

Project Profile

'Waterway House, V&A Waterfront, Cape Town'

Application: Smoke & Environmental **Location:** Africa **Sector:** Commercial [📍 - location on a map](#)



BACKGROUND

Cape Town's V&A Waterfront is a prestigious 123-hectare mixed-use development offering a wide range of commercial and leisure facilities to cater to the needs of both local residents and international visitors.

Construction on a new commercial office block, Waterway House, began in 2017, with the principle contractor, Curvent International being appointed in 2022. The development consists of three levels of basement parking and an additional six storeys, providing 10,000m² of office space.

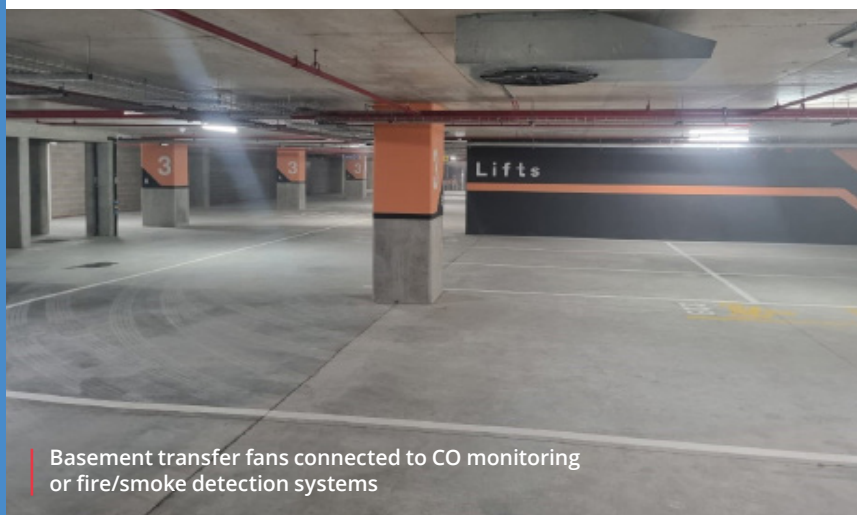
Invesco, a financial services provider, occupies four floors of the office block, while the remaining two floors are leased by V&A Waterfront for retail and leisure purposes.

The project had two main objectives. Firstly, it required an effective environmental ventilation system for the basement parking area to maintain acceptable pollution levels and ensure smoke clearance.

Secondly, the project involved the installation of components into a zoned smoke control system within the office levels.

SE Controls' Africa team played a key role in enhancing the project by providing their expertise in designing, supplying, delivering, installing, testing, and commissioning a comprehensive smoke and natural ventilation control system.

The system was based around an SE Controls OS2 SHEVTEC System was seamlessly integrated into the site's Building Management System (BMS). This integration allows for the continuous monitoring of the system's status, ensuring efficient operation and safety.



Basement transfer fans connected to CO monitoring or fire/smoke detection systems

AT A GLANCE

Product Focus

OS2 SHEVTEC Controller

The OS2 SHEVTEC Controller is EN12101-10 compliant, delivering 8 A to drive 24 V motorised actuators and catches.

SECO Ni Folding Arm Actuator

The SECO Ni Folding Arm Actuator is a certified solution designed to provide precise and reliable operation of doors utilised for smoke and environmental ventilation and access applications.

SELA N R 230 V Rack/Linear Actuator

The SELA N R 230 V is a precision rack and pinion-driven modular linear actuator that is suitable for lifting movements in sloping smoke vent and roof light based applications.

Variable Speed Fan Control Panel

The Variable Speed Fan Control Panel is a fixed modular design that is built and tested to provide a method of operating a single 400 V three phase 50Hz duty / standby fan arrangement.

CHALLENGE

The SECAF team encountered significant challenges in sourcing equipment even before the installation process commenced.

The V&A Waterfront team had specifically requested the use of equipment from a particular manufacturer in the control panels. However, due to global supply chain issues, the team faced lengthy lead times, which affected the availability of certain items.

To address this issue proactively, the team provided expert input on product specifications and diligently sourced compatible items of the same quality and specifications.

Throughout this process, they maintained open lines of communication with the V&A Waterfront.

As a result of their proactive approach, SECAF successfully overcame this challenge and delivered a smoke and ventilation system that met the client's exact specifications.

SOLUTION

SE Controls Africa. (SECAF) was brought in by Curvent International (Pty) Limited, the principal contractor, to provide support and expertise in the delivery and installation of components for the smoke ventilation system for the prestigious Waterway House office building in Cape Town's V&A Waterfront.

This 10,000m² development consists of 3 levels of basement parking and 6 storeys of office space. Maintaining acceptable air quality and effectively managing smoke in case of a fire are crucial in the basement parking area. To meet these requirements, SECAF supplied 36 x SELA N R 230V Rack/Linear actuators for two smoke shaft systems.

These cost-effective actuators are designed for precise open/close movements, allowing control over the smoke dampers within the smoke shafts to prevent the spread of smoke and fire during emergencies.

SOLUTION

SECAF's Variable Speed Fan Control Panels (VSFCP) were responsible for networking and powering the actuators. Multiple panels were supplied and installed on-site.

These VSFCPs were also in charge of controlling 36 x 2.3kW basement transfer fans (Jet/Centrifugal/Impulse) strategically placed within the installation. These fans would activate at either 50% or 100% power based on an external signal from a carbon monoxide (CO) monitoring system or fire/smoke detection system.

In order to monitor the status of the second shaft control panel, which was located in a plant room with limited access, SECAF implemented a solution.

They networked two programmable logic controllers (PLCs) on both shaft panels. This allowed the first panel to indicate the status of the second panel

Above ground in the office area to ensure safety in the event of a fire, a fire-rated ducting system is in place to connect the different floors. Each level is equipped with smoke dampers, which are controlled remotely through the OS2 SHEVTEC Control Panel using the SELA N R 230V Rack/Linear actuators.

Furthermore, all manually operated open-out doors that are used for smoke ventilation are fitted with the SECO NI Folding Arm Actuator, Roller Type. This actuator is designed to deliver exceptional performance, durability, and operational flexibility.



Top of Shaft Roof Mounted Powered Extract Fan



SECO Ni Folding Arm Actuators provided precise operation of doors utilised for smoke ventilation within the office areas of the building

During a fire, the SELA N R 230V actuators open the high-level smoke vents, while simultaneously opening 6 automated façade windows.

This allows fresh air to enter the building, effectively expelling hot air and smoke through the roof vents, creating a smoke-free zone for a safe escape.

During the installation process, another challenge arose in terms of preventing the spread of smoke within the ground-floor atrium of the building

This was a critical issue because if a fire were to occur on the ground floor, the atrium could potentially facilitate the movement of smoke to the upper levels, thereby increasing the risk of smoke inhalation in areas far from the actual fire incident.

To address this challenge, 2 x 11kW fans (forward / reverse operation) were installed at roof level serving the atrium and office levels. In the event of a fire these would vent the area and at the same time shaft dampers would open to exhaust the smoke from the building. Simultaneously, shaft fans would pressurise the upper floors, preventing the ingress of smoke. This would create a safe passage for occupants to exit the floors and enable firefighters to navigate the building safely and extinguish the fire.

THE RESULT

Despite facing initial challenges, SECAF successfully overcame them through careful planning and foresight, ensuring they fulfilled their commitment to their customer.

The project involved the installation and commissioning of state-of-the-art smoke ventilation technology on-site, which offers two significant advantages for the building.

Firstly, it guarantees secure and efficient escape routes for occupants by redirecting smoke away from the interior of the building.

Secondly, it effectively prevents the accumulation of hazardous fumes and flammable gases from vehicle exhausts in parking areas, while also clearing smoke in the event of a fire.



The primary control system is located in the basement, while the atrium and office levels are managed by a secondary control panel on the roof.

This setup guarantees smooth operation across the entire system.



For over four decades, SE Controls has been a pioneer in the development of innovative control systems that harness sustainable natural elements resulting in safer and healthier indoor environments.

Our product range undergoes rigorous testing in accordance with the relevant EN12101 harmonised suite of standards for smoke control compliance. Furthermore, our designs adhere to the guidelines outlined in the BS7346-8 Code of Practice ensuring comprehensive planning, design, installation, commissioning, and maintenance of Smoke Control Systems.



COMMUNICATION

Each project team at SE Controls Africa is built around dedicated administration, coordination, and installation resources.

This approach ensures that our clients receive consistent and high levels of customer service and delivery management throughout the project.

SE Controls Africa collaborated closely with the main contractor Curvent International who oversaw the whole project.

This collaboration ensured that the installation and commissioning were seamless throughout the project.

PRODUCT IMAGES



**OS2 SHEVTEC
Control Panel**



**SECO Ni Folding Arm
Actuator**



**Fan Control
Panel**



**SELA N R 230V Rack/
Pinion**

 Click to enlarge

BENEFITS OF THE SYSTEM

Mechanical smoke ventilation systems offer numerous advantages in effectively managing smoke during a fire incident.

At the Car Park Level:

- These systems prevent the accumulation of toxic fumes and flammable gases emitted from vehicle exhausts during the car park's daily operations.
- They also play a crucial role in supporting the emergency services by clearing smoke during firefighting operations.

In the Office Areas:

- Mechanical smoke ventilation systems can eliminate smoke from the building, ensuring improved visibility and unobstructed access for occupants and firefighting services during evacuation.
- By extracting smoke and introducing fresh air from outside, these systems minimise the risk of smoke inhalation and enhance the safety of occupants.
- Compared to natural ventilation systems, mechanical smoke ventilation systems are more efficient and controllable, making them an essential component in maintaining fire safety in buildings, escape routes, staircases, and other critical areas.

From a Cost Perspective:

- These systems seamlessly integrate into existing components, resulting in improved installation times and overall cost savings.
- Furthermore, they offer additional benefits that contribute to cost savings.

THE FINAL WORD

Jacques Labuschague, Business Development Manager at SE Controls Africa said of the project:

'Despite the obstacles we faced, we were able to forge a strong relationship with the team at Curvent International while working on-site. This partnership played a crucial role in ensuring the smooth execution of the installation of a smoke and ventilation system that met the client's exact specifications. It was truly rewarding to witness the successful delivery of another high-quality installation, especially after overcoming the challenges related to equipment sourcing.'

Trevor Venter, Senior Project Manager from Curvent International added.

'Our goal is to remain the preferred supplier of smoke ventilation solutions in South Africa and endeavor to build a relationship with SE Controls going forward to provide the market with the best solutions in providing clients with life safety solutions for their staff and buildings.'

Further information on SE Controls Africa products, bespoke solutions, and projects may be found via e-mailing secaf@secontrols.com or by calling +27 643 750838

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