

QUESTIONS AND ANSWERS-PART. I

Q&A for March webinar Lighting University - Office lighting: Technical opportunities for a healthier working environment.

Q: Is a rainbow different in the morning vs the evening?

A:>> The spectral distribution, likewise the lux-level is changing constantly, not only morning vs evening. It is measurable with appropriate technical instruments.

Q: I have been thinking about light display that Michael is currently talking about. It shows there has been concerted efforts at displaying light but I still think there is a misunderstanding here. Can't we mimic nature? That is hiding the source?

A:>> I think it is possible! But for the time being I do not know such a system that is satisfactory on all levels?!?

(Including aspects of flicker or electro smog, which should be considered as well if nature, or daylight-mimicking, or daylight quality is required!)

Q: Do you have a recommendation of colour temperature to use in office spaces at Southern coast of USA?

A:>> To my knowledge we can get at least very close! But almost all systems I have experienced are not good enough for the time being. I would be very happy to check any system that claims for this! However if you can get the original – I would always prefer that as a principal! And it is the same with daylight!

Q: What was the name of the motion sensor for this system?

A:>> "ACTIVITY BASED LIGHTING": it is from another lighting manufacturer, if you enter these words into YouTube you are getting the entire clip, including the advertising.

Q: In the whole video about zone sensing luminaires, I noticed that all the windows are closed control the lighting luminaires accordingly. Do you think we have better ways in which we can use natural light inside an office space as well?

A:>>The film was made in a lighting studio of a manufacturer as far as I know!

The proper use of daylighting is always better. Glare and heat has to be avoided, or minimized! It has to be planned properly according to the geographic situation.

Q: What is the lux level for office?

A:>> there are different values according to national laws!

Please check on national regulations accordingly.

EU regulations recommend in daylight oriented offices a minimum of 300 lux for the entire office area, and 500 lux for the task area.

Big plan offices might go for 750 lux!

Regulations in other countries might vary?

Q: In offices with a large number of computers, is it enough the indirect daylight to save the employees from illness or they have to receive the sun light directly?

A:>> Direct sunlight in offices can be very tricky in terms of glare, or heat problems!

The good properties of daylight should be in both, direct and indirect components!

You always have to check the glass properties of windows/façade!

Depending of filters, or "layers" within the glass (for instance so called "low E-glass") might result in having not the full spectrum inside the building!!!

(This is usually not considered in the entire building process!)

Q: What is E-smog?

A:>> A common description from internet:

E-smog is the invisible electromagnetic radiation resulting from the use of both wireless technology and mains electricity. The most common sources of wireless electrosmog are: Cordless phones.

The idea to reduce E-smog to mobile phones is from my point of view inappropriate these days.

Therefore I am more in favour of the following definition from our lecturer at the University of Wismar on light & health questions.

Alexander Wunsch is physician and he said to this issue the following:

"Electro smog = dirty electricity, mainly electromagnetic radiation from electrically operated appliances using frequencies which also occur in living organisms. By the principle of resonance these external oscillating fields may interfere with organismic oscillations, thereby disturbing the biological systems thermally and/or thermally. Higher biological systems such as humans are in certain frequency- and intensity windows able to keep equilibrium by active compensation strategies, which are energy consuming. Stress caused by dirty electricity may become apparent in weak sections of an individual organism and therefore is difficult to assess statistically without prior stratification of the groups studied."

Q: if we create a design by direct lighting for office will this create any glare of user?

A:>> If the building/office space is oriented to the northern hemisphere it might work.

That's one of the reasons, why artists' ateliers are usually designed like this!

But for the summer time there might be even in full north orientation also glare issues!

(Typically early morning + evening, when intensity might be lower?!?)

There are software programs that give exact information about daylighting properties and glare problems!

(Best to do is hire a lighting designer who is familiar with these questions ;-)

Q: Can you speak about the differences between LED (point source lighting) vs OLED lighting (area source), and the potential for incorporating in office design in future. Particularly, quality, CCT, CR, controlling, and pricing differences?

A:>> Talking about pricing should be based on local, or national ground!

There might be big differences based on that aspect?

"Standard-LED" can be both point source and area lighting as well, depending on the technology approach to be used!

OLED is area lighting only!

The problem here is when the system is getting more efficient, the "lamp/light source is getting so glary!

This means that glare protection might be needed, likewise louvers. Any lighting technology device, also for glare protection is worsening the efficacy of the lighting system. I guess that is the challenge for OLED. As far as I know have some of the big lamp-manufacturer therefore stopped their interest and R&D efforts in OLED.