



Lichtplanung+

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LICHT

- schafft Atmosphäre
- aktiviert
- behütet
- verbindet
- vereint
- stärkt
- berührt
- lädt ein
- beschützt
- beruhigt
- regt an
- motiviert
- visualisiert
- drückt Emotionen aus
- erschafft Räume
- gibt Hoffnung
- erleuchtet
- gibt Kraft
- zeigt den Weg
- erfreut
- beeindruckt
- lässt erkennen
- weist hin
- betont
- wirft Schatten
- verändert die Nacht

Was Sie suchen,
 wissen wir noch
 nicht.
 Die Schlagworte
 zeigen, was Licht
 ermöglicht.



Vision of a refined and cultivated night image

Various elements shape a cityscape. Amongst those are house-fronts, buildings, streets, parks, and traffic systems. However, the inhabitants, the economy, consumption, tourists, the cultural history, current circumstances, and goals and visions should also be included.

The public space is therefore the stage, it is the identity and image of a city and has diverse functional, technical but also emotional demands.

The smallest denominator is safety. What however is safety? Maybe or definitely a feeling, a good feeling consisting of subjective impressions, which can neither be measured nor detailed by defined norms. Only those having this feeling of safety will use the places. This means a proper utilization, a meeting, a living 'a life' in public places. This is more than the function of getting from A to B in order to carry out necessary tasks. Requirements for having 'a good feeling' in the city cannot be narrowly defined, they can help and form a base but, in the end, a special concept should be developed for every location.

The concept of a refined night image aims to create a cityscape in all its brilliance while incorporating a feeling of safety, showing it as future-orientated and open to further developments. Good lighting is an art where the experience, knowledge, planning and the appropriate lighting is needed in the right place.



For this a future concept is required involving an active design of the cityscape, a vision with upgrade options on a solid base which includes visual and non-visual aspects.

Lighting, especially in public locations is often understood as functional light. It is there to increase traffic safety and avoid accidents. Do you feel safe when you walk through the streets at night? Do you recognize your surroundings? The old tried and tested solution 'more means more' is still used thus resulting in more and more lighting being employed. When a source of danger is recognized lighting is increased. Does this really lead to it being a safer place?

Unconsciously and thereby intuitively our eye focusses on the brightest point. Only then is the illuminated space perceived. Numerous sources of light, such as street lamps, traffic lights, adverts, shop windows, house front lighting, car lights or illuminated textiles rush on us in just a few seconds. This process has been spurred on by new technology. Modern LED chips need less electricity,

are reasonably priced and light up more and more buildings- often more the night sky rather than the buildings and so unwanted hotspots come into existence.

In addition to this are the DIN EN 13201 requirements. This regulates the standards for the illumination of roads. Unfortunately, these standards have become the norms and are perceived as compulsory. Is this really so?

The DIN is actually only a registered association which publishes recommendations just like any run of the mill gardening club publishes recommendations for sowing and fertilizing. The difference being that if a member of a gardening club reads a recommendation to source their water from a well with a depth of 324,254 metres and a mineral content of 0,056 mg per litre to water their plants they probably secretly smile and continue to take the water from the rain barrel.

I would suggest that everyone should hang the 'UrDIN 820-1' above their desks. One can read here that the necessity to follow the norms is left up to the individual and they are not rules and regulations set in stone. In point 8.6 it says that everyone acts at their own risk. The user carries the responsibility. So, planners, you are requested to check the suitability before using! I will conclude the DIN theme by reminding you of the Federal Court judgement from 26.04.1990 whereby it is stated that the DIN publishes for those groups interested in norms.....Who would therefore belong to those interested groups?

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Legally, the traffic safety obligations exist and the DIN here are not universally obeyed. According to my knowledge, no district council has ever been sentenced since the introduction of this obligation.

Current tests show that light does not just serve visual demands but also has effects on our feeling of well-being and our health

New findings from Human Centric Lighting (HLC) explain how we perceive light.

The cones and rods in our eyes help with colour recognition and seeing in dusk (mesopisches sight), with inadequate light. To see at night (skotopisches sight) the rods are needed and to see in the day the cones. In the illuminated city we are constantly in twilight. Our eyes can react quickly moving from a dark to a lighter situation but vice versa can take a few minutes which we have to be aware of.

On the other hand, we can, once accustomed, recognize our surroundings in weak moonlight, giving us a feeling of safety.

Provocatively formulated, a general reduction while keeping overall lighting density would help with the environment and also save energy.

Studies carried out in England prove that by using white light (neutral white) with a homogenous light density the lighting usage can be reduced by 30 % without any worsening of perception.

Actually, we are being faced with more and more lighting irritants which reduces our sight performance. This leads to a feeling of insecurity and feeling unwell, tiredness and a lack of concentration are the results. An important safety factor reducing the beam directly through light sources would also be by reflection.

The unregulated overlap of lighting through street lighting, building illumination, adverts and floodlighting at arenas, leads unnecessarily to an over exposure, with effects for humans and nature. These hotspots are increasing every day. The critical moment is when you leave the hotspot and your eye has to get used to the new situation. What happens when there is suddenly an obstacle at 50km per hour? It would be no problem if it hadn't been for this previous hotspot. It is no wonder that more and more drivers feel unsure even when fully concentrated. This is reinforced by glare and reflection.

Light dictates the time for our bodies. The sun influences our life rhythm via three colours cold white, neutral white and warm white. These guide our day/night rhythm

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through a so-called circadian system. Our inner clock which is responsible for sleep/waking, body temperature and hormones gets out of sync due to artificial lighting. Examples being the disruption of the production of the sleep hormone melatonin or storage of vitamin D.

The atmosphere resulting from a lack of lighting can lead to a lessening of the feeling of well-being and to feeling fear.

The right and balanced choice of lighting can encourage a feeling of security.

Whilst the light and shade changes on street surfaces can lead to a safety risk it has a positive effect on building fronts giving a sense of well-being. This type of lighting is described as 'atmospheric seeing'.

To really perceive the surroundings, we have to develop illumination to incorporate haptic and atmospheric concepts. Is this a contradiction? NO!!

Cities have been structured over decades with streets, squares and buildings.

This structure must also be reflected in the lighting planning. It is not enough just to state what can be seen but the landmarks and points of interest must be recognized. More important is the correct positioning of the light on the object. The light's strength, colour and direction define the perception.

The viewer gains an impression of the natural materials, and the natural day-time colour of the surface, but at night. The seeing aspect is thus supported in the unconscious by a feeling element so forming a 'haptic-atmospheric seeing' experience.

Lighting planning isn't a one-dimensional process. Many things have to be taken into account. We planners like to count ourselves amongst the artists who know what is good, what is needed and how it needs to work out. Many citizens also share their views and this feedback is very important. These subjective views help improve the lighting in their districts and adds to the overall lighting concept. There are a few good examples of co-design by citizens. In Eindhoven in the Netherlands a project between the University and various partners entitled 'Smart lighting in a smart society' was successfully implemented. Here the needs of the inhabitants from various districts were researched and their ideas for installations were acted on. Each phase lasted 3 months per district and the districts whose turn was next became motivated to become actively involved. A sustainable result isn't only energy-efficient but enriching and good for the residents. The street lighting in Eindhoven even adapts to the weather. Red warning

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lights come on when there is a storm approaching. The lighting is guided by weather, time of day and consumer needs.

A further project was also implemented based on consumer needs for lighting in problem zones where the residents chose the areas to be lit and concepts by professionals were based on their choices. The main advantage here being that the residents' ideas are used and implemented to produce efficient and speedy results. This co-designer process requires courage in addition to the admission that we planners are 'not God'. This brave and self-critical step made by those responsible furthers general acceptably and reveals the 'real' issues.

Lighting pollution. A well-known phrase and we certainly know nowadays that there are many possibilities for improvement. How do we recognize lighting pollution? The absence of visible stars in the night sky is one factor as we outshine this ancient light with our artificial light sources. In our bedrooms we turn the light off but the birds, insects, fish and bats cannot do this. Through our lighting we directly influence nature. Compliance with four rules could help this.

The first and most simple rule; If you don't need it turn it off. Secondly, aim the light appropriately e.g. don't light up trees direction trunk to the top. Thirdly just use light temperatures under 3500 K and finally don't use blue shades.

SMART CITY. Once again, a term taking over the world in all variations without actually meaning anything. What is behind it? For me it means: technology which can be controlled and guided whilst optimizing energy and serving the user. LED usage sinks energy consumption. The employment of appropriate control be it usage, time of day or brightness saves energy and reduces lighting pollution. The new lights can be equipped with extra functions whether they be electric filling stations, WIFI routers, emergency calls or alarms.

The ability to control LEDs offers new possibilities. The illumination of surroundings can be increased to 100 % at rush hour and then reduced according to weather, time or user needs to 30 %. This means 100 % could be used for city centres at the busy times and then successively reduced for example at 22:00 hours when the first pubs close to 50 and then 40 and 30 %.

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A new, and for me very annoying custom is the lighting of cycle paths between towns. For 2 cyclists going 10 km at night I do not see the necessity for lighting in relation to the wasted energy costs. The lighting in this situation is usually weak anyway making the user insecure. Sensors could be employed here again with reduction in brightness starting at 100 % decreasing to 50 % and then to darkness. One could also use this in pedestrian zones. The authorities would be left to decide for themselves whether they turn all lights off at 24:00 hours, the most important thing is that they make a decision instead of just turning off every second light which would result in unwanted hotspots.

Autonomous driving will open up a whole new world for us over the next few years. Vehicles which don't need any street lights, and that anticipate obstacles and dangerous situations. Space in the city? Just imagine you want to get from A to B and type it into your smartphone. In a few minutes your vehicle arrives either a car, bus or van. You will be brought, either alone or with others to your destination and pay for everything online. Why should we then need more space in the city? There will be fewer and fewer privately owned vehicles. The speedy and specifically aimed method of ordering opens up new avenues. Vehicles without drivers or travel limitations will be on the move 24 hours a day. This will mean we need fewer parking spaces, car parks, petrol stations and will have more space. Something to look forward to. The need for lighting will change from being concentrated on traffic safety to being there for the inhabitants. An unimagined opportunity to re-design the place we live in.

Many communities have handed over their lighting programmes to private companies for maintenance. The authorities are now faced with the challenge of how to deal with the new conditions. Do they need to order new illumination or is it enough just to change the lamps? Certainly not, however the actual dimension of the new technology, the conversion and creation of a refined night impression remains unrecognized and unused. The capacity to devote more attention to these important issues is insufficient.

An overall concept would also be advantageous for the economy. The retail trade, hotel and catering and industry would all benefit. If employees feel safe and secure where they live then more workers will be attracted, at a time when there are insufficient numbers of employees in these areas.

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CONCLUSION

New ideas are possible for the illumination of our cities! We need courage and we need a plan which: 1. Assesses the current situation. 2. Includes the local population as co-designers taking into account their fears, wishes and potential. 3. Includes local commerce, trade and hotels early on in the proceedings. 4. Takes into account the biological findings regarding effects on humans and nature. 5. Integrates the changing conditions due to research and development with electric cars. 6. Uses the possibilities provided by Smart City regulating and controlling lighting.

In the end this all depends on having suitably qualified planners being engaged and positioned in the right place. New forms of illumination require new partners. The owners of the buildings will become private partners. An atmospheric-haptic illumination of the building-fronts is a key building block for a refined night image.

Lichtplanung+ im Januar 2018

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