NOVO NORDISK
CASE STUDY

Novo Nordisk partnered with 75F to save 25,735 kWh of energy within the first 6 months of commissioning.

THE BACKGROUND

Novo Nordisk is an innovative, patient-centric, multinational pharmaceutical company, steadfast in its goal of reaching Net-Zero environmental impact. The company aligns its operational and manufacturing strategy to meet its sustainability target in every location globally. When Novo Nordisk moved into Mind Comp Tech Park, Whitefield, Bangalore with a 19,800 square feet regional office space, the enterprise was looking for a smart and efficient building management solution that would align with its sustainability goals.

THE CHALLENGE

The facility management team at the site was looking for more than just a BMS. They wanted an integrated solution that could provide better control, visibility, and energy savings from their HVAC infrastructure. The team was interested in a duct level control that would give visibility of zone-wise comfort parameters to their operations team. While they wanted to improve the operational efficiency of the HVAC system and indoor air quality, they also wanted to provide a unique occupant experience at a competitive price point with a comfortable, and pleasant work environment. 75F and nhance partnered together to provide an end-to-end solution to Novo Nordisk. nhance came up with the smart lighting and integrated dashboard solution to complement 75F's HVAC and IoT BMS offerings.

AT A GLANCE

Location	Mind Comp Tech Park, Whitefield, Bangalore
Building Type	Commercial Building
Area	19,800 Square Feet
75F® Solutions	75F® Dynamic Airflow Balancing 75F® Dynamic Chilled Water Balancing 75F® Outside Air Optimization 75F® Indoor Air Quality Monitoring 75F® Facilisight
Turnaround Days	25 days from installation to handover

75F

THE SOLUTION

The Novo Nordisk team was looking for a solution that could be integrated with their workplace management platform. An important prerequisite was API integration functionality. Several BMS solutions were evaluated and eventually, 75F's IoT-powered BMS was selected.

Execution

The solution implemented was aimed at improving (OE)^2 i.e., to sense, learn, and deliver optimal Occupant Experience (OE) while improving Operational Efficiency (OE), to improve overall productivity of employees. 75F installed dedicated smart duct dampers controlled by smart nodes along with the Intelligent Temperature Mote (ITM) in every cabin for a personalized level of control and comfort. Similar smart duct dampers were installed with Ceiling Temperature Sensors in open work areas to ensure even temperature distribution.

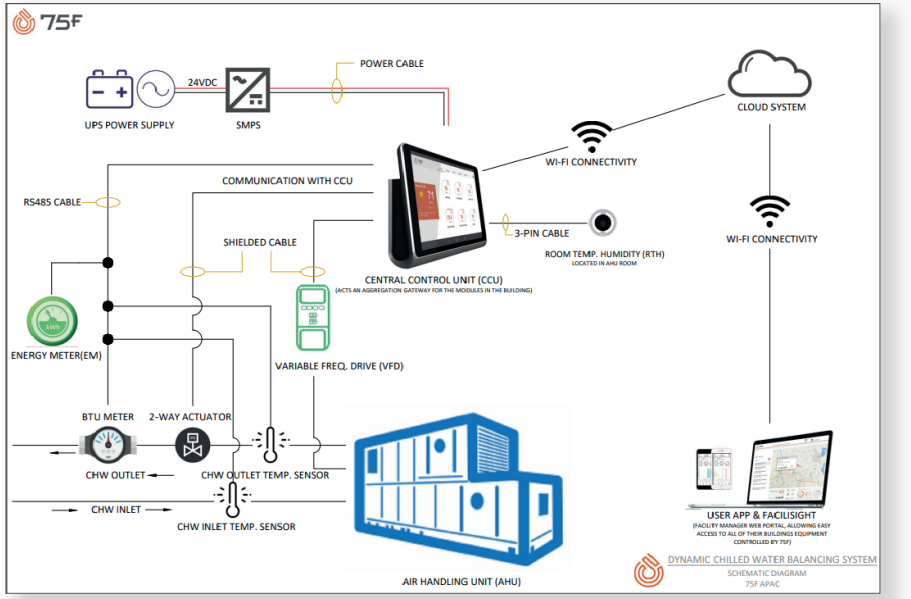
After a thorough analysis of the requirements and critical infrastructure systems, specialists at 75F implemented the following tailored solutions at the site:

Dynamic Chilled Water Balancing (DCWB)

DCWB provided a unique control solution for the chilled waterline of the AHU. Using the heat load demand for the space from the DAB algorithm, the DCWB algorithm optimized the chilled water flow by monitoring inlet and outlet CHW temperatures and controlling the CHW actuator. By integrating the 75F system with the existing BTU meter on-site, we provided visibility on energy consumption and savings on chilled water consumption.

Dynamic Airflow Balancing (DAB)

Smart Duct Dampers (SDDs) were installed on-site to create microzones for optimal comfort. These SDDs were controlled by Smart Nodes, fitted with Temperature and RH sensors. Dynamic Airflow Balancing (DAB) used machine learning algorithms to optimize cooling by redirecting conditioned air away from unoccupied and sparsely occupied zones to zones which required additional cooling. The systems deployed to modulate the Variable Frequency Drives (VFDs) based on sensory inputs helped



to maintain optimal comfort levels while providing significant energy savings. DAB monitored the comfort for every zone, created a heat map to optimally run the AHU, and maintained a superior level of comfort, while reducing the envelope of air required.

Outside Air Optimization (OAO)

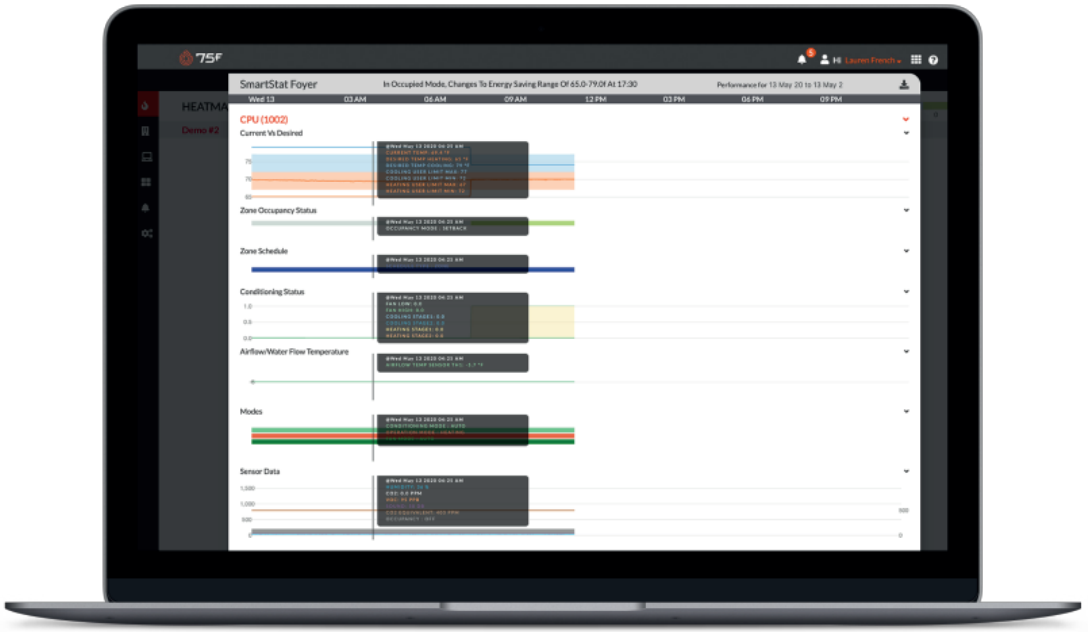
Outside Air Optimization (OAO) provided Demand Control Ventilation (DCV) to ensure that the Indoor Air Quality (IAQ) level in the space is maintained within the recommended levels by ASHRAE.

Indoor Air Quality Management (IAQM)

75F's Smart Stats were provided to monitor IAQ parameters such as CO2, VOC, Temperature, Relative Humidity, Lux Levels, PIR Occupancy, and Sound Levels. Smart Stats were installed in 5 different locations across the workplace to provide visibility on the IAQ conditions experienced by occupants, instead of measuring IAQ levels at the return air duct. The IAQM solution provided visibility to facility managers to take necessary steps for ensuring a healthy workplace.

75F Facilisight

The powerful 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 in an intuitive graphical user interface empowered The facility team of Novo Nordisk to control their buildings with minimal intervention while increasing energy efficiency and maximizing occupant comfort.



THE RESULTS

Smart Solution for Incremental Energy Efficiency

The Novo Nordisk facility saved ~25,735 kWh of energy in the first 6 months of operations, achieving average savings of 35% across this period. In the duration between October to December 2022, the client saved 12,618 kWh of energy.

Fast and Easy Installation

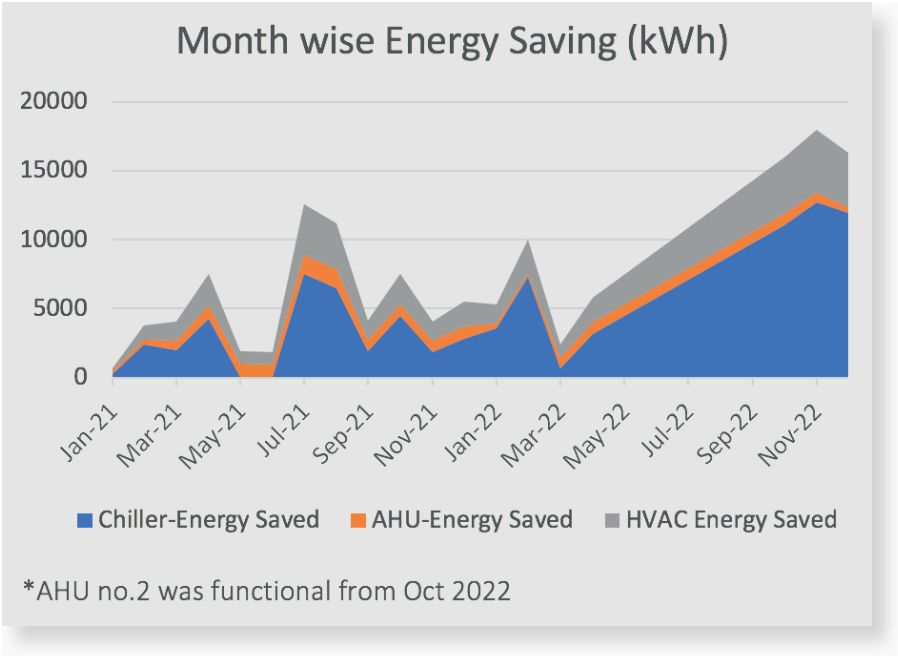
The deep knowledge and rich expertise of 75F empowered the facility management team with quick installation, at zero downtime. The entire installation and commissioning took just 25 day ! The state-of-the-art building management solutions deployed at Novo Nordisk provided a fully automated, comprehensive energy management and control system with unique AI-backed learning capabilities for incremental energy efficiency in line with the sustainability goals set by the Client.

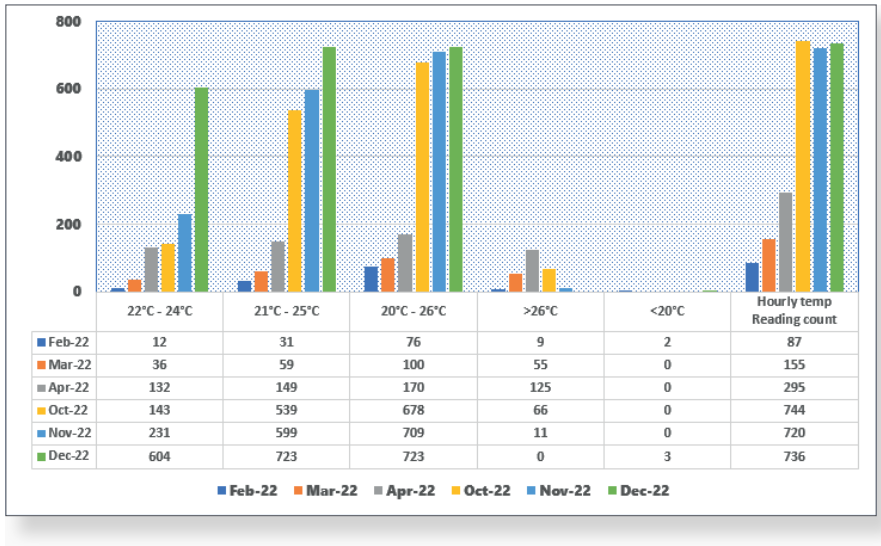
Flexible Rezoning Capabilities

The wireless Smart Node and Smart Duct Damper infrastructure allowed flexibility to the Novo Nordisk facility team to rezone certain spaces as per their requirements without taking up significant retrofits on the ductworks.

Managed Services

75F's Managed Services Team took care of the site post-commissioning and made sure that the site operated at peak energy-efficiency levels.





	22°C - 24°C	21°C - 25°C	20°C - 26°C	>26°C	<20°C	Hourly temp Reading count
Feb-22	12	31	76	9	2	87
Mar-22	36	59	100	55	0	155
Apr-22	132	149	170	125	0	295
Oct-22	143	539	678	66	0	744
Nov-22	231	599	709	11	0	720
Dec-22	604	723	723	0	3	736