

Press release

New Zumtobel research on lighting quality perceived in offices

A global user study investigating lighting quality in offices launched by Zumtobel Research and the Fraunhofer IAO is producing important findings: even just a few months after this long-term study began, it is becoming apparent that most of the office employees who have been surveyed so far prefer individually controllable, variable-colour temperature LED lighting with a direct/indirect component and illuminance in excess of 800 lx. It is also clear, however, that solutions that cater for these preferences are extremely rare. This underscores the huge need for individually controllable LED lighting solutions in the workplace, solutions that provide appropriate lighting to meet any requirement while delivering optimum lighting quality and energy efficiency.

- 82.5% of those surveyed prefer direct/indirect lighting
- 60% of office employees prefer illuminance in excess of 800 lx, this preference becoming less marked with increasing age
- Even in summer months, the need for artificial lighting is high
- 57.4% of those surveyed have no or only limited ability to influence their lighting situation in order to adjust it to their needs
- Colour temperature preferences differ widely, ranging from 3000 to 6000 K, with a significant cluster around 4000 and 5000 K
- 2,643 participants from Europe, Asia, Australia and the USA have been participating in the study since November

Dornbirn, March 2014 – Numerous directives, standards and assessment criteria have to be taken into account when designing lighting solutions for office workstations. Other important factors include individual user preferences, task-related requirements and employees' emotional well-being. In order to throw light on all these aspects, Zumtobel, together with the Fraunhofer Institute for Industrial Engineering (IAO), has developed and conducted a long-term study on a global scale: under the title "The Light. Global User Study on Lighting Quality Perceived in Offices"¹, 2,643 office employees² from Europe have already assessed the lighting situation in their personal work environment with the aid of a multilingual online survey form since November 2013. The aim of this long-term study, which will run until the end of 2014, is to allow as many different users as possible to assess perceived and expected lighting quality in a variety of office situations.

¹ The study can be found on the Internet: <http://www.zumtobel.web-erhebung.de/>

² Last update: 28/01/2014

This is creating a highly informative, global map of light that will provide information indicating which settings are best suited to particular individuals in specific situations. Zumtobel will use the study findings to build this knowledge of user preferences and behaviour into its product development work. LIGHT FIELDS evolution tunableWhite and SEQUENCE are direct fruits of this user-focused process. It is making it possible to anticipate what innovative lighting solutions will have to be able to do for employees in offices in the future. According to Fraunhofer IAO data, this Zumtobel study is already one of the most successful ever investigations of this topic in terms of the numbers of users who have participated in it. The fact that over 60% of those surveyed state that they want to be informed of the research findings shows how interested users are in this subject.

Office employees prefer direct/indirect light and high illuminance

One of the most important interim results³ is the clear preference expressed by study participants for direct/indirect lighting and illuminance higher than that specified in the relevant standard. 61.6% of those surveyed only have direct or indirect lighting in their office, a situation that is preferred by only 17.5% of them. In contrast, 82.5% of those surveyed prefer direct/indirect lighting. Most users also prefer lighting can be flexibly adjusted to suit various tasks.

The study is also yielding the first noteworthy findings indicating clear preferences when it comes to illuminance: 500 and 800 lx in the task area are perceived as being the most pleasant illuminance levels. About 60% of those surveyed nevertheless expressly want illuminance levels higher than 800 lx – a level significantly higher than the mandatory 500 lx stipulated in the relevant legal standard.

Strong demand for individually adjustable artificial lighting

Participants' preferences regarding colour temperature have provided an interesting interim result: across all age groups, genders and nationalities, it was established that user preferences when it comes to colour temperature range from 3000 K to 6000 K, with a clearly marked majority preference for 4000 K and 5000 K scenarios. Continuously colour-temperature adjustable LED luminaires cater for these individual needs the most effectively. After more in-depth analysis it is also striking that there is also relatively high demand for artificial lighting in summer, not just in dark winter months. 60% of those surveyed use more than seven hours of artificial lighting in winter, and 33% still use this much artificial lighting even in summer. One reason for this might be the fact that 61.2% of those surveyed do not sit in the vicinity of a window and therefore enjoy relatively little natural light. This makes it clear how great the need for artificial lighting is, and emphasises how important it is to coordinate daylight and artificial lighting. It also makes the size of the comparative potential energy savings that can be achieved by using an intelligent, daylight-based LED lighting

³ Last update: 21.11.2013/n=2,229

solution quite clear. The study has also shown that 57.4% of those surveyed, i.e. more than half, have no or only limited ability to influence their lighting situation in order to adjust it to their needs.

Analysis of these interim results makes it obvious that innovative lighting solutions for office environments must be controllable in a differentiated, intelligent and individual manner. This way, lighting can be adjusted straightforwardly to meet requirements in any task area in order to deliver the right light for each visual task and every situation. Combined with daylight, an intelligent lighting solution therefore promotes both employees' well-being and health. And it also makes a considerable contribution to energy efficiency. "This study is giving us a differentiated picture of modern office architecture and the needs of employees in businesses all over the world" says Christoph Mathis, Director of Global Application and Product Management. "The results will be fed into our product development work worldwide and really help us achieve our goal, the best light for people and the environment."

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About Zumtobel

Zumtobel, a leading international supplier of integral lighting solutions, enables people to experience the interplay of light and architecture. As a leader in innovation, Zumtobel provides a comprehensive range of high-quality luminaires and lighting management systems for professional interior lighting in the areas of offices, education, retail, hotel & wellness, health, art & culture as well as industry. Zumtobel is a brand of Zumtobel AG with its head office in Dornbirn, Vorarlberg (Austria).

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