BLUE ENGINEERING

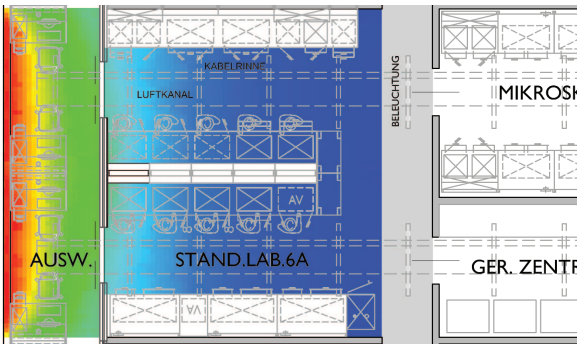
Daylight simulation

We offer an analysis of the availability of daylight in internal spaces from the early phases of the design of a building. The optimization of daylight can significantly reduce the electricity consumed by artificial lighting as well as improve visual comfort.

Light is an important parameter in controlling metabolic processes and human biorhythms. The comfort of building inhabitants is strongly dependent on their visual comfort in the spaces that they occupy. The use of daylight increases user comfort and reduces the amount of energy required by artificial lighting. A user-oriented lighting concept which is suitable for summer conditions is also essential for the implementation of EU Building Guidelines (2010/31/EU).

Advantages for clients and users

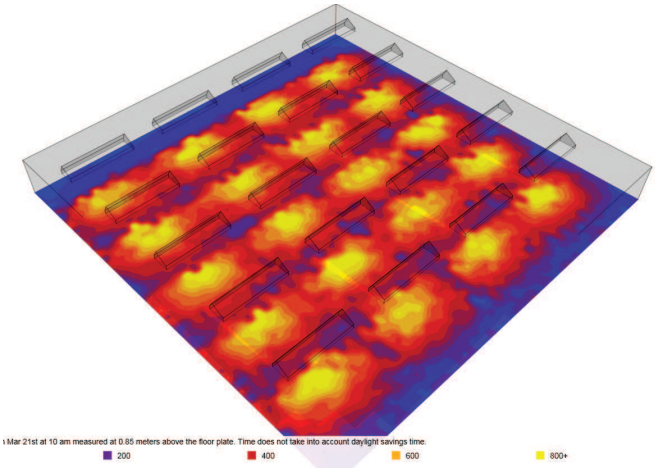
- Estimation of the availability of daylight
- Adaptation of the artificial lighting to the daylight situation
- Design of the interior finishes with the objective of optimizing the visual comfort of the user



Approach

Modeling of the area under investigation and of active and passive system components subject to incoming light. Simulation of the daylight situation at a specific moment in the year or as an average situation when the sky is cloudy.

Influencing factors are to be addressed from the very beginning of the design process in order to ensure the maximum possible use of glare-free daylight and to minimize the energy requirements for artificial lighting.



A daylight factor of >2% is regarded as adequate in order to guarantee basic illumination by daylight. Certification systems such as DGNB/ BREEAM/LEED also require proof of the daylight efficiency of user areas.

DGNB Deutsche Gesellschaft für Nachhaltiges Bauen German Sustainable Building Council

BREEAM®

LEED

KEY FACTS

- **Visualization of the availability of daylight**
- **Suggestions for optimization which will increase the use of daylight**
- **Assessment of the risk of glare**
- **Analysis of variants of the proportion of glazing in the façade**
- **Daylight investigations in order to support building certification**

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