

Building & Industry

NOVENCO

SCHAKO Group

Advanced pressure differential system for a leading German insurance high-rise

A state-of-the-art pressure differential system (PDS) was installed in the new 21-storey headquarters of a major German insurance company. The solution strengthens fire safety and prepares the building for future high-rise requirements.

The project

In 2022, NOVENCO® Building & Industry was appointed to design and deliver a complete active pressure differential system for a new 75 m tall office tower. The system includes active PDS installations for two safety stairwells, a fire brigade lift and two exhaust shafts. Together they secure safe routes for evacuation of people and access for the fire brigade.

NOVENCO supplied all critical components which include supply and exhaust fans, advanced louvre dampers with ultra-fast actuators, control cabinets with new control software and smoke extraction dampers. After independent certified inspection, the full system received approval at the beginning of 2025.



New bypass-solution with NOVENCO NovAx fan installed on the rooftop for optimal airflow and performance

Facts:

- Market-unique ultra-fast actuators (0.7 s)
- Summer/winter compensation software
- Advanced pressure and airflow control
- High-rise readiness up to 40 storeys



The challenge

During the project, regulatory specialists introduced more demanding technical requirements to achieve top-tier safety levels. The challenge was to meet these requirements and future-proof the installation. The goal was to enable the pressure differential systems to operate reliably in the quite tall buildings.



Rooftop louvre hood with high-speed actuator, designed for 0.7-second response, ensuring immediate airflow regulation and system stability

The solution

To meet the strict criteria and raise system performance, NOVENCO's engineering team in the Netherlands developed several innovations:

- Ultra-fast louvre actuators with a response time of 0.7 seconds. This market-unique feature ensures fast reaction, stable pressure and prevents pressure peaks.
- New PDS control software with summer/winter compensation and continuous outdoor temperature monitoring for dependable operation in buildings up to 40 storeys.
- Stainless steel pressure measuring points for high durability and accuracy.
- Increased system reliability through:
 - patented NOVENCO LMM system for monitoring actuator cabling
 - redundant air supply
 - redundant pressure sensors
 - battery back-up in line with EN 12101-10

A new air supply concept for emergency stairwells that uses louvre dampers and grilles for uniform air and pressure distribution and includes floor-specific control logic to reduce stack effect.

The results

The project was completed and approved in early 2025. The delivered pressure differential system is robust, responsive and future-ready. It ensures safe evacuation and secure access for the fire brigade. The innovations introduced here expand NOVENCO's capabilities and support PDS solutions for much taller buildings. They set new standards in fire safety for high-rise insurance and commercial properties.

"This project was a milestone for us at NOVENCO Building & Industry. Meeting the customer's high safety requirements pushed us to develop new ultra-fast louvre actuators with a 0.7-second response time, a unique feature in the market."

Toine van der Wielen, Product Manager PDS



Smoke extraction damper installed in the corridor – ensuring safe and efficient smoke control during emergencies



Corridor-mounted combination damper and outlet grille, delivering precise airflow and homogeneous pressure as part of the system

