

# Pressemitteilung

## Press Release

### **G+B pronova GmbH present ways of saving energy by means of modern light architecture**

Lecture event at bautech 2006, 21-25.02.2006

The design of modern buildings is becoming more and more dominated by the use of transparent surfaces. This means that rooms are much more brightly lit on account of the extra daylight.

The use of new improved materials and systems means intelligent building shells. In the following you will find a short overview of new ways of using facades:

#### **Potential for saving energy**

New kinds of glazing with low k values and g values specially adapted for buildings mean a considerable reduction of heating energy requirements. They reduce the heat release by means of high insulation values and limit the solar input and the cooling load that accompanies it. Additional "energy input regulating systems" (e.g. shade systems) help to make seasonal adjustments to the building shell. The result is optimum atmospheric conditioning throughout the year without excessive input or dissipation of energy.

#### **Improved use of daylight**

Costs can also be reduced in room lighting. By opening the façade, the building can be provided with natural light all day and the energy needed for artificial light can be saved. Unfortunately, this light is frequently in the wrong place (near the window), comes from the wrong direction (blinding) or has either too high or too low intensity. Targeted use of daylight is made possible by light-guiding elements in the façade, meaning that lights and lamps – and their electricity consumption - can largely be dispensed with during the day.

There are specialists with in-depth knowledge about usable systems and materials who can help with planning and optimising the entire building and coordinating the different ways of saving energy by pre-simulating the energy budget, the interplay between materials and systems and the building's control systems.

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### **Intelligent façades increase energy efficiency and have a positive influence on atmosphere**

New façade systems enable optimisation of room lighting, especially at workplaces. They increase the efficiency of energy use by extracting the light and heat from the sun to maximum effect. They give the building improved reaction times to changing outside influences and user wishes by means of adaptable elements in the building shell.

### **Summer sunlight without blinding and excessive heat**

Unlike the constant need for light, heat by insolation is only desirable in winter for heating purposes, while in the summer it should be avoided as much as possible due to the danger of overheating. In order to achieve this, special solutions have been developed that take into account the special and complex demands made of a façade: they guarantee the best possible protection from blinding and overheating while ensuring good room lighting with daylight and the best possible view.

### **Holographic Optical Elements**

A team of keen scientists at the Institute of Light and Construction Technology at the Technological College in Cologne (now the ZOT – Centre of Optical Technologies) adapted and optimised an already known technology for use as a light-guiding element in the façade. Holographic optical elements are the basis of a whole series of applications in glass façades. This technology could also be used in other areas by means of the cooperation with G+B pronova GmbH.

- Glass lamellas with concentrating HOEs, transparent sun protection
- Zenith light redirection, light even in the recesses of the room
- Light and colour design with HOEs (HoloSign), new possibilities for artistically designed façades
- HoloPro – the transparent screen. A dream come true for many: a way of projecting pictures and films onto a glass screen with the help of a projector and using it as advertising space, as bright as day and highly transparent.

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HoloPro™ in the De Young Museum in San Francisco, by architects Herzog & de Meuron

### Prospects

The development of new types of façade elements offers totally new possibilities: energy saving by means of intelligent building shells, façade design and its use as a media façade or for advertising go hand in hand. New and further possible applications will be generated by mutual R&D work carried out by universities and colleges and industry. This is being driven on by means of mutual research projects at G+B pronova GmbH and the Technological College in Cologne in the Centre of Optical Technologies, which has been specially founded for this purpose.

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