# RODAS
# (AN ECOTEL HOTEL)
# CASE STUDY

75F collaborated with Tata Power Trading Company Limited (TPTCL) to provide advanced solutions in HVAC optimization and Smart Building Automation, leveraging cutting-edge technologies. Rodas, an Ecotel Hotel, chose these partnered companies to deploy automated building controls, enhancing occupant comfort while optimizing energy efficiency. The outcome was significant energy savings of 95,810 kWh, equivalent to a 16.3% reduction from its baseline consumption.

## THE BACKGROUND

Rodas, a 3-star establishment, is nestled in the heart of Powai, the thriving business and residential hub in North Mumbai. Its 36 well-appointed rooms, inviting restaurant, and 3 versatile meeting venues offer a delightful blend of warm hospitality and contemporary aesthetics that exude a soothing ambience. Rodas proudly boasts an award-winning sustainability program that prioritizes optimal temperature control, energy efficiency, and streamlined HVAC operations through remote monitoring.

## THE CHALLENGE

In the hospitality industry, managing energy costs poses significant challenges, impacting overall efficiency and profitability. Prior to our solution implementation, the hotel faced escalating energy expenses and operational inefficiencies. Post-COVID financial uncertainties led to hesitancy in upfront investments, prompting us to offer an Opex model. Our retrofit-friendly solution seamlessly integrated with existing operations, minimizing disruptions while focusing on energy-saving measures.

## AT A GLANCE

| | |
|---|---|
| Location | Powai, Mumbai |
| Building Type | Hotel |
| Area | 27,297 Square Feet |
| 75F® Solutions | Chiller Plant Manager<br>Dynamic Chilled Water Balancing<br>Smart VFD Control<br>Number of AHU: 2<br>Number of Chilled Water Pumps: 2<br>Number of HyperStats: 14<br>Number of CCUs: 5<br>Number of EMs: 3<br>Number of BTU Meters: 3 |
| Results | Energy Saving: 17,400 kWh<br>Reduced $CO_2$ Emissions: 13,746 tons |
| Turnaround Days | 90 days from start to commissioning. |

75F

TATA POWER TRADING COMPANY LIMITED

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# THE SOLUTION

### Installation and Execution

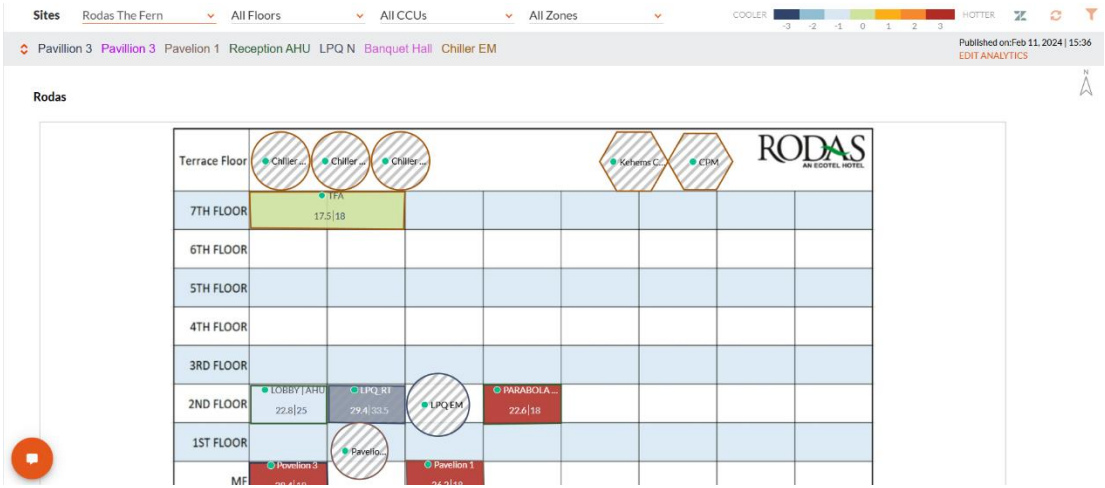
Installing and commissioning HVAC systems at a hotel near Mumbai International Airport posed unique challenges due to the continuous influx of travellers and consistently high occupancy rates. The 75F and TPTCL team identified opportunities for energy savings, meticulously planning shutdowns during non-peak hours to minimize disruption. They coordinated closely with the client and engaged in meetings with the chiller OEM to optimize the impact of the solution. A significant challenge was installing during non-peak hours. Fortunately, 75F's out-of-the-box IoT-based BMS suite, renowned for its rapid implementation, retrofit-friendly design, and ability to optimize HVAC operations in existing buildings, proved invaluable. The installation team strategically timed their work to align with AHU shutdowns required by operational protocols. During these brief windows, the 75F and TPTCL team efficiently deployed all necessary solutions. Moreover, the team conducted a thorough energy audit and detailed energy accounting to ensure optimal performance and maximize energy savings. This comprehensive approach underscored the team's commitment to enhancing efficiency and reducing operational costs.

### Dynamic Chilled Water Balancing (DCWB)

DCWB provides an innovative control solution for the chilled water line of Air Handling Units (AHUs). By harnessing the heat load demand calculated through the DAB algorithm, it optimizes chilled water flow. This is achieved by continuously monitoring the inlet and outlet temperatures and precisely controlling the CHW actuator. This results in minimized CHW usage while ensuring the desired temperature is maintained. Furthermore, the integration of the Central Control Unit (CCU), the existing BTU meter, and a new Actuator significantly contribute to reducing chilled water consumption, leading to substantial energy cost savings.

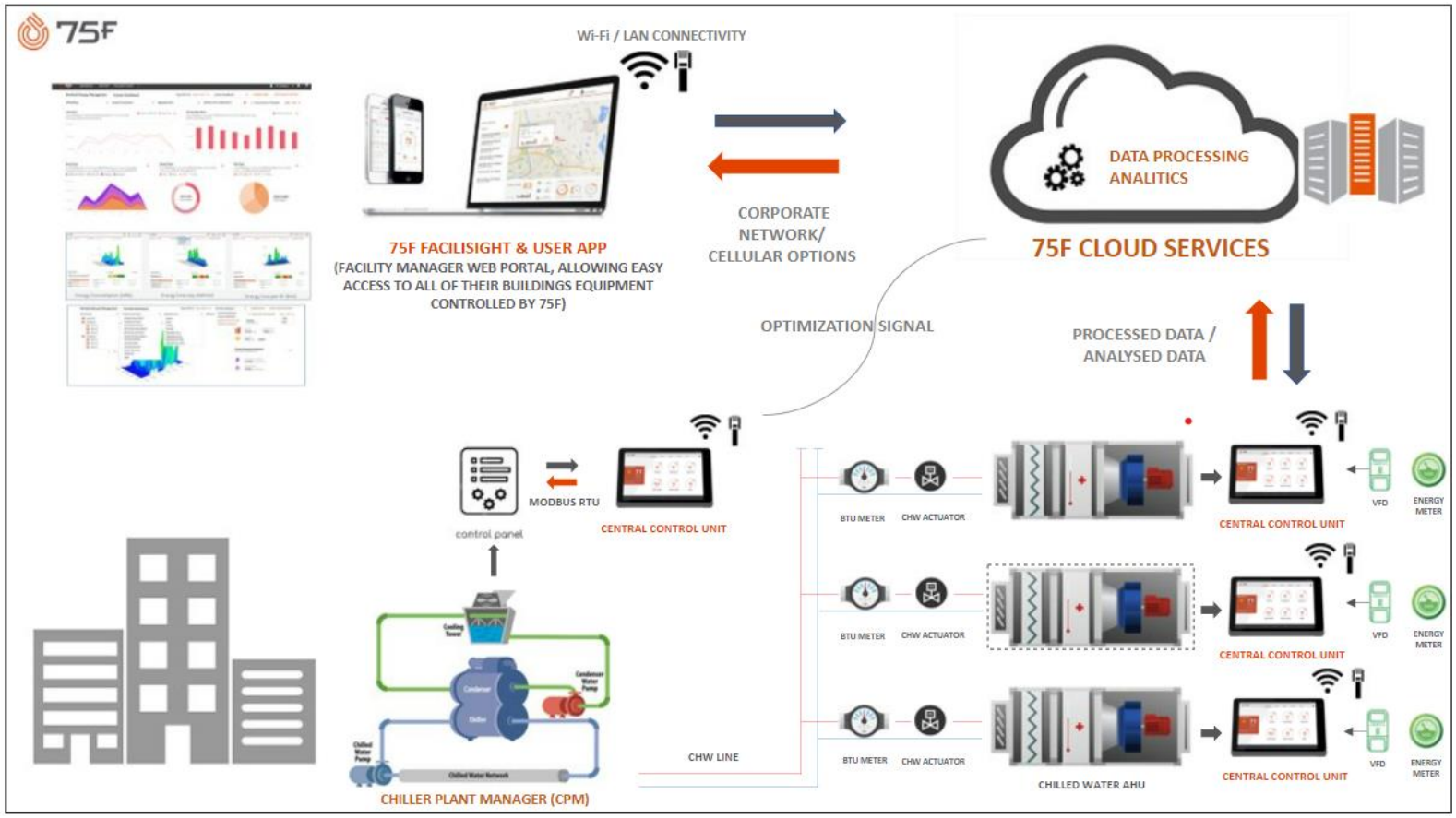
### Smart VFD Control

75F's Smart VFD Control is designed specifically for centralized HVAC systems and uses sensors at the AHU level to relay data wirelessly to the CCU. It then optimizes the AHU motor and CHW actuator operations allowing for energy savings that are achieved through precise temperature monitoring and control sequences. 75F's proprietary algorithms optimize control and modulate VFD and CHW actuators incrementally to achieve stable building temperatures, preventing overcooling from occurring. The algorithm also prioritizes different AHUs based on actual usage, helping to avoid energy leaks.



## Chiller Plant Manager (CPM)

75F's full-fledged Chiller Plant Manager 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.

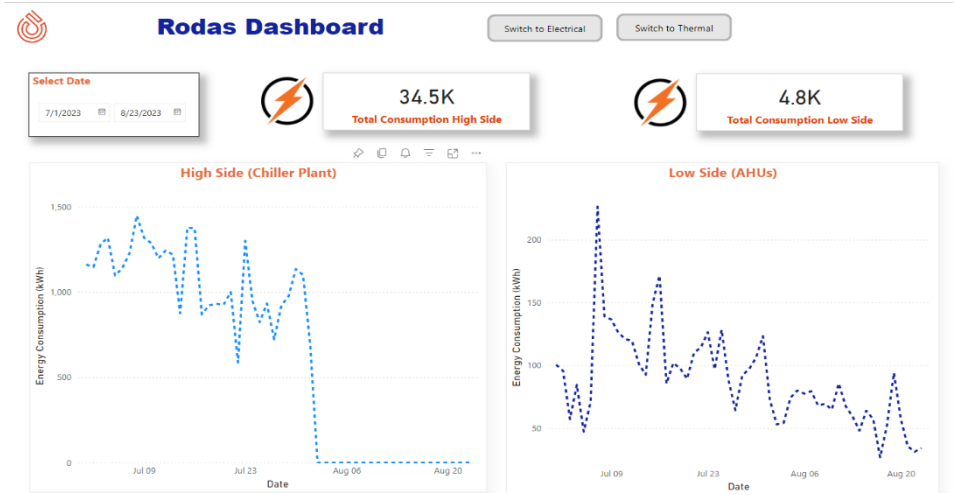


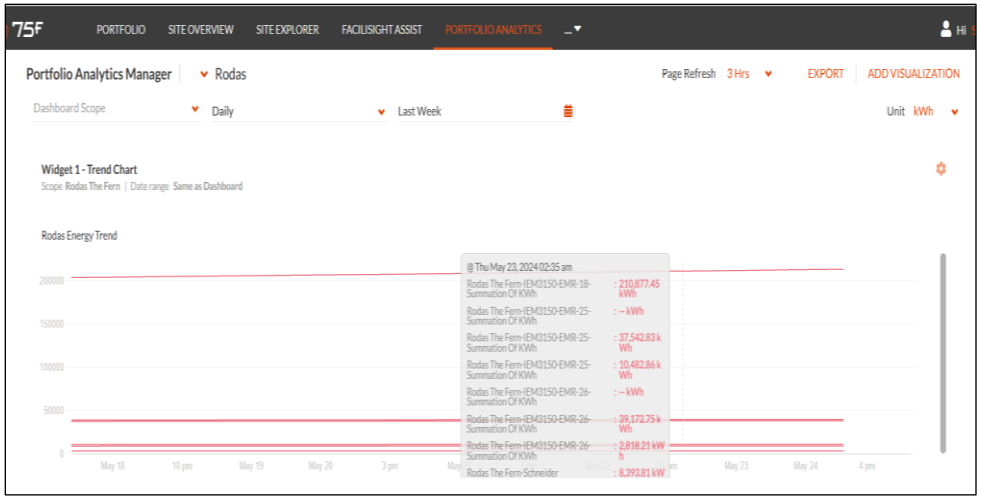

## 75F Facilisight

Facilisight offers multi-site visibility into HVAC energy consumption, allowing for automated control and monitoring. This AI-powered data analysis tool offers real-time insights for key metrics, including heatmaps and occupancy trends, allowing for minimal intervention of facility controls while enhancing energy efficiency and occupant comfort.

### HyperStat for Smaller Capacity CHW AHUs

For smaller-capacity CHW AHUs, 75F's HyperStat provides optimal control and savings in terms of energy use. This advanced thermostat not only manages TFA valves but also measures and displays essential parameters including IAQ, temperature, humidity, $CO_2$, VOC, PM2.5, Lux level, sound, and occupancy. The HyperStat seamlessly replaces older versions of thermostats and integrates effortlessly with the 75F IoT Platform for efficient remote monitoring.




# THE RESULTS

### Energy Savings

Energy Savings installation began in August 2023 and concluded by October 2023, requiring only 90 days for installation and commissioning. Energy data started flowing from December 2023 onwards. A significant improvement was the incorporation of **remote monitoring solutions**, providing real-time data access for **efficient control** and **enhanced occupant comfort.** Additionally, these capabilities played a crucial role in **optimizing energy usage**, leading to notable savings. Within three months, the **75F solution saved 95,810 kWh of energy** on the chiller plant and AHUs, representing a **16.3% reduction** compared to the baseline benchmark. Through our collective efforts, we've successfully **reduced $CO_2$ emissions** by a remarkable **76 tons**, a feat akin to **1,121 tree seedlings over 10 years 1121**.

### Collaborative Success

In the successful execution of our hospitality energy optimization project, invaluable support was provided by key stakeholders from Hiranandani Hotel and Tata Power. Mr. B. L. Walunj, Mr. Kundan Attarde, and Mr. Simon from Hiranandani Hotel exhibited unwavering commitment and collaboration throughout the project, ensuring its smooth implementation and success. Additionally, Mr. Amit Jain, Mr. Arpan Chhaya, and Ms. Ritika Jain from Tata Power played instrumental roles, bringing expertise and dedication to the table, thereby contributing significantly to the project's achievements. This collaborative effort exemplifies the power of partnership and collective action in driving sustainable solutions and achieving mutual success in the hospitality industry.