Cable and Lighting Calculations

In addition to the overall electrical system, analysis calculations should be carried out for cables and lighting.

Cable calculations

Cables are normally referred to by the number of cores and the cross-sectional area of the conductors in mm2. For example, 3C x 25mm 2means a 3-core cable with each conductor having a cross-sectional area of 25mm2. Cable size is selected as follows:

- Cable cross-sectional area is in mm2 and is calculated based on current capacity.
- Allowable voltage drop is calculated and cable size is increased if necessary.
- Fault level withstand is calculated and cable size is increased if necessary.

Short circuit fault rating calculations

Under fault conditions, there are two major effects which the system must be able to withstand: The electro-magnetic effects which can translate into damaging mechanical forces, and the thermal effects due to a high current causing a rise in busbar temperature. Fault load calculations identify the maximum loads that can be permitted under fault conditions.

Lighting location and sizing/LUX levels

Different areas of the facility require certain minimum and maximum light levels which are established by standard calculations. These light/lux levels then translate into specifications and locations of lighting units.