

3.2.2 Project development

The result of the project analysis is a series of lighting tasks that are allocated to specific areas within the space or specific times of day, all of which form a characteristic matrix of requirements for a visual environment. The next phase following the project analysis is the development of a qualitative concept that outlines an idea of the qualities the lighting should possess, without giving exact information as to the choice of lamps and luminaires or how they are to be arranged.

The first task concept development has to deal with is the allocation of specific lighting qualities to the lighting tasks defined as a result of the project analysis; to define the lighting conditions that are to be achieved in specific locations at specific times. To begin with, this concerns the quantity and the various other criteria of the light in the individual areas, plus the order of importance of these individual aspects within the overall lighting concept.

The pattern of requirements acquired in the course of the project analysis thus gives rise to a pattern of lighting qualities, which in turn provides information about the various forms of lighting and the required spatial and temporal differentiation. This is the first indication of whether the lighting is to be uniform or differentiated to match different areas, whether the lighting installation is to be fixed or flexible and whether it is a good idea to include lighting control equipment for time-related or user-related lighting control.

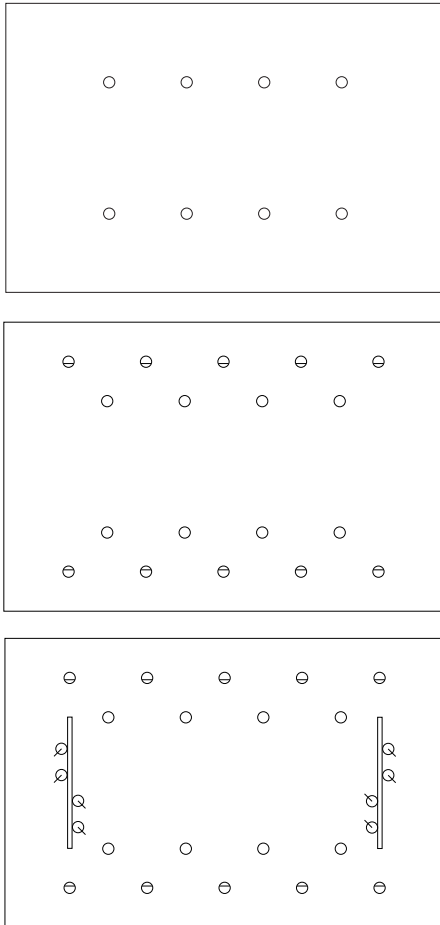
The allocation of lighting qualities to the individual lighting tasks in a project gives rise to a catalogue of design objectives, which takes into account the different requirements the lighting has to fulfil, without consideration for the conditions required to realise the lighting scheme or instructions on how to effect a consistent lighting design concept.

A practice-oriented design concept must therefore first describe how the desired lighting effects can be realised within the basic conditions and restrictions inherent to the project. The design concept may be required to correspond to specific standards, and it must keep within the budget with regard to both the investment costs and the operating costs. The lighting concept must also be coordinated with other engineering work to be effected on the project, i.e. air-conditioning and acoustics, and, of course, harmonize with the architecture. It is important to clarify the significance of individual aspects of the lighting for the overall concept; whether one particular form of lighting can justify preferential treatment, e.g. the demand for adequate room height in the case of an indirect lighting installation, whether the lighting

design must submit to acoustic engineering requirements or whether integral solutions, e.g. a combination of lighting and an air-handling system, are possible.

The real challenge behind qualitative lighting design lies in the development of a concept that is able to fulfil a wide range of requirements by means of a lighting installation that is both technically and aesthetically consistent. In contrast to quantitative concepts, which derive one general set of lighting qualities from the given profile of requirements for a project, which almost inevitably leads to a uniform and thereby standard design using light and luminaires, qualitative lighting design must come to terms with complex patterns of required lighting qualities. This cannot mean, however, that the designer responds to an unstructured set of lighting requirements with an equally unstructured variety of luminaires. The well-meant consideration of a wide range of lighting tasks frequently leads to an unsystematic distribution of a wide variety of luminaire types or to a conglomeration of several lighting systems. Such a solution may provide an adequate distribution of lighting qualities, but the value of such costly installations from the point of view of perceptual psychology and aesthetics is questionable owing to the lack of harmony on the ceiling.

From a technical, economic and design point of view the aim of lighting design should be to find a solution that does not go for the overall uniform lighting effect and equally not for a confusing and distracting muddle of lighting fixtures designed to cover a wide variety of lighting requirements, but a concept that produces a clearly structured distribution of lighting qualities by means of a consistent lighting scheme. The degree of complexity that has to be accepted depends on the specific lighting task. It may be that the main requirements set by the lighting task allow general lighting throughout the space, or that differentiated lighting can be achieved using integral systems such as light structures or the comprehensive range of recessed ceiling luminaires. Or in a multifunctional space that a combination of different luminaire systems may be necessary. Nevertheless, the most convincing solution is a concept that achieves the required result with the least amount of technical equipment and the highest degree of design clarity.



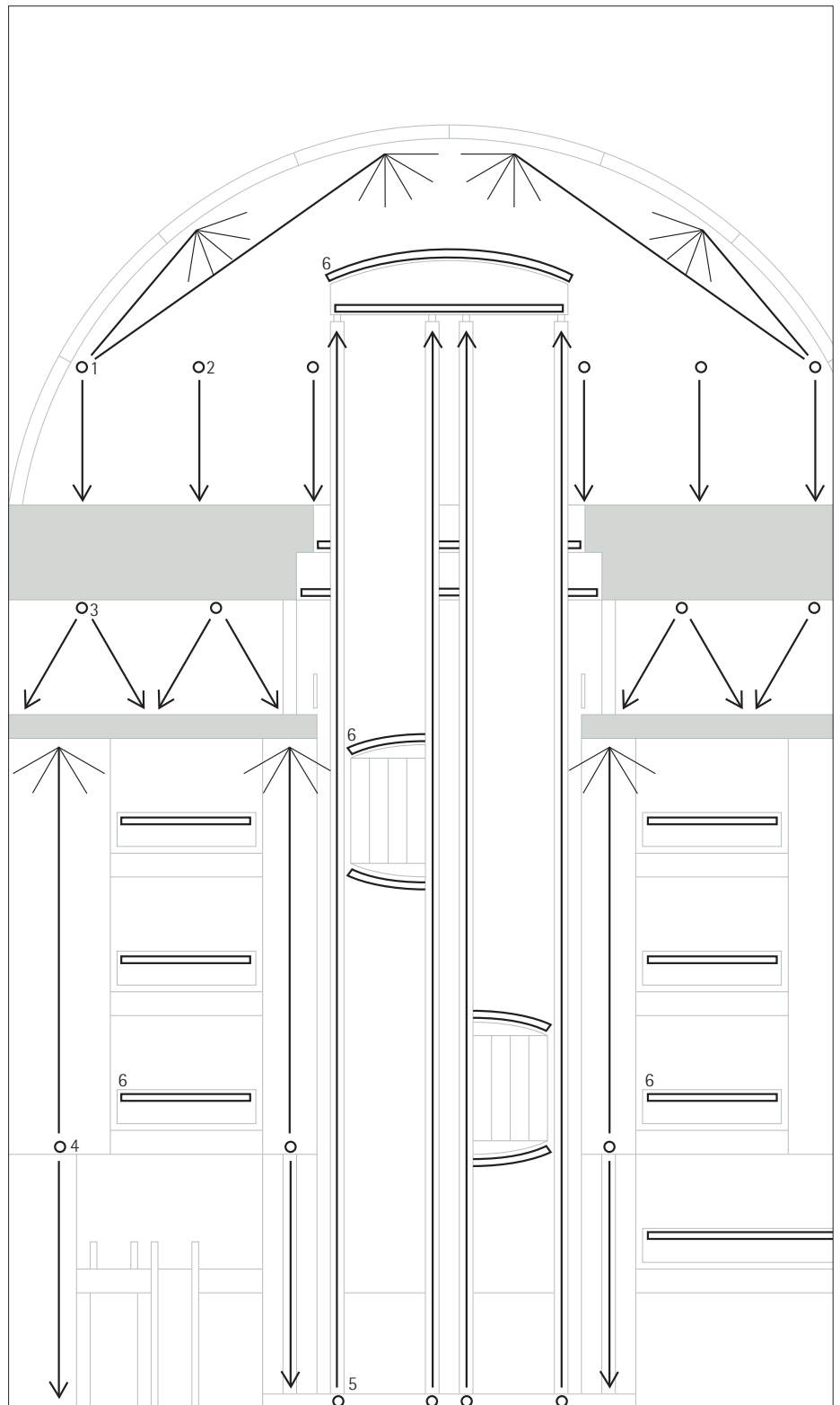
Example of the development of a differentiated lighting concept (from the top downwards): general lighting provided by downlights in accordance with the identified visual tasks, supplemented by wall-washers for the architectural lighting and track-mounted spots for the accentuation of special features.

Lighting for the restaurant beneath the dome of the atrium. Wall-mounted luminaires (1) provide both indirect lighting of the dome and direct lighting of the restaurant.

Pendant luminaires (2) with a decorative component continue the direct lighting in the restaurant inside the actual space.

Lighting of the cafeteria. A ceiling-mounted luminaire (3) provides uniform lighting over this level.

The lighting components for the general lighting in the atrium (4) are mounted on pillars on the walls of the atrium. They radiate light upwards. The light is then reflected by ceiling reflectors or by the atrium ceiling, thereby providing indirect lighting. The pillars are simultaneously accentuated by grazing light directed downwards.



The free-standing panoramic lift is accentuated by grazing light from below (5).

Individual architectural elements, e.g. the balastrades of the adjoining sales floors, the lift car, the upper wall of the lift shaft and the opening of the atrium are accentuated by a decorative, linear lighting components (6).