ELECTRICAL ENGINEERING

Electrical engineering encompasses a whole host of systems within modern buildings, including:

- Lighting
- Small power and special user equipment
- Heating ventilating and air conditioning (HVAC) equipment
- Lifts and escalators
- Fire alarms and life safety systems
- CCTV and security systems
- Audio visual systems
- Telecommunications
- Facilities for the disabled
- Access control

The design of all electrical systems is dictated by a number of factors:

- Laws and regulations
- Budget
- Type of building
- Purpose of building
- Capacity requirements of building
- Special applications.

The table below summarises unit load estimates for lighting and small power for various types of building. An estimate for mechanical apparatus such as lifts; air conditioning equipment etc should be added to each of these figures.

Building Type	**Minimum load capacity/ (W/m^2)**
Office	60
School	30
Residential Building	30
Hospital	25
Hotel	25
Church	15

All electrical installations must comply with the requirements of Electricity Association Engineering Recommendation G5/4 [(4)] which imposes limits on the extent of harmonics that can be generated in an electrical system.

Source: CIBSE Guide K 2005, Electricity in Buildings

There are no regulations in the UK for minimum design capacities for various buildings; this is left to the judgement of the electrical designer. This is not the case for buildings in other countries however.

Source: CIBSE Guide K 2005, Electricity in Buildings