

An eight-year journey scaling energy efficiency with Shanghai Tower

Abstract

Shanghai Tower, one of the world's tallest buildings at 632 metres, needed more than reliable equipment, it needed a service partner that could sustain and improve performance over time. Since 2017, Alfa Laval has worked alongside the tower's operations team to move from reactive maintenance to proactive, data-driven service. This approach has delivered a 15% increase in heat exchange efficiency and a 5% reduction in energy consumption, supporting the tower's long-term sustainability goals over an eight-year partnership.



Buildings account for nearly 30% of global energy consumption and a significant share of carbon emissions. For super-tall skyscrapers, the challenge is even greater, balancing occupant comfort, operational safety, and long-term energy efficiency. As cities continue to grow vertically, the demand for sustainable high-rise solutions becomes increasingly critical.

Shanghai Tower, rising 632 meters above Lujiazui, Shanghai, exemplifies how these challenges can be addressed through visionary design and management. Completed in 2015, this 128-story mixed-use skyscraper houses offices, hotels, retail, and cultural spaces, serving thousands of people daily. The tower is operated by CBRE Property Management, and has prioritized green building standards from the beginning, earning LEED Platinum certification and setting a benchmark for environmental responsibility in super-tall structures.

A partnership rooted in reliability and built on trust

In 2017, Alfa Laval delivered the first batch of plate heat exchangers to Shanghai Tower as core components of the building's heating and cooling infrastructure. Through innovative engineering, Alfa Laval provided reliable solutions that met the tower's demanding needs for precision, heat transfer efficiency, and pressure tolerance. Delivery, however, was only the beginning of an eight-year journey.

Lifetime service with a strategic approach to sustained value

Through regular inspections and Performance Assessment services, the Alfa Laval service team provides clear insights into equipment health and enables proactive maintenance, establishing Alfa Laval as a trusted service partner throughout the tower's lifecycle.

Between 2017 and 2019, Alfa Laval conducted regular service patrols and on-site performance assessments, laying out the foundation for a data-driven maintenance approach.

In 2020, by continuously monitoring equipment health and performance, the service team identified opportunities to restore equipment performance and developed targeted maintenance plans, ensuring optimal operation.



Performance assessment being performed on a plate heat exchanger. Example photo of performance assessment service.

From 2021 onward, leveraging insights gained from previous assessments, the Alfa Laval service team has carried out large-scale reconditioning of more than 3,000 plates, delivering measurable results:

- 15% increase in heat exchange efficiency
- 5% reduction in energy consumption
- Approximately 3°C drop in average secondary-side return water temperature in the first summer after each cleaning campaign

Behind the numbers lies a commitment to long-term operational excellence, transforming routine maintenance into strategic service that maximizes equipment lifecycle and system performance.

From equipment supplier to strategic service partner

Building on this momentum with proven results, Alfa Laval and CBRE Property Management, which operates Shanghai Tower, signed a five-year strategic service agreement in 2025. This agreement marks the evolution of a partnership that has grown from equipment delivery to system optimization, from

performance auditing to proactive service, and from parts supplier to a trusted service partner.

Eight years of dedicated service across critical touchpoints throughout the building – this is a collaboration grounded in trust. Looking ahead, Alfa Laval remains committed to supporting more buildings like Shanghai Tower, continuously exploring new opportunities to enhance energy efficiency and operational performance for the years to come.

“Our eight-year partnership with Shanghai Tower shows that proactive, data-driven, and value-added service delivers real operational gains.”

“Together, we’re not just keeping the building running with efficiency – we’re shaping a vertical green city for the future.”

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