



ABOUND



A retailer uses Artificial Intelligence and remote services to digitally transform store operations in over 2,100 stores.

The retailer improved occupant comfort, transformed store equipment maintenance processes, launched automated demand response, and saved an average of over 19% on energy costs over a decade.

The Client

A large home improvement retailer with over 2,100 stores. The retailer operates many big-box format facilities in North America, with each store averaging over 100,000 square feet of indoor retail space.

The Challenge

The retailer wanted to take a predictive and proactive approach to improve store operations and resolve various issues related to HVAC and Lighting Systems leveraging technologies like the Internet of Things (IoT) and Artificial Intelligence (AI). The retailer also wanted to regulate demand charges better, remotely commission new equipment, and remotely troubleshoot various electrical and Heating, Ventilation, and Air Conditioning (HVAC) and controls related issues across stores.

The set of objectives included:

- 1) Improving energy savings
- 2) Improving occupant comfort
- 3) Improving maintenance effectiveness and reducing maintenance
- 4) Engaging in active demand management

To achieve these objectives and transform store operations, the retailer worked with Carrier Abound.

The Solution

Carrier Abound deployed multiple services to drive operational transformation for the retailer at the enterprise level. Our integrated solution combined store energy data, equipment behavior analytics, and field service management to enhance savings.

We onboarded all the stores of the retailer onto the Abound™ Insights platform. This involved integrating various HVAC, lighting, and other equipment inside the stores connected to existing Building Management Systems (BMS), and thus creating an intelligent network of connected infrastructure.

The platform predicts equipment behavior and either acts on the predictions or offers predictive, actionable insights and prescriptive recommendations. The insights and recommendations were focused on addressing the objectives of energy consumption reduction, improving equipment health and availability, maintenance cost reduction, and demand management.

The retailer was also supported by our BluEdge™ Command Centers. The centers are made up of specialized teams of domain experts and data scientists. The teams study the predictive insights from the platform to define action plans and ensure their completion in a timely manner. The teams worked 24/7 to proactively manage operations and equipment as well as provide quick responses and remote support to store managers.

The Abound Insights platform collected and analyzed data on a continuous basis from the

connected equipment and ran various algorithms on the data set. These algorithms help with predictive, actionable insights that are acted upon in 3 ways:



Autonomous Actions – Based on prior approvals from the retailer, certain defined actions were carried out directly and autonomously by the platform.

These actions were carried out through a store automation software package that enables store-level intelligence with auto-act capabilities. The software works with the Abound Insights platform, to allow users to leverage its predictive insights through implementing finer controls for energy efficiency and maintenance benefits. The store automation software package resides on the base control program for each store and can deploy multiple saving strategies and enable comfort features for individual stores, without conflict. It has the capability to act autonomously across a large equipment category such as rooftop units, lighting, sensors, etc.



Remote Actions – Certain predictive actionable insights from the platform were acted on remotely by the teams at the BluEdge Command Centers by logging into the store BMS. These actions were either pre-approved by the retailer or after consulting with them.



Field Actions – Other predictive actionable insights that could not be resolved remotely and required action from field technicians were converted into a truck roll through a Work Order Management System. Our team at the command centers would collate problems to be addressed at a store so that multiple fixes could be attended to, in one visit.

The Result

With the combination of the Abound Insights platform and the BluEdge Command Centers, the retailer was able to make store operations more proactive. This led to continuous savings and operational improvements over a 10-year period.

This partnership with Carrier Abound helped address the challenges and successfully achieve the targets across over 2,100 stores in the United States and Canada.

Here is a look at results for over 1,900 stores in the USA, in the year 2022:

- Energy savings of over 24% over the baseline year with year-on-year increased savings.
- Enhanced comfort by maintaining an average of over 94% temperature compliance against policy setpoints.
- An average of 80% of work orders and service calls were resolved remotely.
- An average reduction of 4 work orders per store per year and an increase in mean time between failure of HVAC equipment by over 26%.
- An average of over 8% reduction in peak demand charges for the target stores.

The effective use of historical data, analytics, and machine learning empowered facility managers to predict the impact of various factors and meet the capacity requirements of the new operating standards during and post the COVID-19 related lockdowns. With predictive insights and proactive actions, managers were able to fulfill their key objectives of maintaining air quality, occupant comfort, and energy efficiency while ensuring smooth operations.

This engagement also won a 2017 Environmental Leader Top Project of the Year award and was a finalist at the OPEX Awards 2022 in the category of “Best Digital Transformation Project”.

Write to us at abound@carrier.com for more on how we can help your company achieve its business and sustainability goals.

About Carrier Abound

Carrier Abound provides digitally connected lifecycle solutions and services for diverse building portfolios. The solutions and services enable building management to see deeply and broadly across their assets, prioritize and act on real-time insights, and refine, adapt, and scale on a continual basis to improve energy efficiency and asset performance, enhance occupant comfort and productivity, and streamline compliance reporting. Carrier Abound is part of Carrier Global Corporation.

For more information, please visit abound.carrier.com. Join the conversation on [LinkedIn](#).

