

A Vision in Transparency

SCHOTT has contributed to an exciting new office complex located in the center of Hanover, Germany, by supplying the blue-gold color effect glass for the top of the NORD/LB bank building.

► With its high-rise sections stacked on top of one another in the middle like shoeboxes, the glazed office complex is a unique landmark at the Aegidientorplatz, a square in the heart of Hanover. It is the workplace of some 1,500 employees of sixteen different businesses, but at the same time its ground floor bars and restaurants and an open interior courtyard offer all the people of the city the opportunity to enjoy the building's ambience. As part of the ecological concept of the complex, three large areas of water invite guests to relax: the water is reflected in the glass, bringing light into every corner of the courtyard. The NORD/LB project is the work of Behnisch, Behnisch & Partners of Stuttgart, one of Germany's most successful architecture firms.

Communicative atmosphere

Glazed offices with matching furniture throughout, attractive roof terraces for business discussions, welcoming cafeteria areas and the delightful view over a colorful floral roof or the city itself bring the transparent architecture of this "intelligent" administration building to life. An energy concept, helping to ensure the well-being of the occupants, was designed to be as natural as possible with cooled concrete pillars, night

cooling and daylight diversion systems and natural ventilation.

Effect and functionality

Construction of the facades alone required 40,000 square meters of glass and the crowning glory is at the top of the high-rise: blue-gold color effect glass especially made for the building by SCHOTT.

These transparent, color effect filters reflect part of the light. Visible from a great distance, the reflection colors vary. The coating consists of seven optical interference laminates on float glass that gives off colors between blue and gold depending on the viewing angle. At night the glass is lit by spotlights, generating additional effects.

The glass is coated with thin layers using the sol-gel process, a special dipping technique long used by SCHOTT for producing anti-reflective float glass. This well-established dipping method is particularly suitable for coating large surfaces to the highest quality and uniformity. The maximum measurements are currently 380 x 177 centimeters on glass substrates with a thickness of up to 12 millimeters. The mainly oxidized layers are tough and highly resistant to scratching and chemicals. Apart from acting as a protective coating on delicate glass, the materials are chiefly used to make both simple and more complicated interference coating systems. Anti-reflective glass and color effect glass,



Nord LB/Ulli Reinecke

Color effects: Interference makes the difference

Interference coating systems consist of a number of thin layers with different optical properties and thicknesses. Light is reflected more weakly or strongly at each interface of successive adjoining layers. Reflection is stronger the greater the difference between the refractive index of each layer. In a system using multiple layers, the radiation is reflected at each interface. All these many, often endlessly, reflecting rays are subject to interference effects, depending on wavelength and the thickness of the layer.

Selecting the right combination of numbers, sequence, thickness and optical qualities for the layers ensures that certain wavelength fields are strongly reflected and other waves are allowed to pass through. Each of these thin layers can be transparent, partially absorbent or highly absorbent.

The effective thickness of the layers in this interference system varies with the angle at which the light is received. As the properties of the filter are dependent on the thickness of the layer, the effect of the system is also influenced.



such as the kind at the top of the NORD/LB tower, can also be easily used, for example, in single pane safety glass or laminated security glazing. They meet wind resistance and security specifications as well.

The transmitting and reflecting light at NORD/LB in Hanover creates the colors be-

tween blue and gold specified by the architects. This is one of the factors that gives the complex its unique character. "The bank building occupies an important site in the inner city and also offers the community an attractive public space," say the architects of Behnisch, Behnisch and Partners. ◀

The blue-gold color effect at the top of the NORD/LB high-rise office complex in Hanover emphasizes the unique character of the building with its stacked cubic elements.