LIGHTING ENERGY EFFICIENCY OPPORTUNITIES AT DETROIT CRISTO REY HIGH SCHOOL

Presented by:
K. Dwight Hawks, Reuben Metreger and Alexus Ford

DTE/ESD Energy Conference

May 3, 2022
Presentation Agenda

• Hawks and Associates Inc. Overview and Project Deliverable

• Introduce Reuben Metreger, Director of Facilities
  • Detroit Cristo Rey High School Overview

• LED Lighting Project Scope

• Benefits of LED Lighting Project

• Question and Answer
Mission Statement

To provide each client with the most cost effective, individualized, long-term energy management solutions by applying cutting edge technologies and practices as a valued member of their facility management team.

At Hawks & Associates, we believe successful energy management rests on six pillars:

◦ Teamwork
◦ Continuous energy education
◦ Conservation of energy and natural resources
◦ Protection of public health and the environment
◦ Reduction of waste
◦ Minimization of life cycle costs
Hawks & Associates Inc. Overview

- Engineering group that identifies and implements cost effective energy reduction opportunities for clients
  - Academic – Schools and Universities
  - Commercial – Offices and Warehouses
  - Ecclesiastic – Places of Worship
  - Industrial – Manufacturing Sites

- Supply Side

- Demand Side
  - HVAC
  - Lighting
  - Other
Licenses, Certifications and Memberships

- Licensed Professional Engineer (MI, IL)
- Leadership in Energy and Environmental Design Accredited Professional
- Certified Energy Manager
- Certified Wind Site Assessor
- Certified Renewable Energy Integrator *
- American Society of Heating, Refrigeration and Air Conditioning Engineers
- Association of Energy Engineers
- Engineering Society of Detroit
- Great Lakes Renewable Energy Association
- Michigan Hispanic Chamber of Commerce
- Michigan Minority Supplier Development Council

*Pending
Introduction Of:

- Reuben Metreger
- Director of Facilities and Transportation for Detroit Cristo Rey High School
(VIDEO)

Detroit Cristo Rey High School Intro
LED Lighting Project Deliverable

◦ Develop and Install a LED Lighting Controls System for Detroit Cristo Rey High School which provides:

  ◦ Baseline lighting costs in the existing environment can be determined
  
  ◦ Develop a proposal where an optimal LED lighting project would maximize lighting energy savings utilizing cost effective lighting technologies
    ◦ Motion sensors
    ◦ Daylight harvesting
    ◦ Energy monitoring

*Pending
### Lighting Statistics
- **Total Energy Saved**: 10.6 MWH
- **Total Dollars Saved**: $51,109.31
- **Total CO2 Saved**: 14,386.98 LBS
- **Percent Savings**: 30.05%

### Controls Savings
- Last 24 Hours
- Energy Savings: 3.53 MWh

### Weather
- Current weather data is older than 24 hours
- Forecast Conditions: n/a
- Current Temperature: n/a
- Today: high n/a low n/a
- Tomorrow: high n/a low n/a
Detroit Cristo Rey High School
5679 W Vernor, Detroit, MI 48209  |  Map It
Portfolio Manager Property ID: 19873523
Year Built: 1928
Edit

ENERGY STAR Score (1-100)
Current Score:  61
Baseline Score: 57

Summary | Details | Energy | Water | Waste & Materials | Goals | Design

Refresh to see Source EUI Trend
Change Metric

<table>
<thead>
<tr>
<th>Year</th>
<th>Source EUI (kBtu/ft²)</th>
<th>Site EUI (kBtu/ft²)</th>
<th>Energy Cost ($)</th>
<th>Total GHG Emissions Intensity (kgCO₂e/ft²)</th>
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<td>2017</td>
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<tr>
<td>2019</td>
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<td>2021</td>
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Metrics Summary

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<th>Apr 2020 (Energy Baseline)</th>
<th>Feb 2022 (Energy Current)</th>
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<td>Energy Cost ($)</td>
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<td>Total GHG Emissions Intensity (kgCO₂e/ft²)</td>
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<td>5.4</td>
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Change Metrics
Change Time Periods
Energy Use by Calendar Month (Not Weather Normalized) for Detroit Cristo Rey High School

Site Energy (kBtu)

Electric - Grid  Natural Gas

Jan '19  May '19  Sep '19  Jan '20  May '20  Sep '20  Jan '21  May '21  Sep '21  Jan '22
Detroit Cristo Rey High School (Before)
Detroit Cristo Rey High School (After)
LED Lighting Project Scope of Work (452 Fixtures)

✓ Type of Fixture

✓ Linear 402
✓ Quad 21
✓ Incandescent 25
✓ Outdoor 4

*Pending
LED Lighting Project Benefits

✓ Detroit Cristo Rey High School was able to finance the entire lighting project with minimal upfront capital thru Michigan Saves at 0% interest for four (4) years

✓ Reduced lighting costs by approximately $21,000 annually; improved the lighting system efficiency by 85%

✓ Received a Lighting Efficiency Improvement Rebate from DTE Energy of over $18,500

✓ Improved light levels throughout the school using dimmable LED lamps

✓ “Touchless” controls throughout the entire school building, therefore, eliminating wall switches; each teacher/administrator has a remote “wireless” touchpad for their respective classroom/office to dim/turn off lighting

✓ Lower lighting maintenance costs thru longer lamp life (typically 7+ years)

✓ Energy monitoring of LED lamp and lighting fixture

*Pending
Services

- Energy Audits
- Engineering Studies
- Measurement & Verification
- Architectural Design
- Environmental Compliance
- Installation
- Financing
Partial Client List

- **Energy and Lighting Audits**
  - 5110 Bellevue LLC
  - AT&T
  - Caniff Liberty Academy
  - Chelsea District Library
  - Comerica
  - Greektown Casino & Hotel
  - Detroit Community Schools
  - Detroit Public Library
  - Detroit Public Schools
  - First Baptist Institutional Church
  - Hope United Methodist Church
  - Martin Luther King Education Center
  - Matrix Human Services - Plymouth
  - Memorial Sloan Kettering
  - Tabernacle Missionary Baptist Church

- **Photometric Studies**
  - CB Richard Ellis

- **HVAC Projects**
  - Matrix Human Services – Cecil
  - Matrix Human Services – Manuel Reyes
  - Shearer’s/Frito Lay

- **Performance Contracting**
  - Ford Motor Company
  - Ocean Spray
Questions
Thanks to all of you!
Thanks to the Detroit Cristo Rey High School Staff!

To get started on your project or for additional information, contact us at

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