



2002 – AJ Focus - Lifts and Escalators

While Architects have to balance aesthetic and urban considerations with the client's requirements prior to detail design, the lift and escalator consultant has a different set of priorities. Our primary function is collectively making the building-investment economics stand up. With too few lifts and escalators, the circulation fails and the rental levels suffer; too many lifts and we take too much space and, yes, the rental income will drop as a result.

Up to Standard

The present British Standard for lifts is known as BSEN 81. Part 1 for traction equipment and part 2 for hydraulic equipment. And the modernisation of lifts is still carried out under BS 5655 part 11 for traction lifts, however this standard is about to be superseded. Requirements for Fire-fighting lifts are encompassed in the British Standard BS 5588.

The principle criteria for the provision of lifts are: over 18m travel above ground floor, over 9.5m travel to basements or a single area 900m square at any level above ground. There should be a minimum of one eight-person 630-Kg capacity with Class O finishes within a travel distance of 30m-40m from each other depending on the route for hose reels.

Traffic guidance

Interval times should not exceed 30 seconds. The amount of passenger traffic transported is described as 'handling capacity' and measured as a percentage over five minutes. British Standards advise that, for a multi-let property, a lift system should handle 12% of the building population above the main floor in five minutes. Significantly it also states that for a single-let property, the lifts should move 17% of the population over the same period. However the British Council of offices (BCO) does not make this differentiation and advises 15% handling capacity whatever the nature of the tenancy.

It is easy to fall into the trap of considering that a multi-let property is simply a building with more than one tenant.

Whereas in fact if a collection of the tenants occupy more than two floors and represent a significant critical mass or a 'head office' function, it is reasonable to assume that there will be inter-floor traffic. Lift traffic, in turn, increases demands on the system and service expectations. This then becomes a special case.

For 'tall' buildings a slightly different methodology applies, but this is perhaps a subject for another occasion.

In summary, the entire subject of lift traffic hinges on the perceived density of occupation. Architects can often be wise before the event and opt for a lightly populated space. The BCO follows suit and considers 14m square per person as a base line whereas 10-12m square per person would be a wiser choice.

Keeping in step

Staircases can provide a useful function in the planning process for vertical transportation. They should be accessible in their location and will divert traffic away from the lift cores. In short the quality of staircases and their accessibility can draw high levels of traffic which can avert expenditure for the provision of additional lifts. Since lifts travel through the building, the use of staircases at lower levels increases the net lettable office space at higher floors.

Standard Lift Equipment

Loved by Quantity Surveyors and tolerated by Architects, standard lifts do have a purpose as they provide cost-effective solutions for most buildings. However, the designer must adhere to the sizes stated in the manufacturer's documentation.

As a general rule, lift companies often show the minimum size that they can work within, which often conflicts with their competitors. This practice can then restrict the tendering process at a later stage.

Secondary lift systems, such as fire fighting lifts, goods lifts and disabled access systems can all be dealt with quite adequately by standard solutions.

Standard glazed cars are available from some of the larger manufacturers but inevitably will come with their design limitations.

Hydraulic Lifts

Historically, hydraulic lifts provided an easy solution for the low-rise market and a potential answer to planning issues on mid-rise developments.