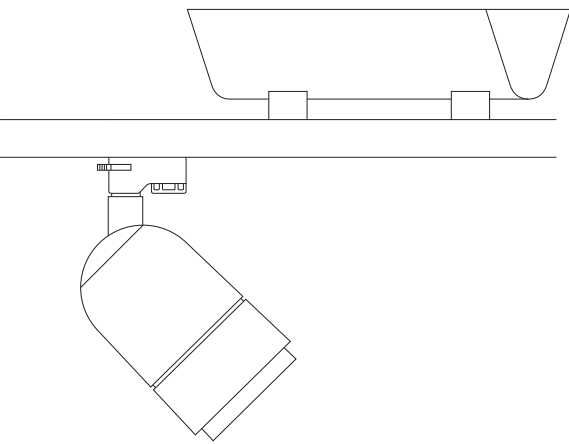
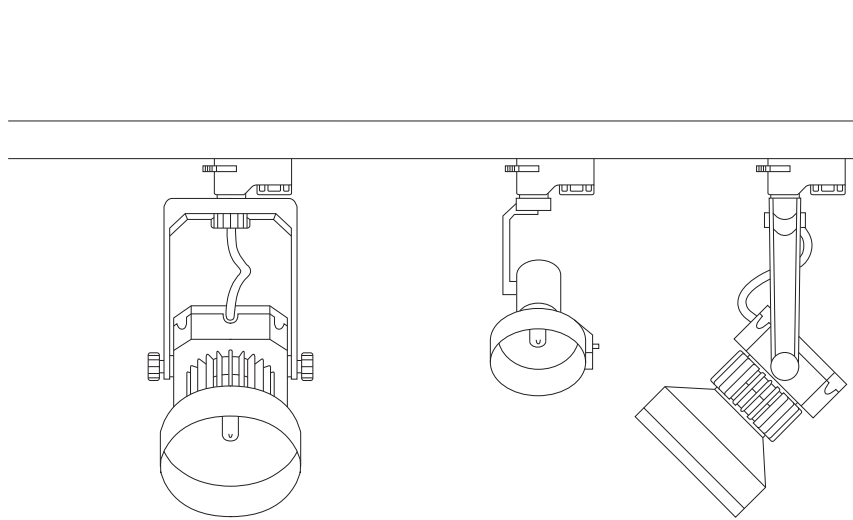


Low-voltage track:
low-voltage spotlights
without transformers
can be operated on the
track. Power supply is
effected via an external
transformer.



Spotlight for low-voltage halogen lamps with integral, conventional transformer.



Uplighter for compact fluorescent lamps or halogen lamps.

Spotlight for low-voltage halogen lamps. The extremely small dimensions of the lamp and the use of an external transformer allow the design of compact spotlights. Larger reflectors make for enhanced optical control and increased luminous intensity.

3.2.1.2 Psychological requirements

Besides the objective requirements which result from the activities performed in a visual environment, attention must also be paid to the demands that stem from the users themselves. Many of these are concerned with the possibility of gaining better views of their surroundings. This applies to the need for information about time of day and weather, about what is going on in the rest of the building, and sometimes also the need for orientation within the environment. One special case is the utilisation of sunlight in atriums or through skylights and light wells. The latter do not necessarily offer a view outside but do provide information about the weather and the progress of time is maintained – a changing patch of sunlight can contribute to the feeling of life inside a building.

Apart from the need for daylight and views outside, which depends on the individual project to a large extent, there is a changing need for orientation aids. In extensive buildings, where there are continually different groups of users, the need for optical systems that guide people through spaces becomes a central issue. In some cases it is only necessary to underline a number of focal locations. In buildings with simple spatial structures that are constantly in use the need for orientation aids is of secondary importance. It is therefore essential to find out how important the need for orientation is in each specific case and which routes and areas demand special attention.

Another psychological need that has to be fulfilled is the creation of a clearly structured environment. This is especially important in areas that are potentially subjected to danger, i.e. where the structure of the space must be easily legible. In general, it can be said that a clearly structured environment contributes to our feeling of well-being in a visual environment. In reality this means accentuating the structure of the space, the materials applied and the most significant parts of the space, and above all the type and arrangement of the room limits that are to be illuminated and the information signs that are to be emphasized.

The last factor is the need for defined spatial zones; the expectation that you can recognize and distinguish between areas with different functions from the lighting they receive. This mainly concerns the lighting of functional areas that we accept as typical and which is in line with previous experience, e.g. the application of higher colour temperatures and uniform, diffuse lighting in working spaces, but warmer, directed light in prestigious spaces. The need for clearly defined private areas also falls in this category; lighting can be applied especially effectively in the conversation areas or waiting zones within larger spaces to create a feeling of privacy.

3.2.1.3 Architecture and atmosphere

Besides the requirements that arise from how a space is used and the needs of the users, lighting design also has to address the requirements of architecture and atmosphere. In the first place the architectural building is regarded as an object of lighting – it is to be rendered visible, its qualities accentuated, its atmosphere underlined, and if necessary its effect modified. Furthermore, the architectural concept also defines the basic conditions for the design of user-oriented lighting.

Detailed information about the architecture is of particular importance for the design of demanding lighting. This primarily concerns the overall architectural concept – the atmosphere the building creates, the intended effect indoors and out by day and night, the utilization of daylight, and the question of budget and the permissible energy consumption.

Along with this basic information about the project, the structures and qualities of the building itself are important. Quantitative lighting design also requires information about the dimensions of the spaces to be lit, the type of ceiling and the reflectance of the room surfaces. Other factors to be taken into consideration are the materials applied, colour scheme and planned furnishings.

As in the case of a clearly structured environment, architectural lighting is concerned with lighting that underlines the structures and characteristic features of the building, not only from the point of view of optimised perception, but involving the aesthetic effect of the illuminated space. The special features and main characteristics of an environment also present an important issue, above all the question of the formal language of the building – the design of the spaces and how they are subdivided, what modules and rhythms they contain, and how light and luminaires are to be aligned to underline these aspects.