

Carnegie Mellon University, Pittsburgh, USA

Project Report

SCHOTT NARIMA[®] Color Effects Glass Nanotechnology as Inspiration

Award-winning architecture project – The result is overwhelming.

The background

On April 30, 2016, the new Sherman and Joyce Bowie Scott Hall of Carnegie Mellon University in Pittsburgh, Pennsylvania, USA was opened. Architects Michelle LaFoe and Isaac Campbell and their OFFICE 52 Architecture Design Team were commissioned to design the 109,000 square foot Nanoscience, Bioscience and Energy Technologies Building for the College of Engineering.

The challenge

The design should reflect the interdisciplinary and cooperative culture of Carnegie Mellon University. The team had the task of creating a vibrant and energy-efficient research center that occupies a leading position in the field of advanced nanotechnology and complex engineered systems.

A central task and challenge for the architects was to capture the scientific and engineering work that is done inside the building in the external building structure and appearance.





The solution

The team of architects conceived a glass curtain wall that metaphorically embodies concepts of nanoscience, scale, photons, and light, making the interior and exterior spaces of Scott Hall glow with luminosity.

After conducting a series of light and color studies with the SCHOTT NARIMA® glass samples in the design studio of the architect's office, the decision was made to use the SCHOTT NARIMA® Orange glass type with silvery-blue reflection for the vertical and SCHOTT NARIMA® Blue-Gold for the horizontal sun protection slats. These consist of a dichroic glass center pane that was laminated between two outer panes – one of which is matt. The glass composite is fastened with specially made stainless steel clips. The overall picture





of the building resembles a geometric representation of a photonic quasicrystalline structure, which is used as an optical material in nanoscience. The shape of the slats is reminiscent of a labyrinth; when viewed from a distance, they reflect light blue, lavender and blue-green colors.

This extraordinary glass processing and arrangement in connection with the SCHOTT NARIMA® glass give the building a visual depth and a reflective pattern. This created an evocative world of constantly changing colors, textures and light, the perception of which changes with the seasons, angle and intensity of sunlight, and the viewer's position. An additional side effect: the dazzling play of colors prevents birds from accidentally flying against the glass. The dichroic glass reflects some colors while allowing others to pass through. NARIMA® is a float glass that is coated with various layers of metal oxides in a dip-coating process. They are then burned into the glass surface in an oven at over 450°C. These extremely thin layers of metal create the characteristic dichroic effect of the glass, while making it hard, scratch resistant, and chemically resistant, ensuring a long-lasting and low-maintenance product.

THE MATERIAL

- NARIMA[®] | Dichroic hard coating based on float glass
- SCHOTT NARIMA[®] Orange and Blue-Gold
- Available in six different color variations
- Scratch-resistant & chemically resistant
- Processing options, e.g. laminated, tempered



The impressive structure has won all **3 awards** from the **Chicago Athenaeum Museum of Architecture and Design** and **The European Centre for Architecture Art Design and Urban Studies**. This is an exceptional event, as the prizes are evaluated and awarded by separate jurors in different countries.

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