3.1 Materials

In general the materials are to be chosen based on local requirements, climatic conditions at the place of installation, ground and irrigation conditions (in-ground luminaires) and expected pollution of dirt (chemicals, salt, sand, etc.).

3.1.1 Steel

Many lighting luminaires are made from ready-painted sheet steel, painted in different colours. Where corrosion is a problem, galvanised sheet steel is used. Where a very durable paint finish is required, enamelling or powder coating is used.

3.1.2 Stainless Steel

Stainless steel is rarely used for luminaire bodies but it is widely used for many small, unpainted luminaire components that have to remain free from corrosion.
Only certain grades of stainless steel are suitable for external use for luminaires and unless specifically stated in client briefs or specifications, marine-grade (316) stainless steel should be used only.

3.1.3 Aluminium Sheet

Aluminium sheet is mainly used for reflectors in luminaires. It can have good reflection properties and the physical strength to form stable reflectors of the desired form.

3.1.4 Cast Aluminium – Extruded Aluminium

Cast aluminium is widely used for housings of different outdoor luminaires. Such housings are light in weight and can be used in damp or corrosive atmospheres without any further treatment. Provided that the correct grade of aluminium alloy has been used and this alloy has the correct limits or copper or other elements as set out in a client's brief or specification.

3.1.5 Plastics, PVC, Acrylic, etc.

There are many different forms of plastic used in luminaires, either for complete housings or components. These plastics differ in their transparency, strength, toughness, sensitivity to UV radiation and heat resistance.

3.1.6 Glass

Three types of glass are used in luminaires: soda lime glass, borosilicate glass, and very high resistance glass. Soda lime glass is used where there are no special heat resistance demands. Where high heat resistance, chemical stability and resistance to heat shock are required, borosilicate glass is used. High resistance glass has the advantage that it can deliver high heat resistance, high thermal shock resistance and great physical strength even in thin sheets.

3.1.7 Ceramics

Some components of luminaires that produce very high temperatures are made of ceramics.