

Lincoln center canopies

New York, USA, project number 1631



Owner	Lincoln Center Development Projects, Inc.
Architect	Diller Scofidio + Renfro, LLC
Engineer	Dewhurst Macfarlane & Partners
Installation Period	2009
Location	sedak GmbH & Co. KG

scope of work

- 240m² roof area

Description

Transparency and lightness dominate the designs for the two glass canopies. Architects Diller Scofidio + Renfro have carefully integrated two elegant steel “sculptures” into the architecture of Avery Fisher Hall and the New York State Theater. Two slightly outward-tilting steel beams just over 27 m long are supported on a central Y-column. A circular hollow section passing right through the steel beams joins these to the building at one end, and together with the Y-column, which is rigidly bolted to the roof of the basement car park, ensures the necessary stability.

Suspended below both beams are large-format panes of glass – 12 four-ply laminated safety glass panes each measuring 4.30 x 2.30 m. Each one of these weighs almost 1.5 t! They are held at the corners with point fixings. Subsequently bonded together with a two-component injection compound to form a load transferring connection, glass and steel form a structurally effective composite. The structural concept called for a good fit between all the different components. The customary construction tolerance of 3–5 mm for steel structures was far too generous for this project; ±1.5 mm was the figure in the specification for the assembly. But even beforehand, the severe deformations caused by the weight of the panes themselves (18t!) had to be taken into account. The steel beams were therefore assembled exactly with the help of templates and cambered in their length by applying heat to certain areas. Built according to an exactly calculated erection plan, 40 t of steel and glass now form a perfectly horizontal line and even with a roof fall of just one degree the roof drainage functions reliably. Completely prefabricated by seele at Pilsen in the Czech Republic, there was still another challenge to deal with: how to pack the parts for their journey across the Atlantic and on what ship to send them – containers 30 m long are not offered by any shipping line!