

Case story | Fogstream

Moscow office complex saves **180 m²** with **compact fire suppression system** powered by **Danfoss PAH pumps**



180 m²
more commercial
space

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PAH high-pressure pumps selected to **power** advanced high-pressure **water mist fire** **suppression system** in Russia

The AKADEMIK Business Center is an award-winning new building with a total height of 82 meters and 47,100 m² spread over 14 stories above ground and two underground parking levels. The building's lens-shaped volume, façade portrait of geochemist Vladimir Vernadsky and playful sculpture of the scientist's round spectacles establish an iconic presence on Moscow's Vernadsky Avenue. Inside, a compact water-mist fire suppression system driven by Danfoss PAH high-pressure pumps has freed up 180 m² of commercial space for rent – and saves owners millions of rubles annually.

The challenge:

Design a **fire suppression system**
of the **utmost reliability** that
requires as **little space as possible**

The AKADEMIK Business Center has a unique history. Created on the site of an unfinished building from the 1990s, an award-winning team of architects transformed the abandoned project into a bold new urban statement between 2015 and 2019.

“When we first began discussions with the general contractor, owners and architects had planned to use traditional sprinklers as the main fire suppression system,” recalls Fogstream CEO Andrey Kupfer. “But after we introduced the benefits of water-mist technology, they asked our engineers to calculate the potential impact of using this instead of a traditional fire extinguishing system. The calculations were quite convincing.”

The solution:

A **water-mist system** built around dependable and compact **Danfoss PAH high-pressure pumps**

Fogstream proposed a space-saving two-part water-mist system built around Danfoss PAH pumps, as part of a comprehensive turnkey solution, a Fogstream specialty, that included everything from design to production and installation.

“We knew from previous experience that the Danfoss PAH pumps are extremely reliable,” says Kupfer, “and this is, of course, priority number one in any fire suppression system. But the PAH pumps are also very compact. In addition to simpler maintenance, the compactness of the system also enabled substantial and sustainable economic and design benefits for the client.”

For the underground parking floors, Fogstream installed four main and one standby PAH 80 pumps with one PAH 12.5 jockey pump for a total flow of 392 l/min at an operating pressure of 90 bar. For the aboveground floors, Fogstream opted for two main and one standby PAH 80 pumps with one PAH 12.5 jockey pump for a total flow rate of 228 l/min at an operating pressure of 90 bar. Danfoss's VRH relief valves and VCH check valves were also used throughout.

**The result:**

180m² of extra commercial space to lease, higher ceilings, **lower CAPEX and OPEX**

Compared to the traditional fire extinguishing system originally planned, Fogstream's high-pressure water-mist proposal resulted in very significant savings.

Eliminating the need for tanks to supply water for traditional fire extinguishing system freed up 380 m³, or 180 m² of commercial floor space that could be leased instead of holding water. The high-pressure water mist system takes up under 8 m² of floor space. Architects were also happy to be able to increase ceiling height on all floors by 20 cm due to the smaller pipes in the high-pressure system.

Increasing the building's leasable floor space, downsizing pipe dimensions throughout the building, and reducing maintenance costs cut the total cost of ownership for fire suppression by RUB 12,000,000 (€133,000) annually, CAPEX by 11%, and OPEX by 8%.

“The architectural and financial benefits of such a compact water-mist system make it a very interesting alternative to traditional fire extinguishing systems,” concludes Kupfer. “Fogstream looks forward to telling more clients about these architectural and financial advantages.”

**FOGSTREAM**

Fogstream provides comprehensive solutions for the design, development, production, and installation of intelligent automatic fire extinguishing systems. From its base in the Skolkovo Innovation Center, a leading Russian science and technology hub near Moscow, Fogstream combines specialized hardware and advanced software systems to provide customers with the very best in fire protection technology.

For more information: www.fog-stream.com

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