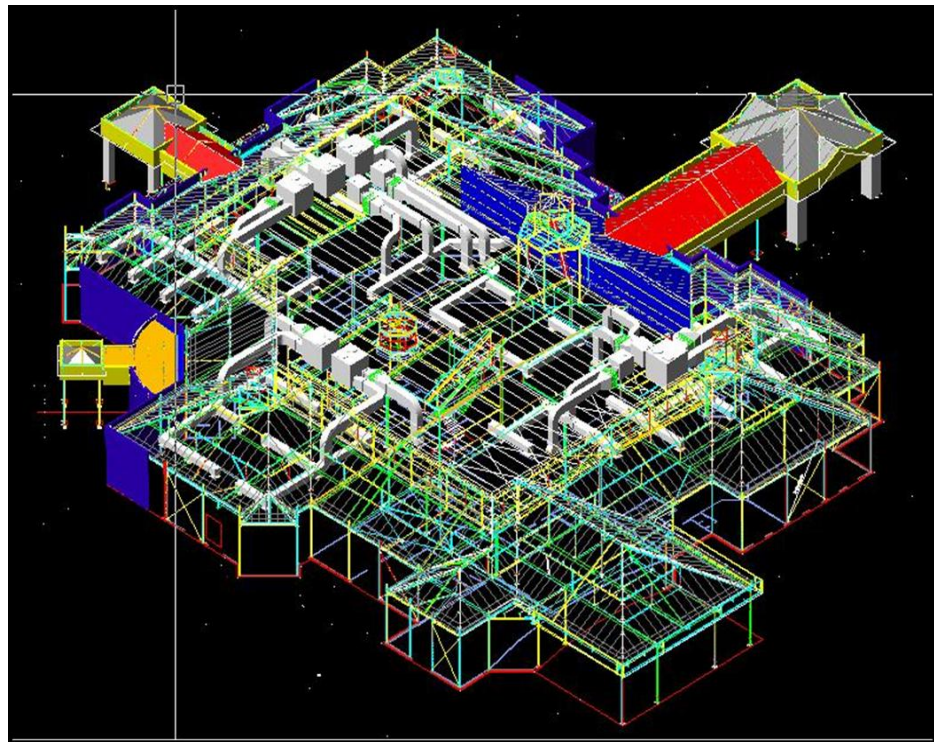


## Overview of Discipline Building Services

Building services engineering is the engineering of the internal environment and environmental impact of a building. Essentially it brings buildings and structures to life. Building services engineers are responsible for the design, installation, operation and monitoring of the mechanical, electrical and public health systems required for the safe, comfortable and environmentally friendly operation of modern buildings.

Services engineers work closely with other construction professionals - architects, structural engineers and quantity surveyors. They can influence the architecture of a building and play a significant role in the sustainability and energy demand of a building.

*Image courtesy of: Global Drafting Corporation*



Within building services engineering, new roles are emerging, for example in the areas of renewable energy, sustainability, low carbon technologies and energy management as follows:

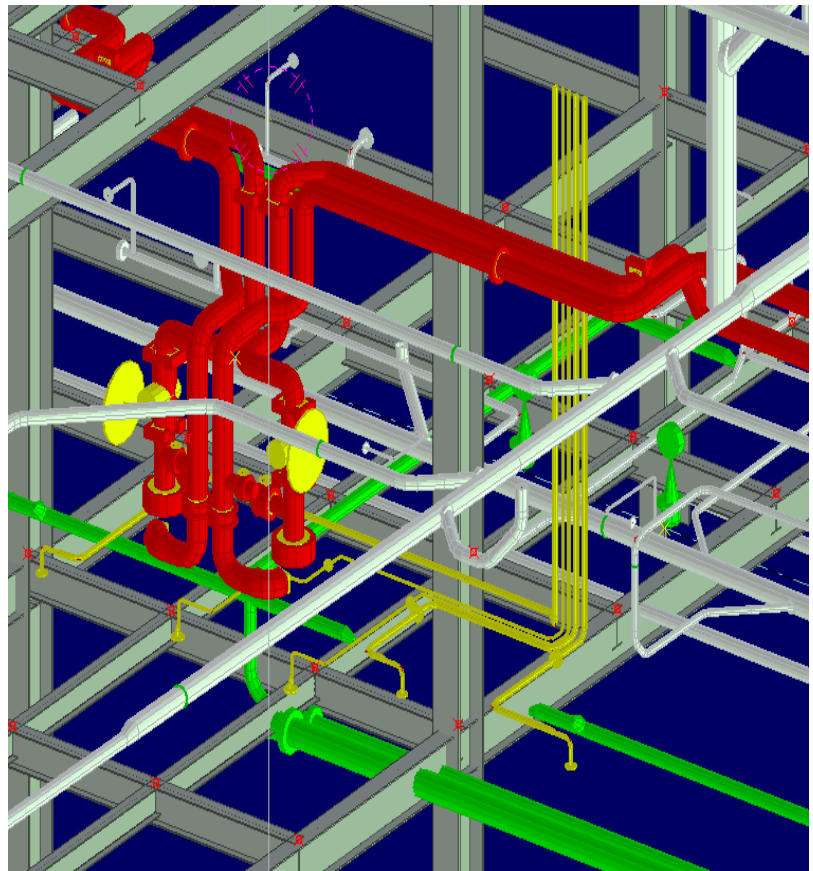
- Design: designing layouts and requirements for building services for residential or commercial developments.
- Construction: supervising the construction of the building services, commissioning systems and ongoing maintenance and operation of services.
- Environmental: developing new energy saving methods for construction, designing new and improved energy conservation systems for buildings.
- Heating, ventilation and air conditioning (HVAC): specialising in the design, development, construction and operation of these systems.
- Electrical technology: specialising in the design and development of electrical systems required for safe and energy sustaining operation of buildings.

Many building services firms use Computer-Aided Engineering (CAE) software programs to assist in their system design and analysis. It can also be used to check the robustness and performance of components and assemblies.

These programs are linked to the architect's and engineer's 3D models, giving them the ability to create virtual models for analysis and in spatial planning. This ensures easier and more exhaustive visualization of proposed solutions for a functional and safe work environment.

CAE systems are the major providers of information to help support design teams in decision-making from conceptual design and layout of the various systems, through to strength and dynamic analysis of the individual parts of the system.

These virtual 3D models can also influence the manufacturing and assembly methods of various components within the systems, due to the knowledge gained from being able to visualise their final position within the structure.



*Image courtesy of Pacific Computing (Australia) P/L*