Small, Medium and Large

Lighting retail environments.

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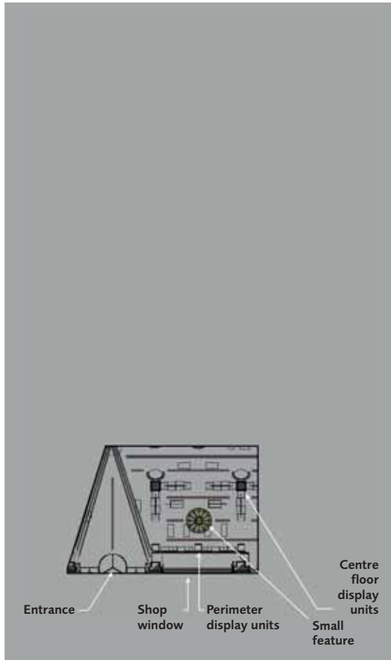
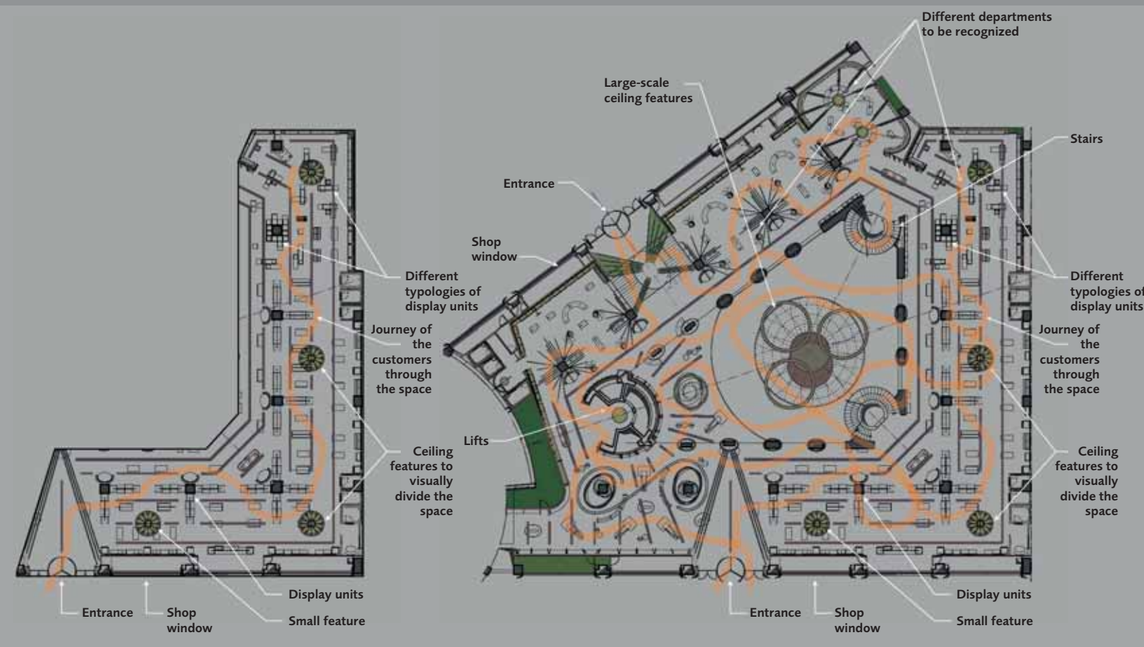
Photos: dpa

What does the lighting in retail spaces need to achieve to meet a particular retail brand's aspirations? Primarily to show the merchandise to best effect in terms of form, colour and texture, and to help make it attractive to the customer. Then, to further promote sales, illuminate the retail space itself to best effect to enhance the brand, and ultimately form part of the whole brand and store experience for the customer.





As well as all sizes of retail space there are all types of brands pitching at different markets and different levels within each market – fashion is a good example of this. Ultimately, scale of retail space plays an important part in developing an appropriate lighting solution. There are many aspects to consider when developing appropriate lighting designs for different sizes of retail space and different types of product and each brand will want their own unique interior and lighting design. However there are some lighting design fundamentals which can be applied in some form to all retail applications.

So what are some of these lighting considerations?

Ambient light levels – the general light levels in a store are important to set the mood of the brand and the space to the customer. The ambient lighting can give visual clues about the target and market positioning of the brand. It can often be observed that the higher the quality of the brand and the merchandise the lower the ambient light levels will be. For a high end brand, ambient light levels are lower to allow the product to stand out more easily with display lighting and provide more visual contrast and a sense of journey. This leads to increased visual interest on the part of the customer and hence a perception of higher quality. This is especially true of luxury fashion boutiques.

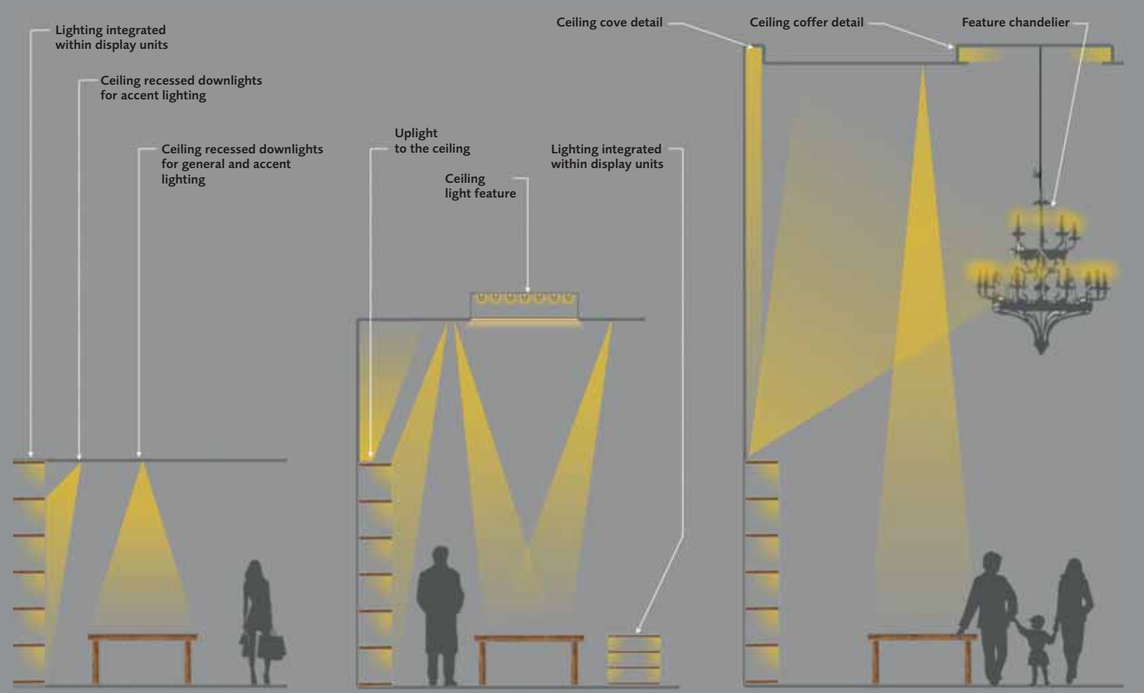
Larger retail spaces such as supermarkets, department stores and shopping malls rely more on much higher ambient light levels and less contrast with accent lighting since the areas to be lit are larger and ceiling heights are typically much higher giving very significant volumes. So the ambient lighting also serves to illuminate the product to a high level.

Apparent ambient light levels to the customer will of course relate to store interior surface reflectances and it is important to consider the interior design finishes in the overall determination of ambient light levels.

Display lighting levels – again, the level of accent lighting and contrast will vary with size of space and level of brand. The purpose of lighting in a retail store is not only to show the brand as well as possible and contribute to the overall brand experience of the shopper, but more importantly to illuminate the product to best effect. This will largely relate to focused illuminance, or luminance levels or 'apparent brightness' on the product, compared to the ambient light level experience. Studies have shown that as a rule of thumb 'brightness' ratios of 3:1 between display and ambient lighting provide an appropriate contrast to accentuate the merchandise. As previously mentioned, this brightness perception is affected also by the reflectance of the product and it surroundings. Again, this tends to be more critical with higher level brands and small and medium-sized stores. Variation in light pattern, and using this to help create a journey around a store, can be very beneficial in stores but harder to achieve in large retail spaces.

The provision of accent lighting to the merchandise can be from the ceiling and / or integrated into display furniture for localised high-lighting to attract the customer's eye. Larger stores tend to have higher ceilings and therefore would either have less accent lighting provision or may rely more on integrated furniture lighting for display accents. Smaller high end stores will often use both highly controlled accent lighting from the ceiling as well as integrated furniture lighting.

Interior design feature lighting – this is an element which can vary considerably with size of retail space and brand position. In general the aim must be to create an attractive and visually comfortable store ambience for the customer and this will be promoted with careful lighting of the interior design features and finishes. In small and medium-sized stores where the interior design can be more closely related to the brand and product, there can be more consideration of illuminating and accenting to the special finishes and features. Together with the other lighting 'layers' this achieves a three-dimensional lighting appearance. By contrast, in larger stores it may be too costly to create



Good retail lighting must be visually comfortable. The reflectance properties of room surfaces must be taken into consideration in the concept phase.

The provision of accent lighting to the merchandise can be from the ceiling and/or integrated into display furniture for localised highlighting.

Good vertical illumination helps define the size of the space and can even lead the customer's eye around and deep into the store from outside the shop.

the same level of lighting detail and three-dimensionality and so whilst some lighting to special features will be achieved these may be to a lesser degree and with less variation. But this is also likely to apply to the interior design itself.

Another consideration to lighting the interior surfaces is that good vertical illumination should be provided to the perimeter of the store. This defines the size of the space to the customer, leads their eye around and deep into the store and draws them through towards the back of the store which, being furthest from the entrance, may be otherwise overlooked by the customer. This would appear to be more important in larger stores than in smaller ones, but stores of all sizes benefit greatly from this.

Further to this, articulation of the ceiling with coffers and coves offers opportunities for concealed lighting to provide both ambient and feature light, and also to provide visual interest to the customer. In large retail spaces such as department stores and malls this can be achieved due to scale and associated costs in simplified forms such as fluorescent coffers, whereas in small and medium-sized stores more creative approaches can be developed for further enhancement.

Feature lighting would also include decorative light fixtures such as chandeliers, wall lights and floor lamps. Due to the scale and volume of large retail spaces large-format chandeliers and wall sconces are often incorporated to provide feature lighting elements.

Colour rendering – one of the most important factors in retail lighting design is to show the merchandise in as true a light as possible and to render its colours vibrant. This is important no matter what size the retail space is, but tends to be more highly considered from a design perspective in medium and smaller stores where the overall visual quality can be more considered. That said, there are some specialist areas in supermarkets for example which require particular colour rendering, such as for various types of food such as meat, fish, and bread. The colour spectrum is specifically chosen to accentuate the colour of the product – enhanced red end of the spectrum for meat, cool white for fish, and warm white for breads.

A second element of lighting quality is colour appearance but this does not tend to vary significantly with store size, but rather in some instances with geographical location. Countries with more temperate or colder climates tend to prefer warm white light, whereas countries with hotter climates may prefer cooler white light.

Choice of light sources – in today's world energy efficiency is essential and this is equally important in all sizes of retail space. The question is what are the best sources to use for each application? The physical size of the light fixtures and light sources required will generally be proportionate to the size of the space and the volumes. In smaller retail spaces with normal ceiling heights, therefore, the physical size of the lighting equipment should be as small and as discreet as possible. Fortunately, with the current developments in LED technology, we now have small light sources which can provide a very good quality of light in terms of colour appearance and product rendering. Previously the benchmark for high-quality retail lighting would have been low-

Decorative feature lighting can add focussed interest in larger retail spaces.

Coves provide opportunities for concealed lighting to provide both ambient and feature light, while simultaneously providing visual interest to the customer.

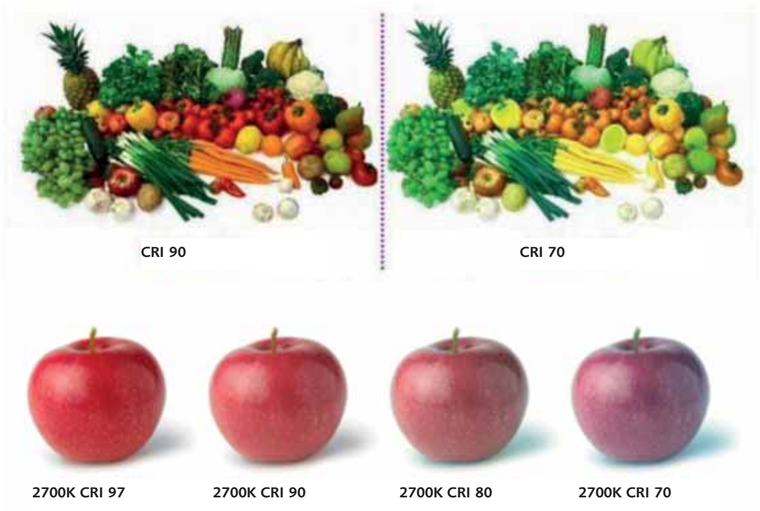
Large-scale pendants can be applied to mark a space within the store.

Lighting in fitting rooms needs to consider colour rendering and ensure the customer looks good when trying on garments.

voltage tungsten halogen, and whilst there is still some compromise in light quality, the latest compact LED technology is proving to be a good replacement. Additionally, for integrated lighting to shelving or ceiling coves LED is now an excellent solution due to the very compact size, low heat generation, and the variation in light outputs available.

Contrary to much opinion LED light sources are not necessarily the solution to every lighting application, and in small retail spaces compact energy-efficient metal halide lamps such as the CMH MR16 replacement are very suitable for retail lighting in terms of light intensity and light quality.

As store sizes increase then larger and more powerful LED sources may be viable for ceiling lighting, but these generally prove to be expensive compared to metal halide. Then for the larger stores, such as supermarkets and malls, compact and linear fluorescent sources can be applied for the more general ambient and lower budget solutions.



The difference colour rendering can make.

Flexibility in retail lighting – inevitably with retail store design flexibility needs to be built into the design solutions. The required flexibility of the lighting system can vary due to brand requirements but also due to the scale of the retail space. In general terms for many retail environments over time or at regular intervals the layout of the merchandise displays may change to maintain interest for the customer and/or respond to varying product developments, fashion seasons, or marketing campaigns. There is also the consideration of temporary and regularly changing 'visual merchandising' or VM displays which promote particular products or brands. The requirement for flexibility can be more significant in smaller stores and less so for large retail environments where adjusting lighting on a large scale is not considered or, if designed in, is never affected because of the effort to make the many adjustments.

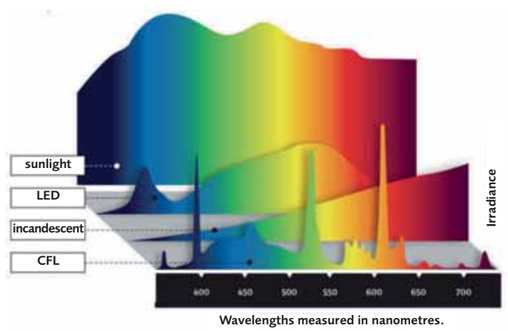
Such flexibility can take different forms to include manual adjustment of ceiling recessed directional downlights to more flexible track-mounted luminaires where the quantity of light fittings can be easily varied. Remote control for adjusting downlights is a further practical option in retail projects with highly flexible requirements.

Other forms of flexibility in a retail lighting system would include dimming controls for scene setting at different times of day, daylight linking, and additional power supplies for temporary lighting.

So we can see that lighting design for retail spaces requires the consideration of a number of aspects which must do their job individually and also together to create the optimum lighting solution. Scale of space does matter and this will affect the approach to the design and the level of lighting detail incorporated. But also of significance will be the types of merchandise on display and the level the brand is positioned at in the market place. A luxury brand will have more lighting detail than a mid-range or low level brand, for example.

We must consider each retail project individually for an appropriate lighting solution to enhance the interior design and meet the scale of store, product, brand and brand position and of course budget allowances. Every retail brand is trying to make an individual statement to attract the customer and so individual solutions are called for.

In large stores quantity and scale also require easy maintenance in terms of variety of light sources and ease of replacement. Smaller retail stores have a little more flexibility because of the low quantities involved but at the same time maintenance costs and availability of replacements will be important.



Wavelengths measured in nanometres.

The spectral composition of different light sources.