

Historic Bromma Airport upgraded with FINEO Vacuum Glass

The renovation of Stockholm's listed Bromma Airport terminal demonstrates how FINEO vacuum insulating glass can enhance energy efficiency whilst preserving delicate steel frames and historic glazing aesthetics. The project combined conservation precision, structural performance and sustainability without compromising the landmark's functionalist architectural character.



In many respects, Bromma Airport, located just a few kilometres from Stockholm's city centre, resembles a time capsule. Its authentic 1930s architecture, compact and easy-to-navigate terminal, and short walks from apron to aircraft still evoke the exclusivity of the golden era of propeller aviation.

PRESERVATION OF THE ORIGINAL STEEL STRUCTURE

The two distinctive main buildings, designed by Paul Hedqvist, have been listed since 2000 as outstanding examples of the Swedish functionalist movement and are recognised as being of special architectural-historical importance. The original terminal building (Stationsbyggnaden), constructed in 1935, underwent extensive modernisation between 2023 and 2025. The objective was to preserve the delicate steel-and-glass construction with its char-

acteristic ribbon windows while meeting contemporary standards for comfort and energy efficiency. The single-pane glazing installed in the 1950s was replaced with state-of-the-art FINEO vacuum insulating glass. In total, 1,270 glass elements measuring 1,100 by 750 millimeters were exchanged across a façade area of approximately 850 square meters. When it opened in 1936, Bromma ranked among Europe's most advanced airports and was the first to feature a fully concreted runway. Hedqvist applied the modernist maxim 'form follows function,' organising workflows, functional zones, and infrastructure so that the principles of Scandinavian functionalism—clear volumes, horizontal lines, expansive glazing, and an absence of ornamentation—were unmistakable. Bromma remained Sweden's gateway to the world until Stockholm Arlanda Airport was completed in 1962. In



the 1950s, the Stationsbyggnaden was extended and converted into a departure hall, with large windows in the first-floor restaurant overlooking the runway.

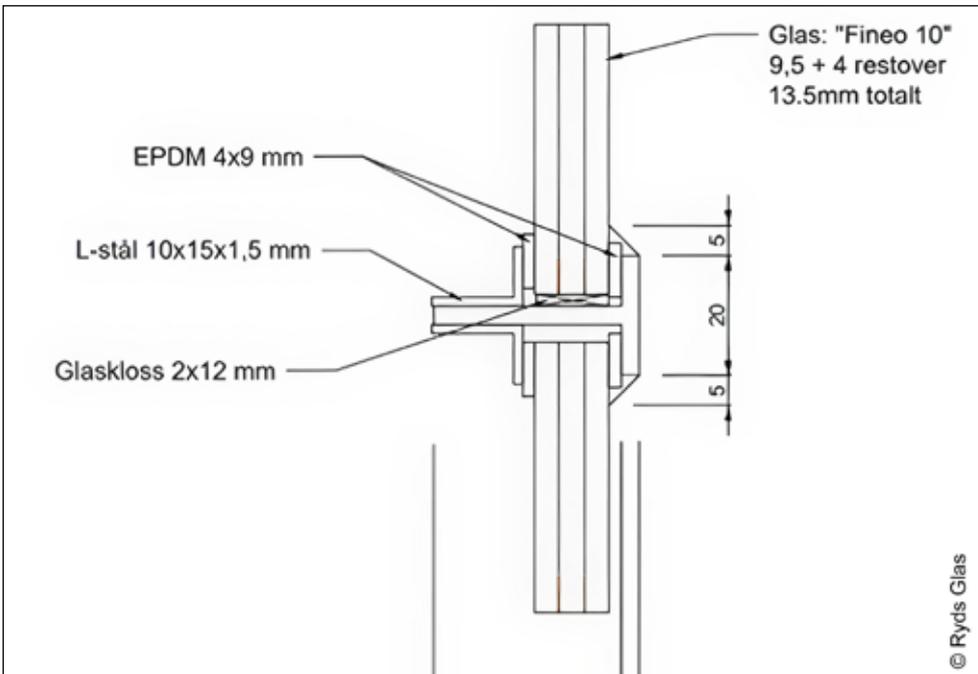
CHALLENGES POSED BY GLASS FAÇADE RENOVATION

After decades of intensive use, the steel-and-glass structure required urgent intervention. Moisture ingress, corrosion of steel profiles and damaged glazing characterised its deteriorated condition. Among the causes were wooden spacer blocks beneath the interior windows that encouraged water accumulation, as well as original linseed oil-based putty that had become porous and brittle. "Since the building is a listed monument, structural changes to the steel profiles were out of

the question. All work had to strictly follow the prescribed reference photographs and as-built drawings," explains Thomas Sjödin, project manager at Ryds Glas Stockholm, the company responsible for the window restoration. The 1950s single-pane glazing no longer met modern requirements for energy efficiency, comfort, or operational safety. Selecting a suitable replacement proved complex. Triple glazing, at 35 to 40 millimeters thick, would have overloaded the historic profiles. Instead, the FINEO Heritage series—developed specifically for listed-building projects—was chosen to upgrade thermal performance while preserving the original appearance. "The slim FINEO units fitted perfectly into the delicate existing

ABOUT AGC GLASS EUROPE

AGC Glass Europe is a manufacturer, processor and distributor of flat glass for use in the construction industry (exterior glazing and interior decoration), the automotive industry (original equipment manufacturing and replacement glass) and other industries which include transportation, solar energy and high technology. It is part of AGC's European branch, which is a leading global manufacturer of flat glass, with over 100 locations and around 13,000 employees across Europe.



EXECUTION UNDER OPERATIONAL AND SUSTAINABILITY DEMANDS

For the Bromma project, vacuum glazing also met structural requirements for the large-format ribbon windows of the departure hall. Greater available glass thicknesses ensured stability for larger pane sizes without modifying the existing steel profiles. Solar, UV, and acoustic protection were integrated without compromising the façade’s historic appearance. “FINEO Heritage was developed in close collaboration with leading suppliers of restoration glass manufactured using the traditional Fourcault process. Using five glass types, we can reproduce typical glazing from the 1880s to the present day,” explains Clément Lemoine, Product and Market Manager at FINEO by AGC.

RENOVATION AND GLASS REPLACEMENT DURING ONGOING OPERATIONS

Renovation of the steel-and-glass façade began with complete rust removal from the existing profiles, followed by recoating with specialised corrosion-protective paint. The Ryds Glas team removed more than 3,500 rusted screws, replacing them with stainless-steel fasteners. Because the façade lies directly adjacent to the runway, cranes could not be used. Each pane was therefore lifted into position by winch or by hand.

frames. They also satisfied conservation requirements because they reproduce the optical qualities and texture of the historic glass,” Sjödin notes. The slightly irregular surface texture and characteristic reflections mirror those of the 1950s panes. This effect was achieved by laminating 4-millimeter restora-

tion glass from SCHOTT onto a 9.7-millimeter FINEO 10 unit, resulting in a total thickness of just 13.5 millimeters. The insulating units comprise two panes of extra-clear Clearvision glass from AGC, offering particularly high light transmission. Energy performance was equally decisive. “Even with a

minimum thickness of just 6.7 millimeters, FINEO achieves U-values of 0.7 W/m²K-performance otherwise associated with triple glazing,” says Ivar Nilsson, International Building Project Manager for AGC/FINEO, Nordic/Baltic Area. “This opens new possibilities for improving the energy performance of sensitive historic buildings.” He outlines the principle: “The functional core of FINEO vacuum glazing is a 0.1-millimeter vacuum cavity between two glass panes. Unlike conventional vacuum glass, there is no evacuation opening; the glass edge is hermetically fused. This ensures permanent tightness without maintenance, improves transparency, and preserves the façade’s delicate historic character.”

ABOUT FINEO

FINEO by AGC is the latest generation of insulating glass - combining an ultra-slim design with exceptional thermal and acoustic insulation properties. Manufactured in Belgium using a revolutionary process, FINEO guarantees maximum energy efficiency and sustainability, in line with current building regulations. It does not compromise on aesthetics or performance. FINEO is a reliable and proven solution for professionals seeking the highest standards of technical excellence and environmental responsibility - whether for restoration, renovation or new construction projects.



From a sustainability perspective, vacuum glazing also proved advantageous. It contains no noble gases and, due to its slim design, uses significantly less material than conventional double or triple glazing. AGC is the first manufacturer to obtain both CE marking and general construction approval from the DIBt for FINEO. It is also the first and only VIG product with a third-party verified Environmental Product Declaration (EPD), achieving a low-carbon value of 18.9 kg CO₂ equivalent per square meter in its Low-Carbon version. Long-term testing demonstrates thermal and

acoustic performance exceeding sixty years. “Projects such as the renovation in Stockholm show that historic buildings can significantly improve their energy performance with this technology without losing their character,” Lemoine concludes.



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