

Divine Utility Mall

CASE STUDY

75F collaborated with its strategic partner Tata Power Trading Company Limited (TPTCL) to provide a retrofit solution to Divine Utility Mall. This partnership enabled smart building automation with real-time monitoring and control, resulting in a significant energy savings of 2,57,837 kWh within 16 months, a 14% reduction from its baseline consumption.



THE BACKGROUND

Divine Utility Mall is the first retail and office landmark in the entire North and West regions of Delhi, thanks to its striking full frontal Glass Facade. This architectural feature not only enhances its aesthetic appeal but also serves a practical purpose by protecting its occupants against heat, noise, fire, and dirt. Reflective glass effectively manages solar radiation, while low-E glass is an insulator used during winter months. The building itself comprises 12 floors and includes three levels of basement parking. The design of Divine Utility Mall seamlessly integrates convenience, style, safety, and visibility throughout its facade, atrium, walkways, and corridors, making it a unique and functional space.

THE CHALLENGE

Divine Utility Mall, a decade-old commercial complex with high daily foot traffic, sought modern energy-saving solutions. Initially, the mall relied on manual data recording, with a dedicated operator managing plant room operations from the terrace, a challenging task given the building's 19 floors. The client required an automated system for real-time monitoring and control that wouldn't disrupt daily operations. Through Tata Power, advanced technology was seamlessly integrated into the complex, addressing the challenges of manual operations and enhancing overall efficiency.

AT A GLANCE

Location	Pitampura, New Delhi
Building Type	Commercial Building
Area	125,000 Square Feet
75F® Solutions	Dynamic Chilled Water Balancing
	Dynamic Airflow Balancing
	Chiller Plant Manager
	Number of AHU: 2
	Number of Chilled Water Pumps: 13
Results	Number of CCUs: 3
	Number of Chiller: 4 (800 TR)
	Number of Sensors: 16
	Number of BTU Meters: 2
	Energy Saving: 154,920 kWh
Turnaround Days	Reduced CO ₂ Emissions: 122 tons
Turnaround Days	60 days from start to commissioning



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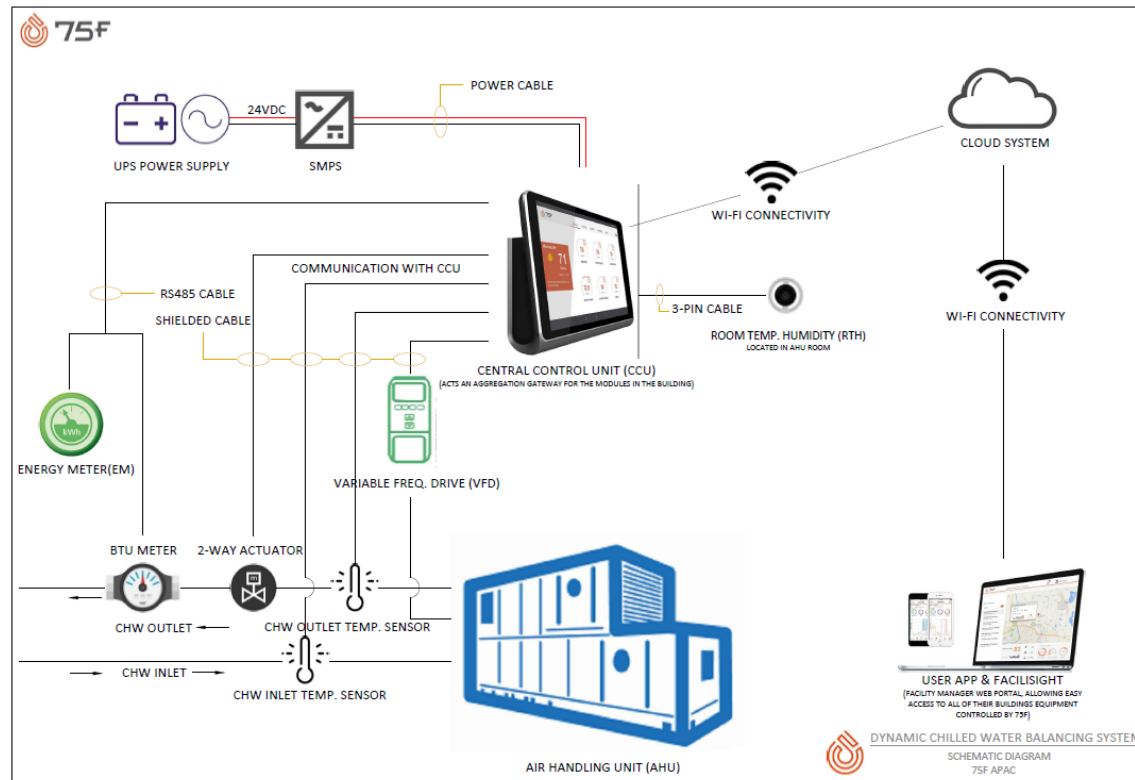
THE SOLUTION

Installation and Execution

75F and TPTCL successfully completed the installation and execution of the project despite facing several challenges. These included replacing BTU meters in confined spaces, configuring existing VFDs for automatic operation, and scheduling major shutdowns over weekends to ensure continuous office operations. During these limited windows, the 75F and TPTCL teams efficiently implemented all necessary solutions. Installation and commissioning were executed discreetly during night hours to minimize impact on occupants.

Dynamic Chilled Water Balancing (DCWB)

Dynamic Chilled Water Balancing (DCWB), offers a specialized 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 optimizes chilled water flow by monitoring temperatures at the inlet and outlet and regulating the Chilled Water (CHW) actuator accordingly. This precise control strategy minimizes 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, optimizing heat rejection through higher exit temperatures to minimize energy use, and balancing CHWS for improved chiller efficiency and reduced hydronic pump energy consumption. With customizable approaches, DCWB strikes a balance between comfort and energy savings, offering a comprehensive solution for optimizing chiller system performance under various conditions.



Dynamic Airflow Balancing (DAB) is a proprietary concept of the 75F system, designed to optimize HVAC performance in buildings. Recognizing 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, DAB 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.

75F's full-fledged Chiller Plant Manager controls and monitors Divine Utility Mall'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.



To learn more about our intelligent building solutions, visit www.75f.io

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.

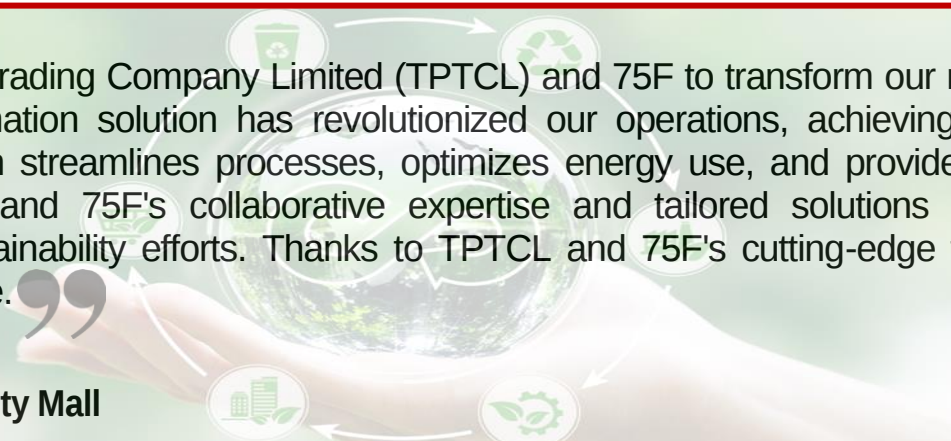
THE RESULTS

Energy Savings

Divine Utility Mall, a decade-old commercial complex, required automation for **real-time monitoring** and **control** without disrupting daily operations. By adopting 75F solutions, the mall has set a benchmark for other commercial complexes aiming to **modernize** their energy management systems. Within 16 months, they **saved 2,57,837 kWh of energy**, a **14% reduction** from the baseline. This achievement also led to a significant **reduction in CO₂ emissions** by **204 tons**, equivalent to carbon sequestered by **3,017 tree seedlings grown for 10 years** and providing **annual electrification** for **292 homes in rural areas**. This proactive energy management approach also **reduced operational costs** and aligned with **global sustainability goals**. Divine Utility Mall's commitment to cutting-edge technologies and sustainable practices serves as an inspiring example for others. With 75F's remote monitoring solutions, the facility management team can **operate activities remotely**, **saving time, effort, and manpower** while promptly **addressing comfort-related issues**.

Collaborative Success

Key stakeholders from Divine Utility Mall and Tata Power Trading Company Limited provided invaluable support during the successful execution of our energy optimization project at Divine Utility Mall Pitampura. Mr. Harish Kumar Rai and Mr. Sandeep Saini from Divine Utility Mall demonstrated unwavering commitment and collaboration, ensuring smooth implementation and success. Mr. Amit Jain and Mr. Gagan Chopra from Tata Power played instrumental roles, bringing their expertise and dedication, significantly contributing to the project's achievements. This project highlights the power of collaboration in driving sustainable solutions and achieving shared success. The dedication and expertise of both Divine Utility Mall and Tata Power were crucial in optimizing energy usage and implementing effective solutions. Together, we have set a benchmark for energy efficiency and sustainability in the commercial sector.



“We're excited to partner with Tata Power Trading Company Limited (TPTCL) and 75F to transform our mall into an energy-efficient hub. Their smart building automation solution has revolutionized our operations, achieving significant energy savings and cost reductions. The system streamlines processes, optimizes energy use, and provides real-time monitoring for proactive maintenance. TPTCL and 75F's collaborative expertise and tailored solutions have been instrumental in our success, enhancing our sustainability efforts. Thanks to TPTCL and 75F's cutting-edge technology, exceptional support and commitment to excellence.”

Harish Kumar Rai | Engineering Head, Divine Utility Mall



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