane weighs more than a ton and is three meters wide by six meters high. It takes an engineer to make visions like this by architects happen.

An example of a car parking station, Santa Monica Civic Centre, Santa Monica, California. These are the sorts of projects architectural engineers specialising in power and lighting are called on to assist with.

Another massing model, this is a close up of a building suggested as part of a green building project near a watercourse. There are several other buildings integrated in the space.