HIRANANDANI HOSPITAL
CASE STUDY

Hiranandani Hospital chose 75F and Tata Power Trading Company Limited (TPTCL) for automated building control and to optimize energy efficiency, resulting in energy savings of 2,33,830 kWh.

THE BACKGROUND

Hiranandani Hospital is a Public Charitable Trust Hospital, founded in honour of Padma Bhushan Dr. L. H. Hiranandani that began operations in February 2004. As a multi-specialty hospital with a capacity of 240+ beds it provides superlative healthcare facilities in Mumbai. It has also earned several prestigious awards, distinctions, and certifications for energy efficiency, energy conservation, and green living between 2012-2020.

THE CHALLENGE

Hiranandani Hospital was seeking future-ready energy saving solutions to reduce its energy consumption and bring down operating costs. Several of its HVAC assets were dated and unable to operate at optimum levels. Equipped with only a partially working building management solution, the facility could not access real-time monitoring and establish control of its AHUs or Chillers. The client's facility management team needed automation and centralized monitoring of key operational areas with simplified energy management dashboards and reports. Tata Power Trading Company Limited (TPTCL) – an integrated power company that supplies electricity to Hiranandani Hospital and a 75F partner, recognized these needs. Upgradation via 75F's IoT-based BMS was essential for the facility to apply for green building certification.

AT A GLANCE

Location	Powai, Mumbai
Building Type	Hospital
Area	2,58,334 Square Feet
75F® Solutions	Chiller Plant Manager DCWB, DAB, IAQM, and EMS Number of HyperStats: 26 Number of CCUs: 12
Turnaround Days	90 days from installation to handover

75F

THE SOLUTION

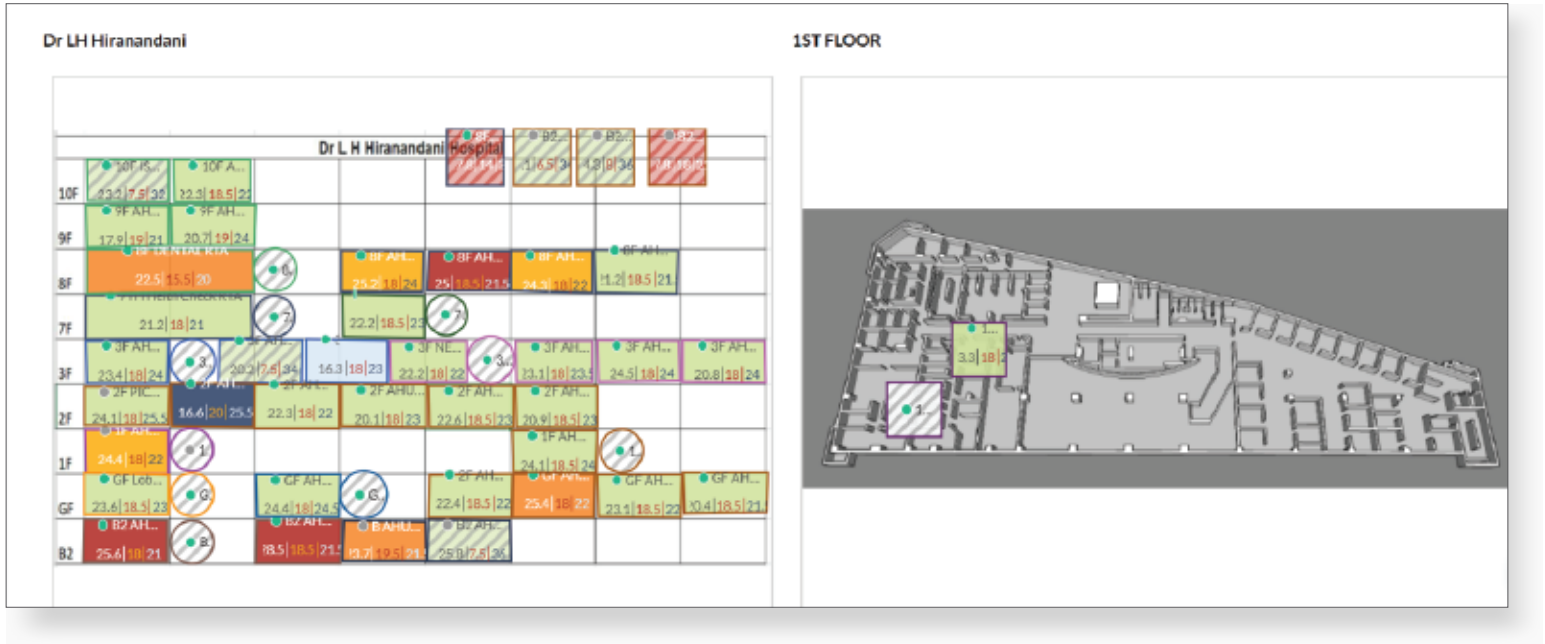
The 75F team conducted an on-site survey resulting in a clear pathway to deliver 75F's proprietary IoT-based BMS solutions to help Hiranandani Hospital achieve its energy efficiency goals. A key challenge was that Hiranandani Hospital was a critical-care environment that could not shut down HVAC systems due to the sensitive nature of its operations. The 75F team implemented the necessary solutions utilizing the most appropriate configurations allowing the client facility team access to customized dashboards displaying key data on energy consumption, emissions, and spend. 75F's solutions serve many areas of the facility including the reception, lobby, outpatient department, laboratories, and patient rooms.

Execution

75F's specialized execution team worked nights to ensure there were no shutdowns across HVAC systems allowing for smooth implementation. After a detailed assessment of the client's requirements and critical infrastructure systems, our team implemented several custom tailored solutions.

Dynamic Chilled Water Balancing (DCWB)

For 11 Air Handling Units (AHUs) we delivered Smart VFD Control and DCWB to control chilled water consumption by the AHUs in order to optimize energy efficiency, occupant comfort, and equipment life. 75F's DCWB provided a unique control solution for the chilled waterline of the AHUs. Using the heat load demand generated by the DAB algorithm, our DCWB algorithm optimized chilled water flow by constantly monitoring inlet and outlet temperatures and controlling the CHW actuator. By integrating 75F's system with the on-site BTU meter, we provided visibility with respect to energy consumption and savings.

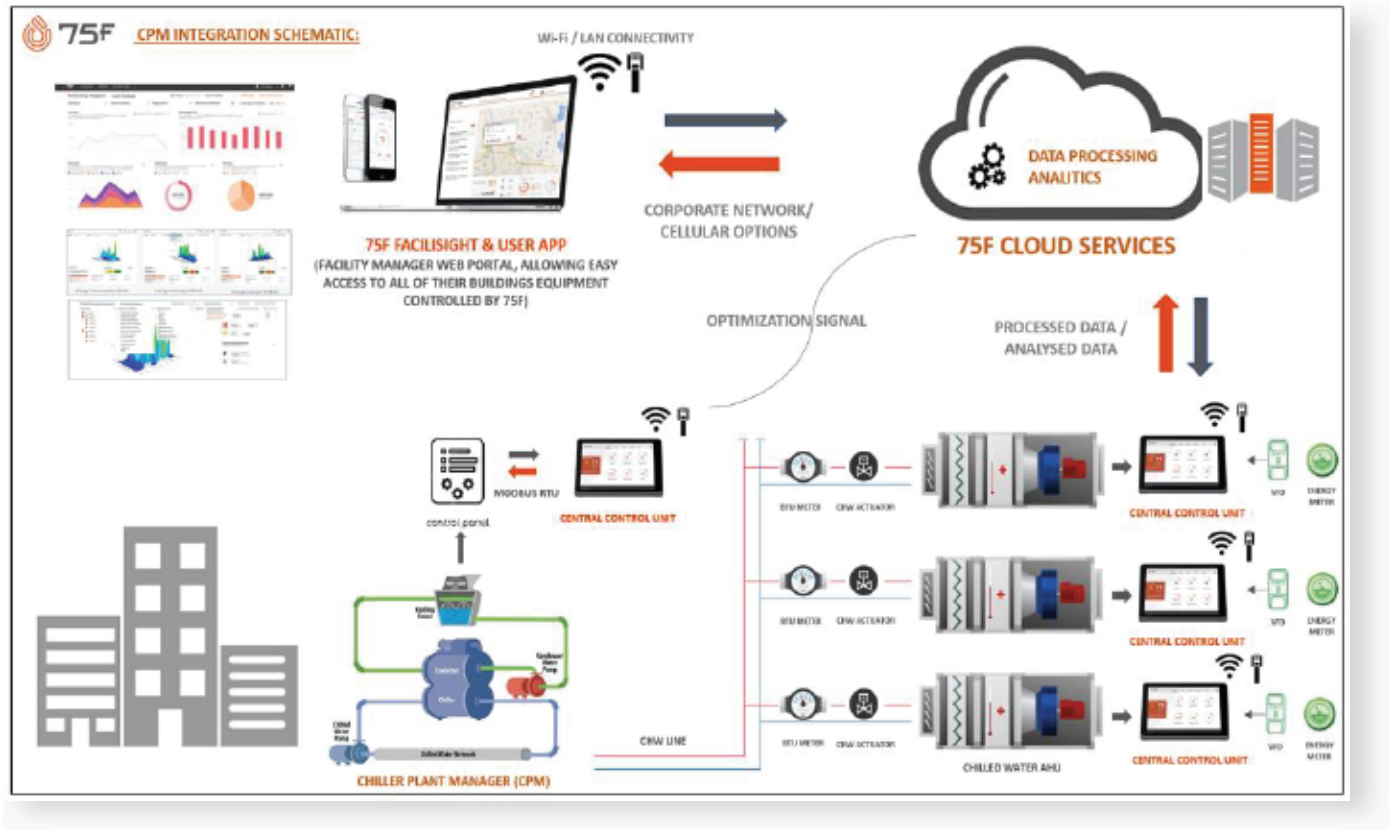


Smart VFD Control

Smart VFD Control is designed for centralized HVAC systems. Sensors installed at the AHU-level communicate data wirelessly to a Central Control Unit (CCU), which in turn controls the AHU motor and CHW actuator to optimize HVAC operations. Energy savings are achieved by precise temperature monitoring and advanced control sequences. 75F's proprietary algorithms analyze and send the optimal control strategy to the CCU, which in turn sends instructions to incrementally modulate VFD and CHW actuators precisely, creating stable temperatures throughout the building helping to eliminate overcooling. Our algorithm assigns priority to different AHUs based on actual usage, helping prevent energy leaks.

Chiller Plant Manager (CPM)

75F's full-fledged Chiller Plant Manager (CPM) controls and monitors Hiranandani Hospital's chillers, pumps, and cooling towers providing a plug and play solution for control and visualization of the facility's chiller plant. Our CPM is an integrated solution that includes customized hardware, remote visibility, and comprehensive alerts for chiller plant management.

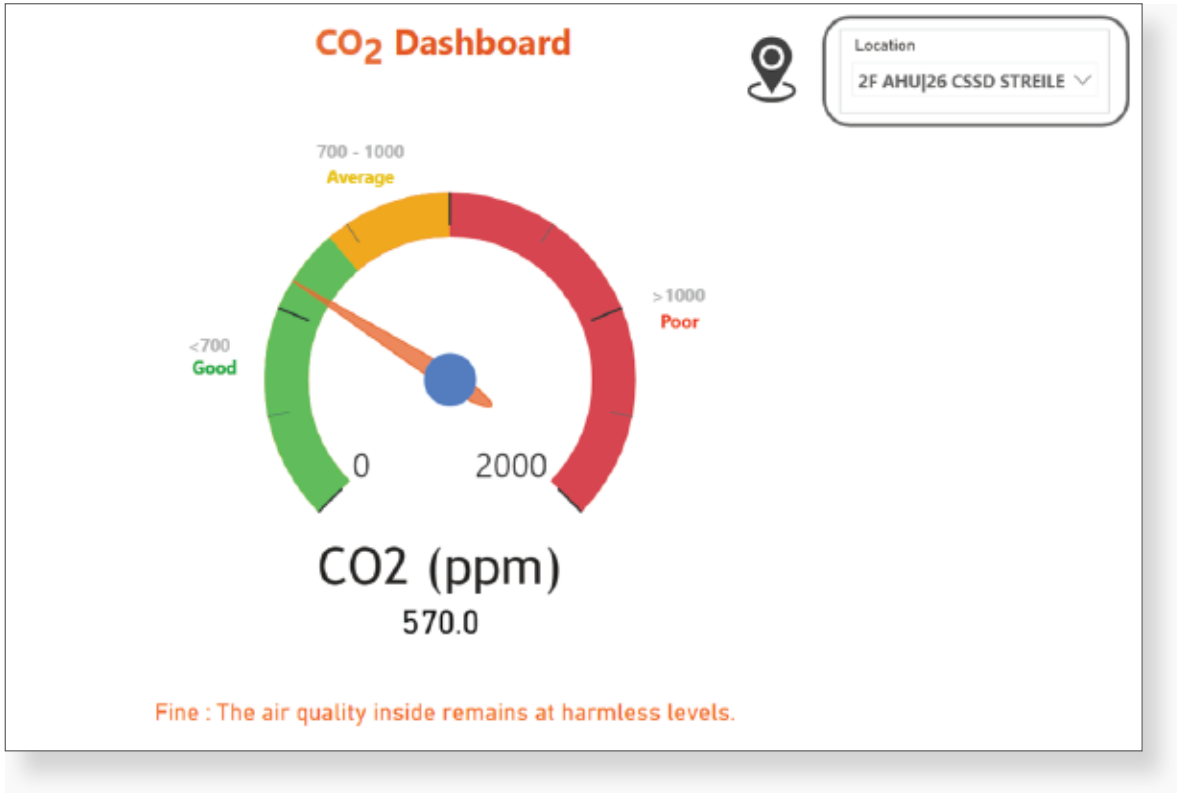


75F Facilisight

The 75F Facilisight solution enabled multi-site visibility and insights into HVAC energy consumption with proactive monitoring and automatic control system capabilities. The powerful AI-backed data analysis tool provided a single-pane view of key metrics in real-time to analyze critical factors such as heatmaps and occupancy trends for granular-level reporting. The insights and analysis offered an intuitive graphical user interface that allowed the client facility team to control the facility with minimal intervention while simultaneously increasing energy efficiency and maximizing occupant comfort.

Indoor Air Quality Management (IAQM)

In total 26 Hyperstats were installed to monitor IAQ parameters including CO_2, VOC, PM 2.5, Temperature, Relative Humidity, Lux Levels, PIR Occupancy, and Sound Levels. HyperStats were installed at 26 smaller capacity AHUs and CSUs to provide visibility on the IAQ conditions. As the facility was an older building all 61 AHUs had 3-way valves (constant flow technology) which we replaced with 2-way valves (dynamic flow system).



THE RESULTS

Energy Savings

75F's IoT-based Building Management System (BMS) facilitated significant energy savings for Hiranandani Hospital. In May 2023, it contributed savings of 14,480kWh, followed by 8,628kWh in June 2023, and 33,328kWh in July 2023. These savings continue to accumulate, reaching a total of 233,830kWh by February 2024 across the hospital's Chiller Plant and Air Handling Unit (AHU) operations.

Fast and Easy Installation

Installation at the facility was supported by the deep knowledge and expertise of the 75F team. Work commenced in mid-January with installation activities completed by mid-April of 2023, totaling just 90 days for retrofitting the entire hospital, with zero downtime.

Energy Management Dashboards

To give complete visibility on all key performance energy parameters, the 75F team delivered customized dashboards to provide clarity across key performance metrics to Hiranandani Hospital's facility management team.

Managed Services

75F's Managed Services team takes care of post-commissioning work, ensuring that the facility operates at peak energy efficiency levels.

TATA POWER TRADING COMPANY LIMITED

SMART ENERGY MANAGEMENT