1.0 History

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The history of architectural lighting

For the most part of the history of mankind, from the origins of man up to the 18. century, there were basically two sources of light available. The older one of these two is daylight, the medium by which we see and to whose properties the eye has adapted over millions of years. A considerable time elapsed before the stone age, with its development of cultural techniques and tools, added the flame as a second, artificial light source. From this time on lighting conditions remained the same for a considerable time. The paintings in the cave of Altamira were created to be viewed under the same light as Renaissance and Baroque paintings.

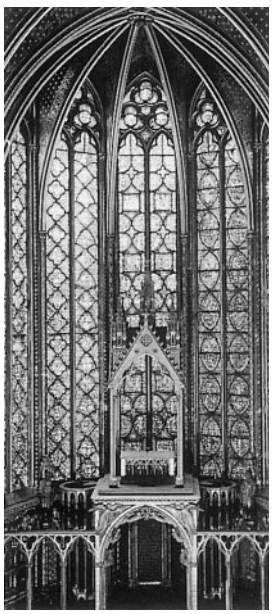
Lighting was limited to daylight and flame and it was for this very reason that man has continued to perfect the application of these two light sources for tens of thousands of years.

1.1.1 Daylight architecture

In the case of daylight this meant consistently adapting architecture to the requirements for lighting with natural light. Entire buildings and individual rooms were therefore aligned to the incidence of the sun's rays. The size of the rooms was also determined by the availability of natural lighting and ventilation. Different basic types of daylight architecture developed in conjunction with the lighting conditions in the various climatic zones of the globe. In cooler regions with a predominantly overcast sky we see the development of buildings with large, tall windows to allow as much light into the building as possible. It was found that diffuse celestial light produced uniform lighting; the problems inherent to bright sunshine – cast shadow, glare and overheating of interior spaces – were restricted to a few sunny days in the year and could be ignored.

In countries with a lot of sunshine these problems are critical. A majority of the buildings here have small windows located in the lower sections of the buildings and the exterior walls are highly reflective. This means that hardly any direct sunlight can penetrate the building. Even today the lighting is effected in the main by the light reflected from the building's surfaces, the light being dispersed in the course of the reflection process and a large proportion of its infrared component dissipated.

When it came to the question of whether there was sufficient light, aspects relating to aesthetic quality and perceptual psychology were also taken into account when dealing with daylight, which is evident in the way architectural details are treated. Certain elements were designed differently according to the light available to promote the required spatial effect through the interplay of light and shadow. In direct sunlight reliefs, ledges and the



Daylight architecture: large, tall windows.

Sunlight architecture: small, low windows, reflective outer walls.