

HOLT PUBLIC SCHOOL DISTRICT

85% Energy Reduction with Avi-on Wireless Lighting Controls



Award-Winning K–12 School District Achieves 85% Lighting Energy Reduction with Avi-on Wireless Controls.

PROJECT OVERVIEW

Location: Holt, Michigan

General Contractor / ESCO: [Trane Technologies](#)

Electrical Contractor: [Electro-Matic](#)

Manufacturer: [Eспен Technology](#)

Holt Public Schools partnered with **Trane Technologies**, **Eспен Technology**, and **Avi-on Labs** to modernize lighting across **nine campuses** covering **711,500 square feet** and serving more than **5,000 students**.

Nearly **10,000 LED luminaires** and **8,000 Avi-on wireless control devices** were installed—without disrupting classes—thanks to Avi-on's **Bluetooth® with mesh, gateway-free technology**.

The district's goals were simple but ambitious:

- Improve lighting comfort and classroom environments
- Reduce energy waste
- Support long-term sustainability and cost savings

The project exceeded expectations, with a **projected \$3 million in energy savings over 12 years**.

THE CHALLENGE:

UPGRADING AN AGING, INEFFICIENT SYSTEM

Holt Public Schools faced several challenges common to public-sector projects:

- **Limited Funding**
A constrained millage tax bond left minimal room for technology upgrades, threatening to eliminate lighting controls from the project scope.
- **Rising Utility Costs**
Escalating energy prices diverted funds from instruction, staffing, and student programs.
- **Maintenance Overload**
Facilities staff spent excessive time replacing lamps and cleaning outdated fixtures instead of focusing on higher-value maintenance needs.
- **Inflexible Lighting Infrastructure**
Static fluorescent systems didn't adapt to changing classroom layouts, limiting teaching flexibility.

THE SOLUTION:

UPGRADING AN AGING, INEFFICIENT SYSTEM

Through innovative financing, high-efficiency retrofits, and Avi-on's intuitive wireless platform, the team delivered an advanced, scalable lighting control solution within budget.

1. Creative Financing through ESPC

Trane Technologies implemented an Energy Savings Performance Contract (ESPC), enabling the district to finance improvements through guaranteed energy savings rather than upfront capital—keeping the project off balance sheet.

2. Strong Utility Rebates for Networked Lighting Controls (NLCs)

Consumers Energy offered robust rebates that rewarded measured kWh savings—favoring systems with networked lighting controls. This structure amplified project ROI and helped the district reach the highest rebate tiers.

3. Easy-to-Install LED Retrofits

Espen Technology supplied volumetric LED retrofit kits with CCT-selectable options, simplifying installation and allowing tailored lighting per space type—all while reducing on-site labor time.



The ability to remotely program and support the system while students were still in class was a game changer. Avi-on made it incredibly easy for our staff to learn, manage, and maintain the system independently.

— Ryan Zoumbaris, Facilities Director, Holt Public Schools

4. Avi-on Wireless Lighting Controls

Avi-on Labs provided a Bluetooth® with mesh, gateway-free lighting control system that made installation, configuration, and scalability effortless.

Key design advantages included:

- **Hybrid System Architecture:** Fixture-embedded nodes and distributed ceiling sensors reduced material costs and installation time.
- **Minimal SKUs, No Gateways:** Only four core devices were required, streamlining logistics and configuration.
- **Factory Pre-Programming:** Avi-on pre-configured each device before shipment, allowing field teams to simply scan barcodes and enable remote commissioning—even during class hours.
- **Clear Communication:** Defined Control Intent Narratives (CIN) and Sequences of Operation (SOO) aligned expectations between all project stakeholders.

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Avi-on's wireless control platform enabled the district to combine multiple strategies for optimal results:

- **Occupancy/vacancy sensing** to automatically turn lights off when rooms are empty
- **Daylight harvesting** for natural light utilization
- **High-end trim/tuning** to lower the maximum lighting levels

Additionally, the system's built-in energy data tracking simplified Measurement & Verification (M&V) and ensured eligibility for top-tier utility incentives.



Avi-on's controls were the simplest we've ever installed. Pre-programming, remote commissioning, and the responsive tech support team kept everything on track and on time.

— Ben Riedel, Account Executive, Electro-Matic

THE RESULTS:

HIGH EFFICIENCY, HIGH SATISFACTION

- **Net Annual Savings: 1.1 million kWh**
- **LED Retrofit Alone: 67% energy savings**
- **LED + Avi-on NLCs: 85% total energy reduction**
- **ROI: Approximately 3 years**
- **Utility Rebates: \$201,729 earned solely through NLC performance**

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