



# Aging equipment in a hardware store and an expansion was an opportunity to offer new design with reduced operational cost

44%

Reduced energy consumption

## Challenges

This 10,000 square foot hardware store was built in the mid-80s and was ready for a major equipment renovation. The business was looking for the optimum way to renovate using a holistic approach that would reduce the overall operational cost. An extensive audit by CVAL Innovations revealed two important facts. First, 34% of the customers' electrical bill is attributable to Oncor demand fees, Second, 95% of the direct Oncor fees were related to the actual demand usage charges.

With additional investigation, CVAL's audit team identified the following challenges also facing the owner:

- Ongoing repair expenses for old and deteriorating HVAC equipment were exceeding budget plans and availability.
- Operational cost increased due to inefficiency and outdated control systems.
- Inefficient and poorly designed lighting impacted customer and employee comfort.
- Infrastructure renovation had to be done economically and timely.

## Solutions

CVAL's audit included HVAC, lighting and thermal scans. The heat load calculations revealed that using a VRF system, instead of a light commercial unitary rooftop unit, would save a significant amount of energy. Our lighting portion of the audit demonstrated that using more efficient LED lights would make it possible to reduce the number of fixtures therefore, the energy consumption. The following are the summary of solutions:

- Replace existing RTU packaged unit with high-efficiency VRF system.
- Eliminated restrictive airflows to the HVAC intakes.
- Replace the thermostats with programmable intelligent internet thermostats.
- Installed software to integrate new systems with the existing systems.
- Installed new LED lighting to eliminate heat generation, improve visibility, and reduce energy usage.

The CVAL team designed all replacement equipment in the most energy efficient, innovative and cost-effective manner for that facility.

ROI

**4.1 years**