

SUSTAINABILITY AND LIFE SAFETY SYSTEMS GROTIUS THE HAGUE



THE TWO GREEN TOWERS

The Grotius residential towers are situated next to the Central Station in The Hague in The Netherlands. With heights of 120 and 100 metres, these two towers will make a visible contribution to The Hague's skyline. Upon completion in 2022, the two towers will include 655 high-quality flats, cafes, restaurants and an underground, enclosed car park with space for 245 passenger cars. NOVENCO Building & Industry was selected to design, supply, install and commission the certified pressurization systems and the car park ventilation system. High standards are set for the sustainability in the project, which are much in line with NOVENCO's corporate sustainability objectives. "This is not only reflected in the products, but also in the production methods and the 98%

product recyclability. At Grotius we will use the most energy-efficient fan of its kind in the world," explains Ruud van Beek, Director at NOVENCO in The Netherlands.

CLEAR CHOICE LIFE SAFETY SYSTEMS

In the event of a fire in the residential towers, the NOVENCO Clear Choice pressurization systems ensure that the stairwells remain free of smoke. In order to give the occupants sufficient time to escape, many factors must be taken into consideration for the pressurization systems, such as doors that are opened or closed and the height of the buildings. Product Manager at NOVENCO, Toine van der Wielen explains: "When the doors are closed, a pressure difference of 50 Pascal must be maintained. If a door is opened

on the fire floor, an air velocity must be created across the door opening from the pressurised space to the floor. The transition from pressure to air velocity and vice versa has to be very quick in order to prevent smoke from flowing into the stairwell. We are able to achieve this within three seconds."



ZerAx® variable speed certified smoke fan

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FACTS

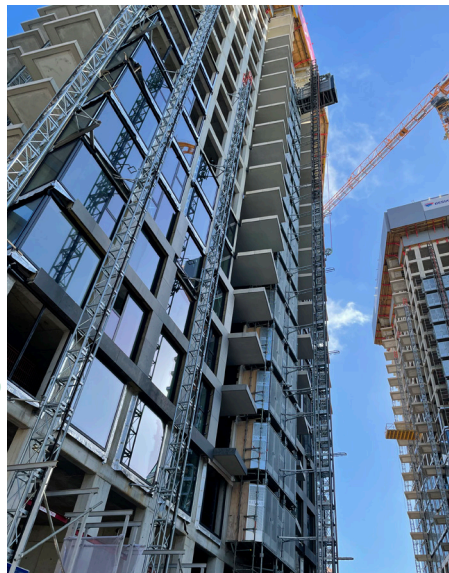
- CERTIFIED PRESSURE DIFFERENTIAL SYSTEMS
- CAR PARK VENTILATION SYSTEM
- SUSTAINABLE LIFE SAFETY SYSTEMS
- HIGHLY EFFICIENT ZERAX® AXIAL FLOW FANS

EQUIPMENT DELIVERY

The Clear Choice pressurization systems are designed using Revit 3D BIM and include 2 pcs. NovAx™ axial pressurization fans and 4 pcs. ZerAx® certified axial smoke fans. The complete ZerAx® fan range is certified for variable speed operation during smoke extract. Pressure relief dampers are installed in each of the 6 shafts to guarantee system functionality. The control system comprises several control panels in combination with 70 Clear Choice Interface Boxes (CCIB) to control and monitor the ± 220 certified smoke control dampers and ± 210 pressure sensors. In order to guarantee a smoke-free air intake, 8 shut-off dampers with smoke detectors and weather grilles are installed. For the two-level underground car park, NOVENCO's jet fan-based ventilation system will be installed to ensure fresh and healthy air throughout the car park. A total of ten CGF 500 low profile car park jet fans will provide optimum air induction and mixing, while still allowing sufficient free height. Adequate fresh air intake and extraction is ensured by speed-controlled NovAx™ axial exhaust fans, which are installed in a shaft with large ventilation grilles, SCHAKO HKU multi-leaf dampers, ductwork and an extraction hood. All these components are operated from a central control panel with an integrated CO/LPG monitoring system. In addition, the parking garage will be equipped with a sprinkler system.



Visual impression of the Grotius Towers



Construction site - the towers are beginning to take shape



Completion of the project is expected in 2022