

A Leading Real Estate Developer in Singapore

CASE STUDY

A leading real estate developer in Singapore chose 75F, in collaboration with SP Digital, providers of GET™ Control, as their preferred solution. This decision was motivated by 75F's capability to offer cutting-edge technology for an upgrade with minimal retrofitting required, resulting in enhanced occupancy comfort.



THE BACKGROUND

A leading real estate developer in Singapore has developed an iconic skyscraper standing tall in Singapore's bustling Central Business District, which has long been regarded as a beacon of corporate prestige and sophistication. The developer is a pioneer in the country's real estate sector, the tower has played a pivotal role in shaping the city-state's skyline and business landscape since its completion in 1980.

With its 48 floors above ground and distinctive stepped design, the tower immediately captured attention, establishing itself as a symbol of architectural excellence and modernity. Situated along the prestigious Raffles Place, the tower enjoys unparalleled visibility and accessibility, making it a coveted business address for organisations seeking a prime location in the heart of Singapore's financial hub.

THE CHALLENGE

The facility management team at the leading real estate developer in Singapore recognised the need to upgrade their existing setup with a new technology solution that would not necessitate a complete overhaul of their infrastructure. They sought a solution that is flexible, scalable, and capable of meeting their specific technology requirements.

AT A GLANCE

Location	CBD, Singapore
Building Type	Commercial Building
Area	6,25,000 Square Feet
75F® Solutions (Deployed till date)	Dynamic Chilled Water Balancing
	Dynamic Airflow Balancing
	Outside Air Optimizer
	Number of HyperStats: 7
	Number of CCUs: 34
	Number of Smart Nodes: 727
	Number of EMs: 24
	Number of BTU Meters: 39
Turnaround Days	18 days on an average per floor.

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THE SOLUTION

Installation and Execution

The installation and execution of the retrofitting project at the tower of the leading real estate developer in Singapore posed unique challenges, as the 75F team could only conduct work on weeknights or weekends to minimise disruption to daily operations. Liaising with both the landlord and tenants was a crucial aspect of the project, with clear communication channels established to coordinate installation and commissioning works in a manner that minimised inconvenience for all parties involved. Fortunately, the 75F team's out-of-the-box IoT-based BMS suite is renowned for its rapid implementation, retrofit-friendly design, and ability to optimise HVAC operations in existing buildings. Strategically waiting for the right moment when the Air Handling Units (AHUs) were shut down to comply with operational requirements, the 75F team efficiently deployed all necessary solutions during this brief window, ensuring minimal disruption to the building's operations.

Dynamic Chilled Water Balancing (DCWB)

Dynamic Chilled Water Balancing (DCWB) offers a specialised control solution tailored for the chilled water line of Air Handling Units (AHUs). By leveraging the heat load demand identified by the Dynamic Airflow Balancing (DAB) algorithm, DCWB optimises chilled water flow by monitoring temperatures at the inlet and outlet and regulating the CHW actuator accordingly. This precise control strategy minimises chilled water consumption while ensuring the desired temperature levels are consistently maintained. Integration with the Central Control Unit (CCU), existing BTU meter, and a new Actuator further enhances efficiency, leading to significant energy cost savings. DCWB extends the benefits of the fully modulating DAB profile for AHUs, providing multiple approaches to reduce overall energy consumption, encompassing both electrical and cooling aspects. Its unique features include addressing low ΔT syndrome, optimising heat rejection through higher exit temperatures to minimise energy use, and balancing CHWS for improved chiller efficiency and reduced hydronic pump energy consumption. With customisable approaches, DCWB strikes a balance between comfort and energy savings, offering a comprehensive solution for optimising chiller system performance under various conditions.

Dynamic Airflow Balancing (DAB)

Dynamic Airflow Balancing is a proprietary concept of the 75F system, designed to optimise HVAC performance in buildings. Recognising the varying needs of different spaces throughout the day, 75F developed this feature to address the dynamic nature of temperature requirements within buildings. Unlike traditional approaches that may lead to inefficient zoning or back pressure on HVAC systems, Dynamic Airflow Balancing employs an intelligent algorithm to continuously monitor and adjust temperature differentials. By tracking the average current temperature of zones mapped within the system profile, it identifies deviations from the desired temperature settings. When cooling is required, the algorithm instructs modulating equipment to ramp up output, and conversely, when heating is needed, it adjusts the output accordingly. This approach ensures comfort and efficiency by dynamically responding to changing conditions without resorting to fully closing off zones or causing undue strain on HVAC systems.

Outside Air Optimization (OAO)

The Outside Air Optimization (OAO) feature, integrated within the 75F system, ensures that the Indoor Air Quality (IAQ) levels in space adhere to the recommended standards set by ASHRAE. By controlling the outside air damper, OAO effectively manages the influx of fresh air into the building, functioning as an economiser. This feature leverages the HVAC system's ability to utilise cold outside air for free cooling, enhancing energy efficiency. OAO serves two primary functions: Demand Control Ventilation (DCV) and economising. Additionally, it can be optionally utilised to maintain optimal pressure levels within the building, contributing to a comfortable and healthy indoor environment.



75F Facilisight

Facilisight offers multi-site visibility into HVAC energy consumption, empowering proactive monitoring and automated control. This AI-powered data analysis tool provides real-time insights into critical metrics, such as heatmaps and occupancy trends, through an intuitive graphical interface. As a result, it enables efficient facility management with minimal intervention, enhancing both energy efficiency and occupant comfort.

HyperStat for Smaller Capacity

75F's HyperStat for Smaller Capacity Chilled Water Air Handling Units, offer enhanced control and energy savings. Beyond traditional thermostats, the 75F HyperStat also manages TFA valves and is hailed as the world's most advanced thermostat. It measures and displays key parameters such as temperature, humidity, CO₂ levels, VOC, PM2.5, Lux level, sound, and occupancy. These cutting-edge devices replace outdated thermostats and seamlessly connect to the 75F IoT Platform for efficient remote monitoring and control.

THE RESULTS

The installation and commissioning of the tower of the leading real estate developer in Singapore, demonstrated the team's proficiency and dedication, completing each floor in 18 days on average. A significant enhancement was the seamless integration of **remote monitoring solutions**, granting **real-time data** access for **improved control** and **occupant comfort**. These capabilities also played a crucial role in **optimising energy usage**. Recognising the importance of technological advancement, the facility management team at the leading real estate developer in Singapore sought to upgrade their existing setup with a solution offering flexibility, scalability, and the ability to meet their specific technology requirements without requiring a complete infrastructure overhaul.

