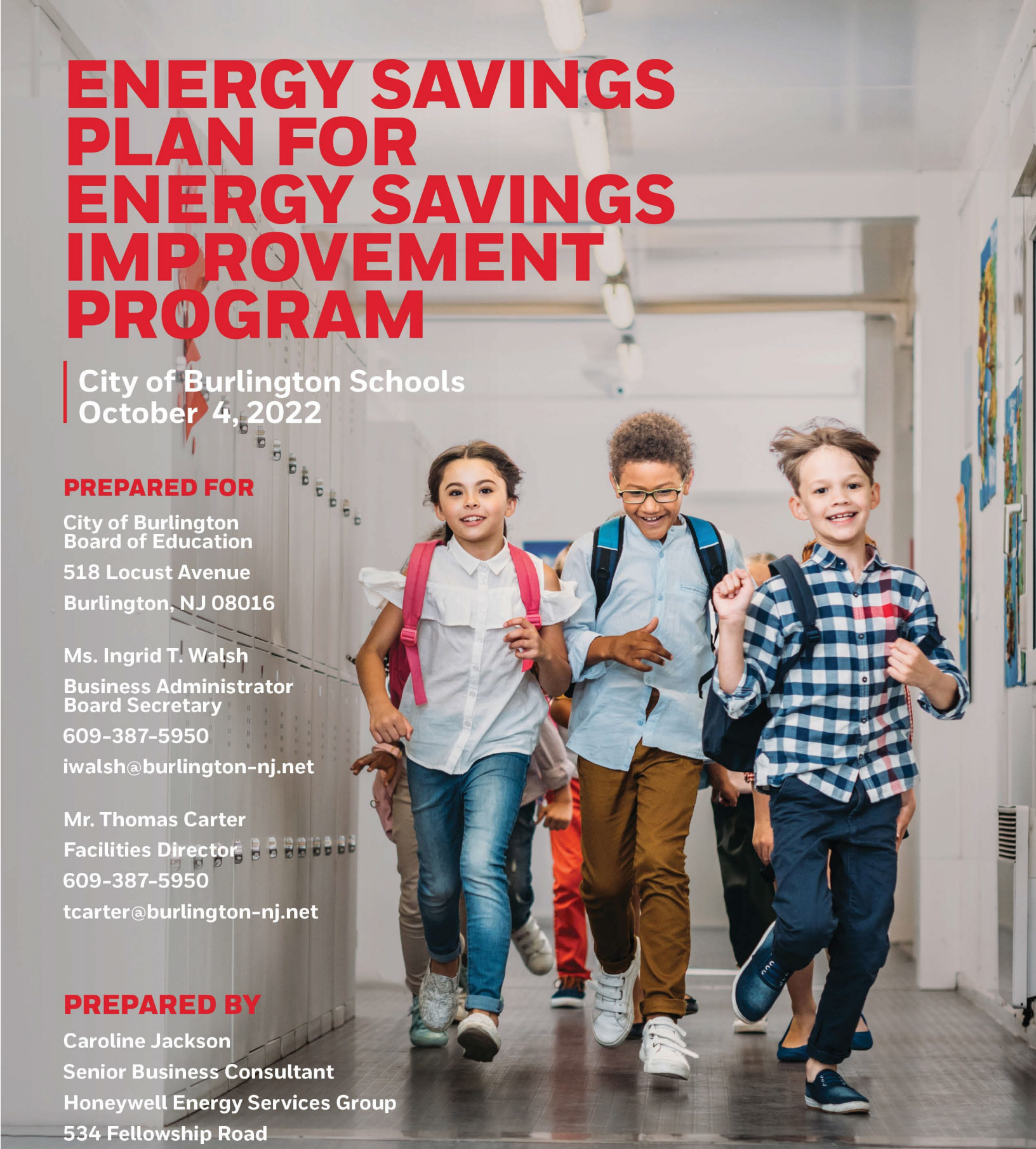
ENERGY SAVINGS PLAN FOR ENERGY SAVINGS IMPROVEMENT PROGRAM

City of Burlington Schools
October 4, 2022



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Honeywell

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Right to Negotiate

Honeywell has reviewed the Request for Proposals and, if selected, reserves the right to negotiate mutually acceptable terms and conditions of any resulting contract.

Budgetary Proposal

Notwithstanding any other provision of this document, this budgetary proposal is provided for information and planning purposes only, is non-binding, and does not constitute an offer capable of acceptance. Honeywell will be pleased to provide a firm price proposal upon request, subject to its internal approval requirements.

Honeywell reserves the right, in its discretion, to increase the price(s) set forth in this Proposal in the event that tariffs (or similar governmental charges) imposed by the United States or other countries result in any increase in the costs that Honeywell used to determine such price(s).

Equitable Extension of Time

Notwithstanding anything to the contrary, in light of the COVID-19 pandemic, the effects of which cannot be foreseen, the parties agree that Honeywell shall be entitled to an equitable extension of time to deliver or perform its work and appropriate additional compensation to the extent Honeywell's delivery or performance, or the delivery or performance of its suppliers and/or subcontractors, is in any way delayed, hindered or otherwise affected by the COVID-19 pandemic.

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SECTION A
EXECUTIVE SUMMARY

Section A – Executive Summary

Thank you for using your Omnia membership to engage Honeywell to develop an Energy Savings Plan for the City of Burlington Schools (the District).

It is clearly understood for this Energy Savings Plan that the School District selected Honeywell via the Omnia Cooperative to identify conservation measures, plan, design, oversee, supervise, and commission the services offered via the Omnia Partnership COOP.

It is understood that in order to remain compliant with the services of the COOP for the City of Burlington Schools; that ALL public works in conjunction with the School District and in accordance with NJ Public Contract Law (NJSA 18A:18A-1 et seq.) will be procured according to State requirements. To clarify further, this applies to a public works projects including and not limited to installing electrical, lighting, plumbing, HVAC systems etc.

Burlington City School District completed a Level II Audit with CHA in 2014, The District requested a waiver to the timeframe, compiled an updated utility history and certified that there have been no additional square footage or major changes since that audit. In addition to Honeywell completing a Technical Audit as part of our selection, CHA completed a review as part of the PSE&G Engineer Solutions review which is on-going.

During the development of the Energy Savings Plan, Honeywell has completed a thorough investment grade energy audit of the City of Burlington Schools buildings. Based on the audit findings and Honeywell's extensive experience in working with school districts, we can confidently state this plan can identify a project that is financially viable in a comprehensive manner to address the City's facility concerns and goals.

This Energy Savings Plan includes projects that achieve energy and operational efficiencies, create a more comfortable and productive environment and are actionable via the New Jersey Energy Savings Improvement Program (NJ ESIP) in accordance with NJ PL2012, c.55.

The Energy Savings Plan is the core of the NJ ESIP process. It describes the energy conservation measures that are planned and the cost calculations that support how the plan will pay for itself through the resulting energy savings. Under the law, the Energy Savings Plan must address the following elements:

- A description of the energy conservation measures (ECMs) that will comprise the program.
- An estimate of greenhouse gas reductions resulting from those energy savings.
- Identification of all design and compliance issues and identification of who will provide these services.
- An assessment of risks involved in the successful implementation of the plan.
- Identify the eligibility for, and costs and revenues associated with, the PJM Independent System Operator for demand response and curtail-able service activities.
- Schedules showing calculations of all costs of implementing the proposed energy conservation measures and the projected energy savings.
- Maintenance requirements necessary to ensure continued energy savings, and describe how they will be provided; and

Additionally, the use of Omnia Cooperative in the selection of Honeywell is allowed under NJ Public Contracts law as outlined in LFN 2012-10 and consists of the following elements and authorized by DLGS/DCA as well as the following elements:

- An organization (profit or not-for-profit) that coordinates and aggregates contracts from different state and local governments and promotes their use."
- In the context of the LPCL and PSCL, the provisions of this notice apply when the aggregate value of the goods or services (see N.J.A.C. 5:34-8.2) exceeds the contracting unit's bid threshold."
- The national cooperative contract must have been advertised as a national or regional cooperative and awarded pursuant to a competitive bidding process that complies with the laws applicable.
- The LFN requires that if a national cooperative contract is chosen, the calculation of cost savings from using this approach must be documented: The Law requires that a contracting unit can use national cooperatives only when the contracting unit determines "that the use of the cooperative purchasing agreement shall result in cost savings after all factors, including charges for service, material, and delivery, have been considered."
- The LFN states that if using an online ordering system, local officials must put "appropriate internal controls" in place to ensure that purchases are documented and that an audit trail exists
- Per the LFN, the Burlington BOE must verify that the selected vendor complies with applicable New Jersey procurement documentation requirements by submitting the following required forms.
  - New Jersey Business Registration Certificate for the contractor and any subcontractors (i.e., copy of certificate)
  - Statement of Corporate Ownership (an original form prepared for the contracting agency awarding the contract)
  - Public Contract EEO Compliance (Employee Information Report form or proof of participation in a federally approved affirmative action program)
  - Non-collusion Affidavit

The purpose of this document is to provide all the information required for the Third-Party Engineer and the BPU to approve the energy savings and calculations so the District can move forward with an ESIP to accomplish infrastructure improvements with the savings from this program. It is important to note that the Energy Savings Plan provides a comprehensive evaluation of ALL potential ECMs within the City of Burlington Schools. This is not meant to infer that all the ECMs identified can be implemented. However, if the ECM is part of this plan, it may be implemented later as additional funding becomes available or technology changes to provide for an improved financial return.

This Energy Savings Plan is structured to clearly demonstrate compliance with the NJ ESIP law, while also presenting the information in an organized manner which allows for informed decisions to be made. The information is divided into the following sections:

A. **Executive Summary** (This Section)

B. **Preliminary Utility Analysis** – The Preliminary Utility Analysis (PUA) defines the utility baseline for the City of Burlington Schools buildings included in the Energy Savings Plan. It provides an overview of the current usage and a cost per square foot by building of utility expenses.

   The report also compares the City of Burlington Schools' utility consumption to that of other districts in the same region on a per square foot basis.

C. **Energy Conservation Measures** – This section includes a detailed description of the ECMs we have selected and identified for your School District. It is specific to your facilities in scope, savings methodology and environmental impact. It is intended to provide a basis of design for each measure in narrative form. It is not intended to be a detailed specification for construction. ALL potential ECMs for the City of Burlington Schools are identified for the purposes of potential inclusion in the program. Final selected ECMs are to be determined solely by the City of Burlington Schools and the financial goals outlined within the ESIP program to be self-funding within existing budget guidelines.

D. **Technical and Financial Summary** – This section includes an accounting of all technical and financial outcomes associated with the ECMs as presented. The information detailed on the forms includes projected implementation hard costs, projected energy savings, projected operational savings and projected environmental impact. Form VI: Annual Cash Flow Analysis provides a "rolled-up" view of the overall project financials, inclusive of financing costs, on an annual basis as well as over the entire 15-year term of the agreement.

E. **Measurement & Verification and Maintenance Plan** – This section identifies the intended methods of verification and measurement for calculating energy savings. These methods are compliant with the International Measurement and Verification Protocols (IMVP), as well as other protocols previously approved by the Board of Public Utilities (BPU) in New Jersey. This section also includes the recommended maintenance requirements for each type of equipment. Consistent maintenance is essential to achieving the energy savings projected in this plan.

Appendices 1, 2 & 5 – The following files have been uploaded to the Teams Room Folders and are as follows:

- Appendix 1 — ECM CALCULATIONS.pdf and LIGHTING DETAILS.pdf
- Appendix 2 — EQUIPMENT CUTSHEETS.pdf
- Appendix 5 — Burlington City School District Level II Energy Audits.pdf

Appendices 3&4 —These documents are included in our submission:

- Appendix 3— OMNIA COOPERATIVE / NJ PROCUREMENT DOCUMENTATION
- Appendix 4 – FORMS AND REQUIRED DOCUMENTS
- Appendix 5 — Letter from District certifying no changes to the building since the Original LGEA.

Benefits

The measures investigated in this Energy Savings Plan could result in an annual utility savings of 1,573,425 kWh of electricity and save 50,031 therms of natural gas. Additionally, these energy savings will result in a net reduction of greenhouse gases and will reduce the school district's carbon footprint by 733 MTE of CO2 annually. This is equivalent to removing 155 cars from the road annually and /or 695 forested acres per year. All these savings are achieved while improving the classroom environment and renewing many items that have been in service beyond useful life expectancy.

Overall, it is evident that the City of Burlington Schools is well positioned to implement a program that will upgrade your facilities, while funding itself within the requirements of the law and with zero impact on your taxpayer base. We appreciate the opportunity to provide the District with this guideline to improve the comfort and efficiency of your facilities through the successful implementation of this Energy Savings Plan should the district decide to move forward with a project.

SECTION B
PRELIMINARY UTILITY ANALYSIS (PUA)

Section B — Preliminary Utility Analysis (PUA)

Honeywell

Preliminary Utility Analysis

Burlington City Schools
Burlington

Helping customers manage energy resources to improve financial performance

Executive Summary

Honeywell would like to thank you for the opportunity of providing you with this Preliminary Utility Analysis. A one year detailed billing analysis was completed for all utility data provided by your staff. The facility's electric and gas consumption were compared to a benchmark of typical facilities of similar use and location. It should be noted however, that some of Buildings which make up the benchmarking standards are not equipped with mechanical cooling (air conditioning). Therefore, these buildings may unjustly appear to be less efficient in comparison.

Through our Energy Services offerings, Honeywell's goal is to form a long term partnership for the purpose of meeting your current infrastructure needs by focusing to:

- Improve Operational Cost Structures
- Ensure Satisfaction
- Upgrade Infrastructure While Reducing Costs
- Meet Strategic Initiatives
- Leverage Teamwork
- Pursue Mutual Interests
- Provide Financing Options

How does it work?

Under an energy retrofit solution, Honeywell installs new, energy efficient equipment and optimizes your facility, as part of a multi-year service contract. Most of these improvements are cost-justified by energy and operational savings. Some of the energy conservation measures provide for a quick payback, and as such, would help offset other capital intensive energy conservation measures such as, boilers, package rooftop units, domestic hot water heaters, etc. The objective is to provide you with reduced operating costs, increased equipment reliability, optimized equipment use, and improved occupant comfort.

After review of the utility analysis, you can authorize Honeywell to proceed with the development of a detailed engineering report. The report development phase allows Honeywell to prepare an acceptable list of proposed energy conservation measures, which are specific to the selected facility. Some examples of typical Energy Conservation Measures include:

- Lighting
- Control Systems
- Boilers
- AC Units/Condensers
- Building Enevelope
- Package Rooftop Units
- Domestic Hot Water Heaters
- Plug Load Management

Why Honeywell?

- Honeywell is one of the world leaders in providing infrastructure improvements
- With Honeywell as your building partner, you gain the advantage of more than 115 years of leadership in building services
- Honeywell has the infrastructure and manpower in place to manage and successfully implement your project
- Honeywell has over 30 years experience in the energy retrofit marketplace with over $5 Billion in customer energy savings
- Honeywell provides you with "Single Source Responsibility" - from Engineering to Implementation, Servicing and Financing (if desired)

Energy Benchmarking

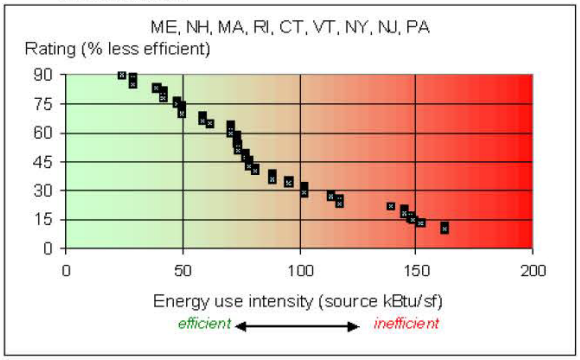
The calculation of EUI (Energy Use Intensity) is shown below. EUI, expressed in kBtu/sf, is normalized for floor area, the most dominant influence on energy use in most buildings. Its use usually provides a good approximation of how your building's energy performance compares to others. Site EUI indicates the rate at which energy is used at your building (the point of use). Source EUI indicates the rate at which energy is used at the generation sources serving your building (the point of source) and indicates the societal energy penalty due to your building The lower the EUI, the higher the rating, indicating that the building is more efficient than other buildings. The greater the EUI, the lower the rating, indicating that there is an opportunity for higher potential benefits from operational improvements.

The Source EUI below has been applied to a Department of Energy statistical model from the Oak Ridge National Laboratory. The Department of Energy has estimated energy use and cost reductions for building source EUI ratings (percentiles) in the table below. Please see the DOE Regional Source EUI Comparison graph below to rate your building in relation to the regional distribution of similar type buildings. (Note: The Source EUI includes the inefficiencies of electrical generation and transmission. A reduction in 'electrical' source EUI includes a benefit in terms of reduction of air pollution emissions and green house gases, and is thus an indicator of societal benefit.)

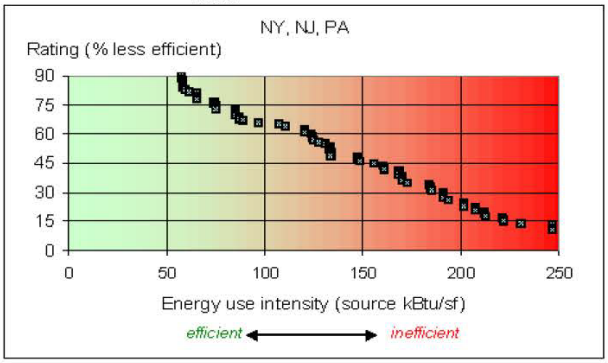
Source EUI Rating for your Building	Energy use and cost reduction potential (%)	Walk-thru energy assessment recommended?
above 60%	below 25%	No
40 to 60%	20 to 35%	Maybe
20 to 40%	35 to 50%	Yes
Below 20%	above 50%	Definitely

Site EUI Rank		Annual Total Electrical Use (kWh)	Annual Total Non-Electrical Fuel Use (Therms)	Building Gross Floor Area (sq-ft)	Site EUI Rating	Source EUI: Annual Total Source Energy Use per Sq-Ft (kBtu/sf)	Rating (Regional Source EUI Comparison)
1	Burlington City HS	2,441,854	106,553	207,701	**91**	**173**	5%
2	Wilber Watts IS	1,614,636	67,676	108,164	**114**	**217**	5%
3	Samuel Smith ES	289,880	38,951	49,360	**99**	**140**	15%
4	Captain James Lawrence ES	426,923	44,730	34,920	**170**	**254**	5%
		4,773,293					

School Facilities



Offices



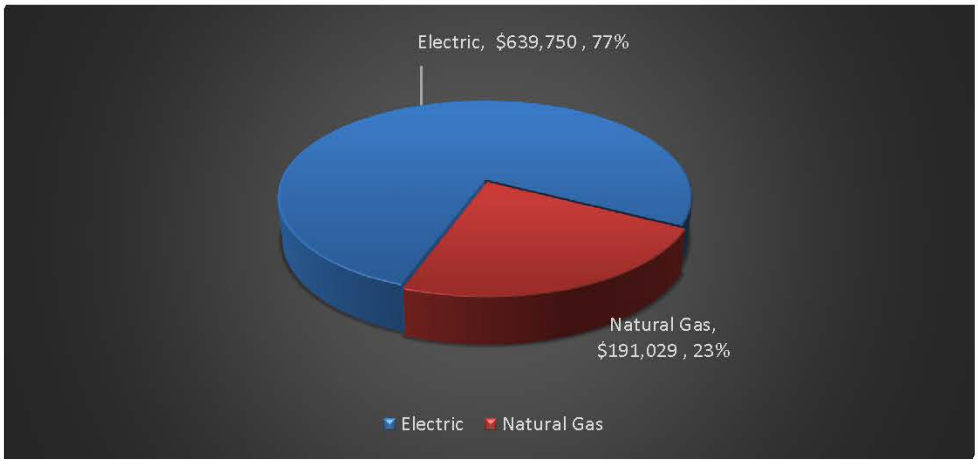
Historical Summary

Utility Analysis Period:
October 2020 through September 2021

	Electric	Natural Gas
Utility Costs*	$639,750	$191,029
Utility Usage (kWh, Therms)	4,773,293	257,911
$ Cost/Unit (kWh, Therms)	$0.13403	$0.741
Annual Electric Demand (kW)	11,179	

* Costs include energy and demand components, as well as taxes, surcharges, etc.

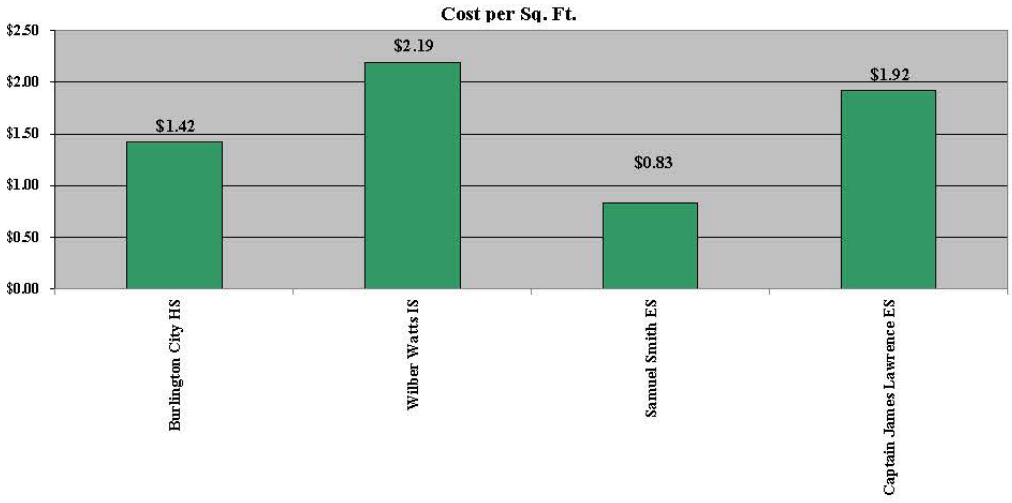
Actual Cost by Utility
October 2020 through September 2021

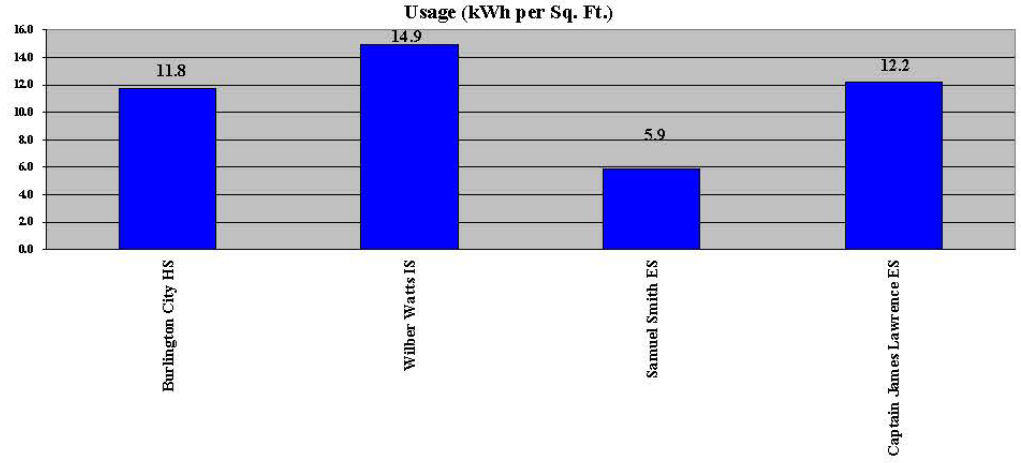


Total Cost
$830,780

Utility Analysis
Electric

Square Footage Analysis

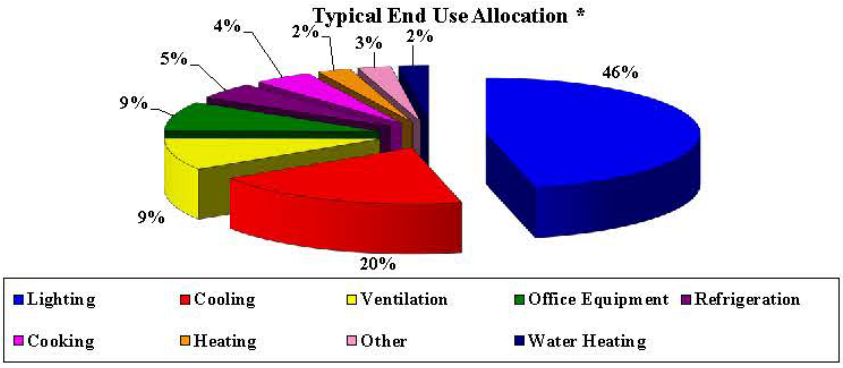




Note: Average kWh/SF for School buildings in this climate zone is 9.0

Electric

Sources of Electric Consumption

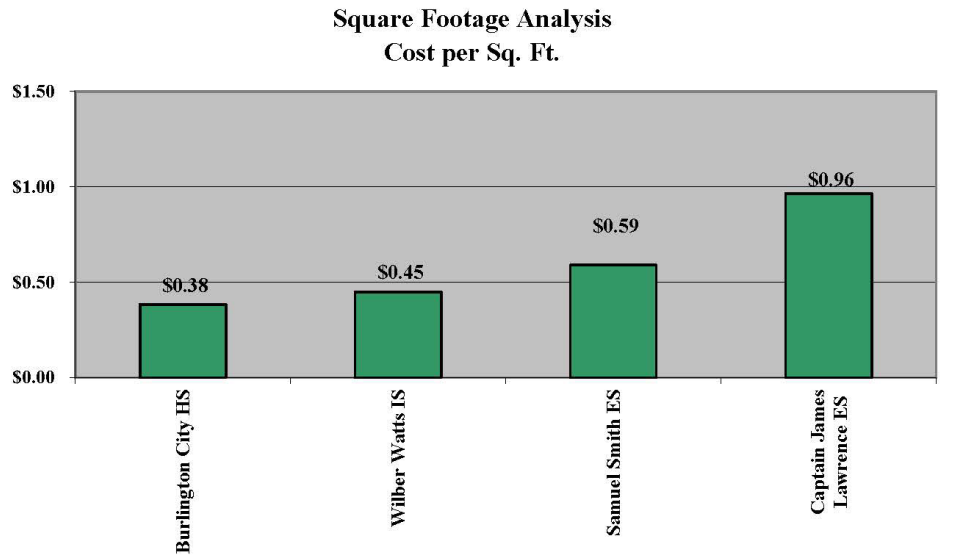


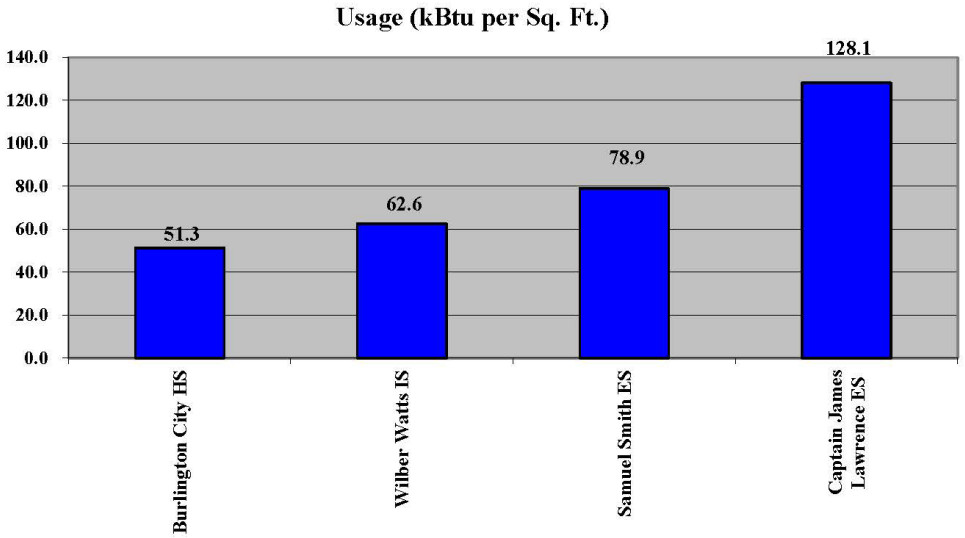
**This allocation is generic and is not a representation of the actual end use in your buildings included in this report.

Typical Allocation Applied to Your Electric Cost**

	Lighting	$296,204
	Cooling	$125,391
	Ventilation	$58,857
	Office Equipment	$55,019
	Refrigeration	$30,068
	Cooking	$28,149
	Heating	$15,994
	Other	$15,994
	Water Heating	$14,075
Your Total Cost	**October 2020 through Septembe**	**$639,750**

Utility Analysis
Natural Gas

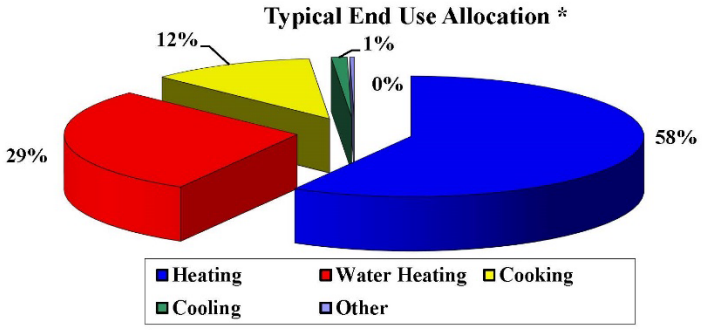




Note: Average kBTU/SF for School buildings in this climate zone is 46.1

Utility Analysis
Natural Gas

Sources of Usage
Natural Gas



**This allocation is generic and is not a representation of the actual end use in your buildings included in this rep

Typical Allocation Applied to Your Cost**
Natural Gas

Heating	$111,370
Water Heating	$55,207
Cooking	$21,777
Cooling	$2,101
Other	$573
Your Total Cost October 2020 through Septembe	**$191,029**

Annual Emissions & Environmental Impact

Burlington City Schools

October 2020 through September 2021

Based on the US Environmental Protection Agency -
Greenhouse Gas Equivalencies Calculator
http://www.epa.gov/cleanenergy/energy-resources/calculator.html

The following energy usage, cost and pollution have been quantified:

Total Annual Electric usage	4,773,293	kWh
Annual Natural Gas usage	257,911	Therms

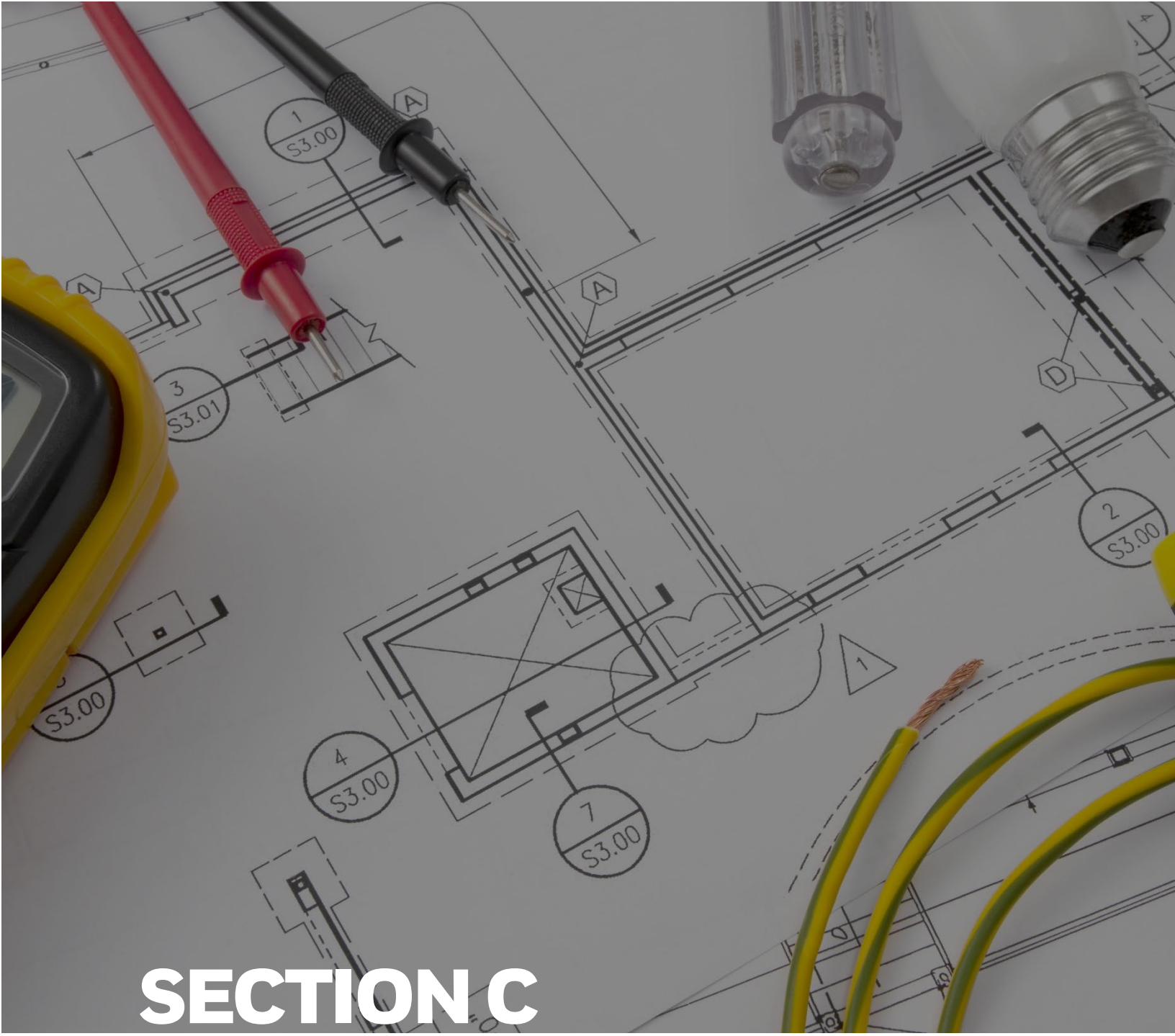
Electric Emissions	
0.00070742	$MTeCO_2$ per kWh saved
Natural Gas Emissions	
0.05302541	$MTeCO_2$ per MMBtu saved
Equillivent Cars	
0.214132762	Cars/ 1MTeCO2
Forrested Acres	
1.3063142	Forested Acres Factor/ 1MTeCO2

Annual Greenhouse Gas Emissions (Metric tons of equivalent of CO2)		
eCO2 (Electric)	3,377	MT
eCO2 (Gas)	1,366	MT
Total eCO2	4,742.304	MT

This is equivalent to one of the following:	
1018	No. of passenger vehicles - annual greenhouse gas emissions
6195	No. of acres of U.S. forests - carbon sequestered annually

Potential Retrofits

Retrofit Description	Utility/Fuel Type	Common Recommendations for Action
Lighting Retrofit and Motion Sensors	Electric/Natural Gas	Upgrade lighting and lighting controls
De-Stratification Fans	Electric/Natural Gas	Redistribution of Conditioned Air
Boiler Replacement	Natural Gas	Install high efficient, modular, condensing boilers
DHW Boiler/Tank Replacements	Electric/Natural Gas	Higher Efficiency Units
RTU Replacements	Electric/Natural Gas	Higher Efficiency Units
Building Management System Upgrades	Electric/Natural Gas	Reduce equipment run-time and provide better comfort
Building Envelope Improvements	Electric/Natural Gas	Reduce building leakage
Roof Replacements	Electric/Natural Gas	Reduce building leakage
Computer Controllers	Electric	Put computers to sleep when building is unoccupied
Install Premium Efficient Motors/Variable Frequency Drives	Electric	Provide more efficient motors and variable frequency drives
Transformer Replacements	Electric	Provide more efficient transformers with reduced amounts of excess heat to the spaces
Water Thermal Conservation	Natural Gas	Lower water thermal consumption



SECTION C
ENERGY CONSERVATION MEASURES (ECMS)

Section C – Energy Conservation Measures (ECMs)

Introduction

The information used to develop this section was obtained through the independent energy audit building surveys to collect equipment information, interviews with operators and end users, and an understanding of the components to the systems at the sites. The information obtained includes nameplate data, equipment age, condition, the system's design and actual load, operational practices and schedules, and operations and maintenance history.

Honeywell has done a review of the Energy Conservation Measures (ECMs) which would provide energy and cost savings the District. This report aims to be an assessment of the feasibility and cost effectiveness of such measures, and an indication of the potential for their implementation. The ECMs listed below have been reviewed throughout your facilities for consideration within a complete Energy Savings Plan. What follows is a general description of the energy auditing process and the detailed descriptions of the ECMs for your facilities.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
1A LED Lighting Upgrades	■	■	■	■
1B Lighting Controls	■	■		
1C LED Field Lighting	■	■		
1D De-Stratification Fans w/ UV Disinfection	■	■	■	■
2A Boiler Replacements			■	■
2B Burner Replacements and Controls			■	■
2C Domestic Water Heater Replacement	■	■	■	■
2D Chiller Replacements	■	■		
2E Split System Replacements	■	■	■	■
2F Convert Steam to Hot Water System			■	■
2G Vacuum Tank Replacements			■	■
2H Kitchen Hood Controllers	■	■		
3A Building Management System Upgrades	■	■	■	■
3B FORGE Energy Optimization	■	■	■	■
4A Building Envelope Improvements	■	■	■	■
4B Roofing Upgrades			■	
5A Permanent Load Reduction	■	■	■	■
6A Cogeneration CHP	■			

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
7A Solar PPA	■	■	■	■
8A Roof Top Unit Replacements	■			
8B AHU/RTU Refurbishments	■	■	■	■
8C Unit Ventilator Refurbishments	■		■	■
8D Heat Wheel Retrofit		■		
8E HVAC Assessment and Verification for SSB-VEEVR	■	■	■	■
9A ADA Elevator				■

ECM 1A LED Lighting Upgrades

The key benefits of this ECM include:

- **Energy savings** from reducing total energy consumption with more efficient, state of the art technology. Today's most efficient way of illumination and lighting has an estimated energy efficiency of 80%-90% when compared to traditional lighting and conventional light bulbs. Lighting controls reduce or eliminate reliance on occupants or staff to turn lights off when spaces are unoccupied by automatically turning lighting fixtures off thereby reducing electrical energy consumption.
- **Improved teacher and student performance** from enhanced lighting quality that translates to an enhanced learning working environment.
- **Improved equipment longevity** by reducing amount of light usage and extending the useful life of your lighting system. LED bulbs and diodes have an outstanding operational lifetime expectation of up to 100,000 hours. This is 11 years of continuous operation, or 22 years of 50% operation. Operational savings in terms of bulb and ballast replacement are significant based on this technology.
- **Reduced maintenance and operational costs** by modernizing your lighting system, reducing the runtime of lighting system and components, and providing for longer lasting and technologically advanced lights, without the need to address deficient or bad ballasts.
- **Ecologically friendly** LED lights are free of toxic chemicals. Most conventional fluorescent lighting bulbs contain a multitude of materials like mercury that are dangerous for the environment. LED lights contain no toxic materials and are 100% recyclable and will help to reduce carbon footprint by up to a third. The long operational lifetime span mentioned above means also that one LED light bulb can save material and production of 25 incandescent light bulbs.
  A big step towards a greener future!

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
1A LED Lighting Upgrades	▪	▪	▪	▪

EXISTING CONDITIONS

Indoor lighting predominantly consists of fluorescent T-8 lamps, with a smaller quantity of other fixtures such as compact fluorescent lamps (CFLs), incandescent bulbs, and high-intensity discharge (HID) lighting.

SCOPE OF WORK

The proposed lighting system is based on the recent investment grade lighting system audit where existing lighting systems were analyzed and inventoried. Honeywell proposes to retrofit all existing fluorescent fixtures with high efficiency Light Emitting Diode (LED) lamps.

The district will receive many benefits from the lighting system upgrade.

Existing Lighting at Captain James Lawrence ES

Existing Lighting at Samuel Smith ES

LED OUTDOOR LIGHTING UPGRADES

EXISTING CONDITIONS

The District has various types of High Intensity Discharge (HID) light fixtures and older LED fixtures, which are not as efficient as modern LED types. Parking lot and building exterior lights consist of pole mounted shoe-box type and wall pack HID fixtures.

SCOPE OF WORK

The exterior wall-packs and pole-mounted shoebox fixtures are currently high wattage HID lamps. These will be replaced with lower wattage LED fixtures. The LED technologies offer significant advantages such as extended lamp life, minimal lumen depreciation, “instant on” and very high energy conversion efficiency. These fixtures will provide substantial maintenance savings via the new 100,000-hour LED lamp life versus the 20,000 hours of the existing metal halide lamps.

CHANGES IN INFRASTRUCTURE

New LED lamps and fixtures will be installed as part of this ECM. Existing poles and shoe box fixtures will be utilized where possible.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced electric energy usage. A slight increase in heating energy is resultant from the reduced heat output of more efficient lamps.
Waste Production	All lamps and ballasts that are removed will be properly disposed.
Environmental Regulations	No environmental impact is expected.

ECM 1B Lighting Controls

The key benefits of this ECM include:

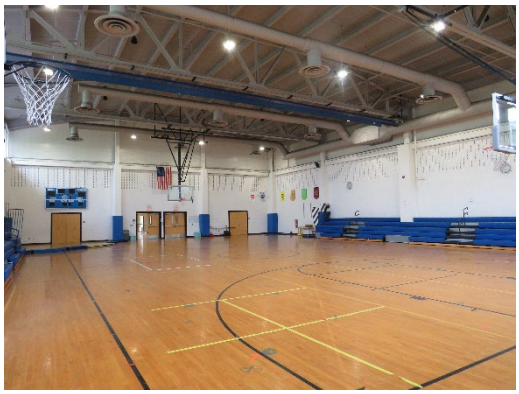
- **Reduced energy usage** from improved boiler efficiency resulting from replacement of older equipment, and in certain instances, oversized boilers.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
1B Lighting Controls	■	■		

EXISTING CONDITIONS

Educational institutions, such as K-12 districts, are focused on providing classrooms and campuses for their students and teachers that are safe, healthy, energy-efficient, by providing the best environment for learning, while also chartered with reducing the costs of building operations.

Lighting Control Space At Burlington City HS



Lighting Control Space At Wilber Watts IS

Example Of Interior Lighting Sensor

Example Of Exterior Lighting Sensor

Honeywell proposes the installation of occupancy-based lighting controls for interior spaces, and photo-controls for exterior lighting fixtures where none are currently installed. These controls will automatically control lighting systems based on either occupancy or outdoor light levels.

SCOPE OF WORK

Lighting controls lower cost by adjusting light levels by occupancy, turning lights off when not needed.

CHANGES IN INFRASTRUCTURE

New lighting control devices will be installed as part of this ECM.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced electric energy usage. A slight increase in heating energy is resultant from the reduced heat output from lighting that is turned off.
Waste Production	Proper disposal of any waste generated.
Environmental Regulations	No environmental impact is expected.

ECM 1C Field Lighting Upgrades

The key benefits of this ECM include:

- **Energy savings** from reducing total energy consumption with more efficient, state of the art technology. New stadium lighting will reduce energy and maintenance costs over typical high intensity discharge (HID) equipment.
- **Reduced maintenance and operational costs** by reducing the runtime of lighting system and components.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
1C LED Field Lighting	■	■		

EXISTING CONDITIONS

The High School and Intermediate School fields have existing HID equipment. HID lamps have a lifespan of approximately 2,000 hours. HIDs are responsible for producing glares and do not provide instant light when turned on, they need time to warm-up.

SOLUTION

Honeywell proposes the installation of Musco factory built, wired, aimed and tested lighting. The factory aimed and assembled luminaires include Ball Tracker technology. This Ball Tracker technology allows for targeted, aerial light which optimizes visibility of the ball in play with no glare for players and reduces spill light making it better for neighbors. The Control-Link System allows for remote on/off control and performance monitoring with 24/7 customer support.

Wilber Watts IS Field Lights

Wilber Watts IS Field Lights

Building	Manufacture	Model	Qty	Watts
Burlington City HS	Musco	TLC-LED-1200	35	1200
Burlington City HS	Musco	TLC-LED-575	10	575

Building	Manufacture	Model	Qty	Watts
Wilber Watts IS	Musco	TLC-LED-1500	32	1500
Wilber Watts IS	Musco	TLC-LED-1200	4	1200
Wilber Watts IS	Musco	TLC-LED-575	8	575

Example of Stadium Lighting Fixture

Example of Stadium Lighting

SCOPE OF WORK

New lighting will be installed s lower cost by adjusting light levels by occupancy, turning lights off when not needed.

CHANGES IN INFRASTRUCTURE

New LED lighting will be installed as part of this ECM.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced electric energy usage.
Waste Production	Proper disposal of any waste generated.
Environmental Regulations	No environmental impact is expected.

ECM 1D De-Stratification Fans w/ UV Disinfection

The key benefits of this ECM include:

- **Improved efficiency and energy savings** through more equal distribution of conditioned air space.
- **Equipment longevity** due to lower utilization of equipment to condition air.
- **Increased comfort** of students and teachers.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
1D De-Stratification Fans w/ UV Disinfection	■	■	■	■

EXISTING CONDITIONS

Warm air stratifies close to the ceiling in high ceiling areas such as in a gymnasium or auditorium. Elevated levels of heat transfer through the high walls and roof causes elevated heat loss.

Wilber Watts IS - Gym

Burlington City HS - Gym

PROPOSED SOLUTION

In areas with 20+ foot ceiling heights, there is approximately a 15°F+ temperature difference between the floor and the ceiling. With higher ceilings, it is even greater. That means to generate the heat necessary to maintain a comfortable 70°F temperature at the floor level, where student activities occur, the ceiling could be 85°F or higher.

De-stratification fans even out the air temperature to a zero to 3°F differential from floor to ceiling and wall to wall. This will allow HVAC systems to run for a shorter duration because of the absence of extreme temperatures to heat or cool, thus allowing the local thermostats to be satisfied for longer periods of time.

Systems Evaluation and Selection

An energy-efficient motor drives a near-silent fan that forces a column of hotter air from the ceiling to the cooler floor below. As this column of warm air nears the floor, it begins to flare out in a circular pattern and rise again creating a torus. While doing so, it warms the cooler air and mixes with air near the floor, increasing the temperature and comfort of occupants. Through a natural law of physics, this torus will continue to re-circulate air, mixing warmer air from the ceiling with cooler air near the floor until the ceiling and air temperatures are nearly equal. As this happens, it will require less and less energy to comfortably heat the work area, allowing thermostats to be lowered and energy savings to be realized. Once started, the entire process of "thermal equalization" will take on average less than 24 hours.

Airius PureAir Series is an air purification and airflow circulation fan system, incorporating the latest in PHI (Photohydroionization) Cell technology to efficiently and effectively neutralize up to 99% of all harmful germs, bacteria, viruses, mold and other contaminants in any internal environment. The PHI Cell emits 'Ionized Hydroperoxides', a naturally occurring cleaning agent, which are circulated throughout spaces via the fan. As the fans continue to circulate internal atmosphere, the PHI circulates its neutralizing Ionized Hydroperoxides, providing 24/7 continuous Air Purification. The PureAir also provides all the features and benefits of the world's most popular destratification and airflow circulation fan, balancing temperatures, improving comfort, reducing heating and cooling costs and reducing carbon emissions.

Based on preliminary site investigation conducted by our staff, we propose to install the de-stratification fans as indicated in the table below.

Table 1. Proposed De-Stratification Fans

Building	Location	Airius Model	Qty Pure Air	Qty Air Pear
Burlington City HS	E-Wing Gym	(3) A-25-SP-STD-120-W & (3) A-25-SP-STD-120-W-PHI	**3**	**3**
Burlington City HS	D-Wing Gym	(5) A-25-SP-STD-120-W & (5) A-25-SP-STD-120-W-PHI	**5**	**5**
Burlington City HS	Weight Room	(1) A-15-SP-STD-120-W & (1) A-15-SP-STD-120-W-PHI	**1**	**1**
Wilber Watts IS	Gym	(3) A-45-P4-STD-120-W & (3) A-45-P4-STD-120-W-PHI	**3**	**3**
Samuel Smith ES	MPR	(3) A-25-SP-STD-120-W & (2) A-25-SP-STD-120-W-PHI	**2**	**3**
Captain James Lawrence ES	MPR	(3) A-25-SP-STD-120-W & (2) A-25-SP-STD-120-W-PHI	**2**	**3**
TOTAL			**16**	**18**

SCOPE OF WORK

Per De-Stratification Fan:

1. Shut off the main electric power to the area in which the unit(s) will be installed.
2. Install new de-stratification fan and wiring.
3. Re-energize.
4. Inspect unit operation by performing electrical and harmonics testing.

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New de-stratification fans will be installed as part of this ECM.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced thermal energy usage. A slight increase in electrical energy is resultant from the operation of the fan motors.
Waste Production	Proper disposal of any waste generated.
Environmental Regulations	No environmental impact is expected.

ECM 2A Boiler Replacements

The key benefits of this ECM include:

- **Reduced energy usage** from improved boiler efficiency resulting from replacement of older equipment, and in certain instances, oversized boilers.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2A Boiler Replacements			■	■

EXISTING CONDITIONS

Some boilers within the District are near or past the end of their useful life and are less efficient compared to new boilers. Some existing boilers can be replaced with high efficiency condensing boilers or high efficiency steam boilers.

Captain James Lawrence ES - Boiler

Samuel Smith ES - Boiler

EXISTING BOILERS TO BE REPLACED

Table 2. Existing Boilers

Building	Type	Manufacturer	Model	Output (MBH)	Fuel	Qty
Captain James Lawrence ES	Steam	Superior	500LS	3,900	NG	2
Samuel Smith ES	Steam	Superior	500LS	3,900	NG	2

PROPOSED SOLUTION

It is recommended that the boilers listed in the table above be replaced with boilers operating at higher efficiency as provided in table below. New condensing hot water boilers have thermal efficiencies that range from 88% – 95% depending on the return hot water temperature from the heating loop. With proper design, it is typical to see thermal efficiencies of around 92%. Thermal efficiency is only one part of the equation that makes up the seasonal efficiency of a boiler.

New boiler sizes and quantities will be based on the heat load of the building with redundancy, taking into account the existing system sizing and level of redundancy.

Table 3. Proposed Boilers

Building	Type	Manufacturer	Model	Capacity (MBH)	Fuel	Qty
Captain James Lawrence ES	Steam	Easco	FST-90	2,339	NG	2
Samuel Smith ES	Steam	Easco	FST-185	3,248	NG	2

SCOPE OF WORK

The following outlines the boiler replacement:

1. Disconnect gas back to shutoff valve and electric back to source panelboard.
2. Remove existing boilers.
3. Install new boilers.
4. Connect gas and heating hot water appurtenances to new boilers.
5. Terminate and power new boiler electric circuiting.
6. Start up, commissioning, and operator training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

In general, Honeywell uses the following approach to determine savings for this specific measure:

Existing Boiler Efficiency	*= Existing Heat Production/ Existing Fuel Input*
Proposed Boiler Efficiency	*= Proposed Heat Production/ Proposed Fuel Input*
Energy Savings $	*= Heating Production (Proposed Efficiency – Existing Efficiency)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

ECM 2B Burner Replacements and Controls

The key benefits of this ECM include:

- Reduced energy usage from improved boiler efficiency resulting from replacement of older equipment, and in certain instances, oversized boilers.
- Lower operational costs through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2B Burner Replacements and Controls			■	■

EXISTING CONDITIONS

During our walkthroughs and conversations with District personnel, Honeywell has identified the boiler burners at Samuel Smith ES and Captain James Lawrence ES as the best candidates for burner replacements and controls.

Captain James Lawrence ES – Burner

Samuel Smith ES – Burner

EXISTING BURNERS TO BE REPLACED

Table 4. Existing Burners

Building	Make	Model	MBH	Qty
Captain James Lawrence ES	Webster	JB2C-30-EP260	3,900	2
Samuel Smith ES	Webster	JB2C-30-EP260	3,900	2

PROPOSED SOLUTION

Typically, boilers are sized to accommodate the coldest days (approximately 5% of the year). During these periods of maximum demand, the burner is constantly on and operating at maximum capacity. The burner cycles on and off, maintaining temperature or pressure in the boiler. It is during these periods of lesser demand, that the controller will monitor the boiler make up rate, and efficiently manage the firing of the boiler.

The length of the burner's off-cycle is the best measure of total heating demand or load. In other words, the load is directly related to the time it takes for water (or steam) in the boiler to drop from its high-limit temperature (or pressure) to its low-limit or "call" setting. When demand is high, these off-cycles are short and the on-cycles are longer. When demand is lower, off-cycles are longer and on-cycles are reduced.

The device, which is a microprocessor based computer, constantly monitors the demand on the boiler by assimilating all factors affecting a building's heating requirements, including occupancy, climate, wind chill, solar gain, type of building, and many others.

PROPOSED SYSTEMS AND SCOPE OF WORK

Honeywell will replace the burners on the boilers listed above with new, natural gas-fired burners, utilizing advanced controls.

HONEYWELL SLATE™

SLATE™ from Honeywell brings together configurable safety and programmable logic for the first time ever. It's one platform from one vendor that can easily be customized for almost any application – in less time with less complexity.

This upgrade will provide a combustion curve and light-off points including minimum/maximum firing rate points resulting in a precise firing rate control over the entire firing rate of the burner. Combustion efficiency will be maximized throughout the combustion curve and will provide a fuel curve to achieve maximum efficiency.

MODULATING BURNER CONTROL

The Modulating Burner integrates flame safeguard control, fuel-air ratio control, O2 Trim, VFD control, and proportional integral derivative (PID) control into a single, integrated, user-friendly system.

The features integrated into the burner provide energy savings, reduced emissions, reduced installation costs and enhanced safety.

FUEL METERING

- Reduced fuel use.
- Increased burner efficiency.
- Greenhouse gas emissions reduction.

EASY ACCESS PANELS

- Total access to components.
- Easy maintenance.

GRAPHIC BURNER MANAGEMENT SYSTEM

- Graphic annunciation of critical burner functions.

SCOPE OF WORK

The following outlines the boiler burner controls:

1. Disconnect electrical and gas from existing boiler burner.
2. Install new burner controls on existing burner (where applicable).
3. Start up, commissioning and operator training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

In general, Honeywell uses the following approach to determine savings for this specific measure:

Existing Boiler Efficiency	*= Existing Heat Production/ Existing Fuel Input*
Proposed Boiler Efficiency	*= Proposed Heat Production/ Proposed Fuel Input*
Energy Savings $	*= Heating Production (Proposed Efficiency – Existing Efficiency)*

CHANGES IN INFRASTRUCTURE

New combustion controls will be installed and programmed in the locations listed above; in addition, training for maintenance personnel will be required as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from greater boiler load control, reduced maintenance costs control and setback.
Waste Production	Existing equipment scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected; all regulations will be adhered to in accordance with EPA and local code requirements.

ECM 2C Domestic Water Heater Replacement

The key benefits of this ECM include:

- **Reduced energy usage** from improved efficiency resulting from replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2C Domestic Water Heater Replacement	■	■	■	■

EXISTING CONDITIONS

Some of the existing Domestic Hot Water (DHW) heaters are in poor condition and are not high-efficiency units.

Samuel Smith ES – Water Heater

Wilber Watts IS – Water Heater

EXISTING WATER HEATERS TO BE REPLACED

Table 5. Existing Water Heaters

Building	Manufacturer	Model	Capacity (MBH)	Storage	Fuel	Qty
Burlington City HS	Lochinvar	AWH1500NPM	1,500	175	NG	1
Burlington City HS	Lochinvar	AWH0400NPM	400	115	NG	1
Burlington City HS	Lochinvar	AWH0650NPM	650	-	NG	1
Captain James Lawrence ES	Lochinvar	WAN201PM	201	-	NG	2
Samuel Smith ES	Lochinvar	AWH0500NPM	500	350	NG	1
Wilber Watts IS	Lochinvar	AWH1000NPM	1,000	115	NG	1

SCOPE OF WORK

The following outlines the boiler replacement:

1. Demolish and remove old water heaters.
2. Furnish and install condensing gas fired domestic hot water heaters as specified in the table above.
3. Install all required piping, controls, and breeching as needed.
4. Install mixing valve.
5. Install circulators where needed for building use and kitchen supply.
6. Test and commission.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings are calculated from the domestic hot water heater efficiency differences.

Existing Boiler Efficiency	*= Existing Boiler Efficiency + Existing Heat Exchanger Efficiency*
Proposed Boiler Efficiency	*= Efficiency of the New Domestic Hot Water Heater*
Energy Savings $	*= DHW Load x (Existing Equipment Efficiency – New Equipment Efficiency)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available.
Equipment Identification	As part of the measure design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

A new controller for each DHW heater will be installed and programmed. In addition to the controllers, training for maintenance personnel will be required.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from improved thermal efficiency.
Waste Production	Proper disposal of any waste generated.
Environmental Regulations	No environmental impact is expected.

ECM 2D Chiller Replacements

The key benefits of this ECM include:

- **Reduced energy usage** from improved efficiency due to replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2D Chiller Replacements	■	■		

EXISTING CONDITIONS

Chiller units serving the building has gone beyond its useful life and is inefficient, have exceeded their expected useful service lives, and are costly to maintain. Replacing this with new, high efficiency unit will save energy costs over the long term while reducing repair costs that would otherwise have been necessary to keep the old units in operation.

Chiller – Burlington City HS

Chiller – Burlington City HS

EXISTING CHILLER UNITS

Table 6.Existing Chillers

Building	Manufacturer	Model	Tons	Qty
Burlington City HS	Carrier	30RBA16066	153	1
Wilber Watts IS	Carrier	30GXN178-A-661FX	180	1
Wilber Watts IS	Carrier	30XAA1806L-0-R-3	180	1

PROPOSED SOLUTION

Honeywell proposes replacing the existing chiller unit in the table above. The new unit will be installed in the same location as the existing units. Existing electrical power supply will be reconnected to the new motors. The units will communicate with the existing or enhanced BMS.

Table 7. Proposed Chillers

Building	Manufacturer	Model	Tons	Qty
Burlington City HS	Carrier	30RBF1606--HJL-3	160	1
Wilber Watts IS	Carrier	30RBF1906--HJL-3	190	1
Wilber Watts IS	Carrier	30RBF1906--HJL-3	190	1

SCOPE OF WORK

The following outlines the scope of work to install the chiller unit listed in the table above.

1. Disconnect existing electric connections.
2. Disconnect piping from the unit.
3. Remove existing unit.
4. Rig and set new unit.
5. Inspect piping before reconnecting them to the unit.
6. Reconnect piping.
7. Repair piping insulation.
8. Connect electric power.
9. Start up and commissioning of new unit.
10. Maintenance operator(s) training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy Savings	*= Existing unit energy consumption (kWh) – replacement unit energy consumption (kWh)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New chillers will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing units scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 2E Split System Replacements

The key benefits of this ECM include:

- **Reduced energy usage** from improved boiler efficiency resulting from replacement of older equipment, and in certain instances, oversized boilers.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2E Split System Replacements	■	■	■	■

EXISTING CONDITIONS

Honeywell identified some condensing units as being inefficient and having exceeded their useful service life. Replacing these units with new, high efficiency units will save energy costs over the long term, while reducing repair costs that would otherwise have been necessary to keep the old units in operation.

Samuel Smith ES – Split System

C

Captain James Lawrence ES – Split System

EXISTING CONDENSING UNITS TO BE REPLACED

Table 8. Existing Condensing Units

Building	Area Served	Manufacturer	Model	Tons	Qty
Burlington City HS	Carrier	38BNB036311	Media Center	3.00	1
Burlington City HS	Mitsubishi	PUY-A42NHA3	Media Center	3.50	1
Burlington City HS	Mitsubishi	MUZ-A09NA	Kitchen Office	0.75	1
Burlington City HS	Carrier	38BNB018311	Coach Office	1.50	1
Burlington City HS	Carrier	38BNB018311	Rm 181	1.50	1
Burlington City HS	Carrier	38BNB018311	Near Rm 193	1.50	1
Burlington City HS	Fujitsu	AOU18RLB	Near Rm 146	1.50	1
Burlington City HS	Carrier	38BNB018311	Near Rm 157	1.50	1

Building	Area Served	Manufacturer	Model	Tons	Qty
Burlington City HS	Mitsubishi	MUY-GL-12NA	Near Rm 158	1.00	1
Captain James Lawrence ES	Trane	2TTR2024A1000AA	Restroom 126	2.00	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Restroom 125	3.50	1
Captain James Lawrence ES	Trane	2TTA2042B3000AB	Rm 206	3.50	1
Captain James Lawrence ES	Trane	2TTR2024A1000AA	Rm 108A	2.00	1
Captain James Lawrence ES	Evcon	GAW14L24C22SA	Rm 108B	2.00	1
Captain James Lawrence ES	Evcon	GAW14L24C22SA	Rm 200A	2.00	1
Captain James Lawrence ES	Trane	2TTR2024A1000AA	Rm 200B	2.00	1
Captain James Lawrence ES	Trane	2TTR2036A1000AA	Rm 120	3.00	1
Captain James Lawrence ES	Trane	2TTR2024A1000AA	Rm 118	2.00	1
Captain James Lawrence ES	Trane	2TTA2042B3000AB	Rm 104A	3.50	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Rm 104B	3.50	1
Captain James Lawrence ES	Trane	2TTA2048A3000AA	Rm 102	4.00	1
Captain James Lawrence ES	Trane	2TTA2042B3000AB	Rm 100	3.50	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Rm 101	3.50	1
Captain James Lawrence ES	Trane	2TTR2036A1000AA	Rm 116A	3.00	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Rm 201	3.50	1
Captain James Lawrence ES	Trane	2TTA0042B3000AA	Rm 203	3.50	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Rm 205	3.50	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Rm 207	3.50	1
Captain James Lawrence ES	Trane	2TTR2024A1000AA	Rm 106A	2.00	1
Captain James Lawrence ES	Evcon	GAW14L24C22SA	Rm 106B	2.00	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Rm 108	3.50	1
Captain James Lawrence ES	Trane	2TT2042B3000AA	Rm 112	3.50	1
Captain James Lawrence ES	Trane	CCRAC101CC04CB	Cafe AHU-5A	10.00	1
Captain James Lawrence ES	Trane	CCRAC101CC04CB	Cafe AHU-5B	10.00	1
Captain James Lawrence ES	Trane	2TTA2042B3000AA	Rm 111	3.50	1
Captain James Lawrence ES	Trane	2TTR2036A1000AA	Rm 109	3.00	1
Captain James Lawrence ES	Trane	2TTR2036A1000AA	Rm 107	3.50	1
Captain James Lawrence ES	Trane	2TTR2036A1000AA	Rm 105	3.50	1
Samuel Smith ES	Trane	2TTR2018A1000AA	Rm 113	1.50	1
Samuel Smith ES	Trane	2TTR2018A1000AA	Rm 107	1.50	1
Samuel Smith ES	Trane	2TTR2036A1000AA	Rm 101	3.00	1

Building	Area Served	Manufacturer	Model	Tons	Qty
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 103	2.00	1
Samuel Smith ES	Guardian	GAW14L24C22SA	Rm 103	2.00	1
Samuel Smith ES	Guardian	GAW14L42C22SA	Rm 304	3.50	1
Samuel Smith ES	Lennox	HS29-042-2P	Rm 306	3.50	1
Samuel Smith ES	Lennox	HS29-042-2P	Rm 310	3.50	1
Samuel Smith ES	Lennox	HS29-042-2P	Rm 312	3.50	1
Samuel Smith ES	Guardian	GAW14L42C22SA	Rm 313	3.50	1
Samuel Smith ES	Lennox	HS29-042-2P	Rm 311	3.50	1
Samuel Smith ES	Guardian	GAW14L42C22SA	Rm 309	3.50	1
Samuel Smith ES	Lennox	HS29-042-2P	Rm 305	3.50	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 100A	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 100B	2.00	1
Samuel Smith ES	Trane	2TTR2036A1000AA	Rm 102	3.00	1
Samuel Smith ES	Guardian	GAW14L36C22SA	Rm 104	3.00	1
Samuel Smith ES	Guardian	GAW14L24C22SA	Rm 106	2.00	1
Samuel Smith ES	Trane	2TTR2018A1000AA	Rm 108	1.50	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 206A	1.50	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 206B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 207A	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 207B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 208A	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 208B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 209B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 210A	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 210B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 211B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 212A	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 212B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 213A	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 213B	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	IDF Room	2.00	1
Samuel Smith ES	Trane	2TTR2024A1000AA	Rm 1	2.00	1
Samuel Smith ES	Trane	2TTA0036A3000AA	Rm 2	3.00	1

Building	Area Served	Manufacturer	Model	Tons	Qty
Samuel Smith ES	Trane	2TTR2018A1000AA	Rm 6	1.50	1
Wilber Watts IS	Carrier	38BNB018311	IDF Room	3.00	1
Wilber Watts IS	Mitsubishi	PUY-A36NHA3	MDF	1.50	1
Wilber Watts IS	Carrier	38BNB018311	Kitchen Office	1.50	1
Wilber Watts IS	Carrier	38BNB018311	Lobby	1.50	1

PROPOSED SOLUTION

Honeywell proposes replacing the existing condensing units in the table above. The new units will be installed in the same location as the existing units. Existing electrical power supply will be reconnected to the new motors. The new units will be equipped with factory-installed microprocessor controls that improve unit efficiency. The units will also communicate with the existing or enhanced BMS.

Table 9. Proposed Condensing Units

Building	Area Served	Manufacturer	Model	Tons	Qty
Burlington City HS	Trane	4TTR4024	Media Center Office	3.00	1
Burlington City HS	Mitsubishi	PUY-A42	Media Center Office	3.50	1
Burlington City HS	Mitsubishi	PUZ-A09	Kitchen Office	0.75	1
Burlington City HS	Trane	4TTR4018	Coach Office	1.50	1
Burlington City HS	Trane	4TTR4018	Rm 181	1.50	1
Burlington City HS	Trane	4TTR4018	Near Rm 193	1.50	1
Burlington City HS	Mitsubishi	PUY-A18	Near Rm 146	1.50	1
Burlington City HS	Mitsubishi	PUY-A18	Near Rm 157	1.50	1
Burlington City HS	Mitsubishi	PUY-A12	Near Rm 158	1.00	1
Captain James Lawrence ES	Trane	4TTR4024	Restroom 126	2.00	1
Captain James Lawrence ES	Trane	4TTR4042	Restroom 125	3.50	1
Captain James Lawrence ES	Trane	4TTR4042B	Rm 206	3.50	1
Captain James Lawrence ES	Trane	4TTR4024A	Rm 108A	2.00	1
Captain James Lawrence ES	Mitsubishi	PUY-A24	Rm 108B	2.00	1
Captain James Lawrence ES	Mitsubishi	PUY-A24	Rm 200A	2.00	1
Captain James Lawrence ES	Trane	4TTR4024	Rm 200B	2.00	1
Captain James Lawrence ES	Trane	4TTR4036	Rm 120	3.00	1
Captain James Lawrence ES	Trane	4TTR4024	Rm 118	2.00	1
Captain James Lawrence ES	Trane	4TTR4042	Rm 104A	3.50	1
Captain James Lawrence ES	Trane	4TTR4042	Rm 104B	3.50	1
Captain James Lawrence ES	Trane	4TTR4048	Rm 102	4.00	1

Building	Area Served	Manufacturer	Model	Tons	Qty
Captain James Lawrence ES	Trane	4TTR4042	Rm 100	3.50	1
Captain James Lawrence ES	Trane	4TTR4042	Rm 101	3.50	1
Captain James Lawrence ES	Trane	4TTR4036	Rm 116A	3.00	1
Captain James Lawrence ES	Trane	4TTR4042	Rm 201	3.50	1
Captain James Lawrence ES	Trane	4TTR4042	Rm 203	3.50	1
Captain James Lawrence ES	Trane	4TTA4042	Rm 205	3.50	1
Captain James Lawrence ES	Trane	4TTA4042	Rm 207	3.50	1
Captain James Lawrence ES	Trane	4TTR4024	Rm 106A	2.00	1
Captain James Lawrence ES	Trane	4TTR4024	Rm 106B	2.00	1
Captain James Lawrence ES	Trane	4TTA4042	Rm 108	3.50	1
Captain James Lawrence ES	Trane	4TT4042	Rm 112	3.50	1
Captain James Lawrence ES	Trane	CCRAC101CC04CB	Cafeteria AHU-5A	10.00	1
Captain James Lawrence ES	Trane	CCRAC101CC04CB	Cafeteria AHU-5B	10.00	1
Captain James Lawrence ES	Trane	4TTA4042	Rm 111	3.50	1
Captain James Lawrence ES	Trane	4TTR4036	Rm 109	3.00	1
Captain James Lawrence ES	Trane	4TTR4036	Rm 107	3.50	1
Captain James Lawrence ES	Trane	4TTR4036	Rm 105	3.50	1
Samuel Smith ES	Trane	4TTR4018	Rm 113	1.50	1
Samuel Smith ES	Trane	4TTR4018	Rm 107	1.50	1
Samuel Smith ES	Trane	4TTR4036	Rm 101	3.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 103	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 103	2.00	1
Samuel Smith ES	Trane	4TTR4042	Rm 304	3.50	1
Samuel Smith ES	Trane	4TTR4042	Rm 306	3.50	1
Samuel Smith ES	Trane	4TTR4042	Rm 310	3.50	1
Samuel Smith ES	Trane	4TTR4042	Rm 312	3.50	1
Samuel Smith ES	Trane	4TTR4042	Rm 313	3.50	1
Samuel Smith ES	Trane	4TTR4042	Rm 311	3.50	1
Samuel Smith ES	Trane	4TTR4042	Rm 309	3.50	1
Samuel Smith ES	Trane	4TTR4042	Rm 305	3.50	1
Samuel Smith ES	Trane	4TTR4024	Rm 100A	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 100B	2.00	1
Samuel Smith ES	Trane	4TTR4036	Rm 102	3.00	1

Building	Area Served	Manufacturer	Model	Tons	Qty
Samuel Smith ES	Trane	4TTR4036	Rm 104	3.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 106 (Principal)	2.00	1
Samuel Smith ES	Trane	4TTR4018	Rm 108 (Main Office)	1.50	1
Samuel Smith ES	Trane	4TTR4024	Rm 206A	1.50	1
Samuel Smith ES	Trane	4TTR4024	Rm 206B	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 207A	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 207B	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 208A	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 208B	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 209B	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 210A	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 210B	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 211B	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 212A	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 212B	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 213A	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 213B	2.00	1
Samuel Smith ES	Trane	4TTR4024	IDF	2.00	1
Samuel Smith ES	Trane	4TTR4024	Rm 1	2.00	1
Samuel Smith ES	Trane	2TTA0036	Rm 2	3.00	1
Samuel Smith ES	Trane	4TTR4018	Rm 6	1.50	1
Wilber Watts IS	Mitsubishi	PUY-A36	IDF Room	3.00	1
Wilber Watts IS	Mitsubishi	PUY-A18	MDF	1.50	1
Wilber Watts IS	Trane	4TTR4018	Kitchen Office	1.50	1
Wilber Watts IS	Trane	4TTR4018	Lobby	1.50	1

SCOPE OF WORK

The following outlines the scope of work to install the condensing units listed in the Proposed Split Systems table above.

1. Disconnect existing electric connections.
2. Disconnect piping from the unit.
3. Remove unit from the base.
4. Modify base for new unit if necessary.
5. Rig and set new unit at the base.
6. Inspect piping and air ducts before reconnecting them to the unit.

7. Reconnect piping and air ducts.
8. Repair duct and piping insulation.
9. Connect electric power.
10. Start up and commissioning of new unit.
11. Maintenance operator(s) training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy savings	*= Existing unit energy consumption (kWh) – replacement unit energy consumption (kWh)*

CHANGES IN INFRASTRUCTURE

New split systems will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing condensing units scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 2F Convert Steam to Hot Water System

The key benefits of this ECM include:

- **Reduced energy usage** from improved boiler efficiency resulting from replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2F Convert Steam to Hot Water System			■	■

EXISTING CONDITIONS

Steam boilers at schools below has past the end of their useful life and are less efficient compared to new hot water boilers.

Captain James Lawrence ES - Boiler

Samuel Smith ES - Boiler

Table 10. Existing Boilers to be Replaced

Building	Type	Manufacturer	Model	Qty	Capacity (MBH)	Fuel
Captain James Lawrence ES	Steam	Superior	500LS	2	3,900	NG
Samuel Smith ES	Steam	Superior	500LS	2	3,900	NG

PROPOSED SOLUTION

The existing boilers can be replaced with high efficiency condensing hot water boilers. New condensing hot water boilers have thermal efficiencies that range from 88% – 95% depending on the return hot water temperature from the heating loop. With proper design, it is typical to see thermal efficiencies of around 92%. Thermal efficiency is only one part of the equation that makes up the seasonal efficiency of a boiler. Compared to the existing boilers in the middle schools, the new boilers will provide an increase in boiler efficiency of anywhere between 10% to 15%.

New boiler sizes and quantities will be based on the heat load of the building with redundancy, take into account the existing system sizing and level of redundancy.

SCOPE OF WORK

The following outlines the boiler replacement:

1. Disconnect gas back to shutoff valve and electric back to source panel-board.
2. Remove existing boilers.
3. Install new boilers.
4. Connect gas and heating hot water appurtenances to new boilers.
5. Terminate and power new boiler electric circuiting.
6. Start up, commissioning, and operator training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

In general, Honeywell uses the following approach to determine savings for this specific measure:

Existing Boiler Efficiency	*= Existing Heat Production/ Existing Fuel Input*
Proposed Boiler Efficiency	*= Proposed Heat Production/ Proposed Fuel Input*
Energy Savings $	*= Heating Production (Proposed Efficiency – Existing Efficiency)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost effective manufacturers are available. Honeywell and the customer will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New boilers will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance. New gas piping will need to be run from the new gas service/meter to the equipment.

O&M IMPACT

The new boilers will decrease the O&M cost for maintaining the boilers.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.

ENVIRONMENTAL ISSUES

Resource Use	Annual savings will result from greater combustion efficiency, reduced maintenance costs control and setback.
Waste Production	Existing boilers scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected; all regulations will be adhered to in accordance with EPA and local code requirements.

ECM 2G Vacuum Tank Replacements

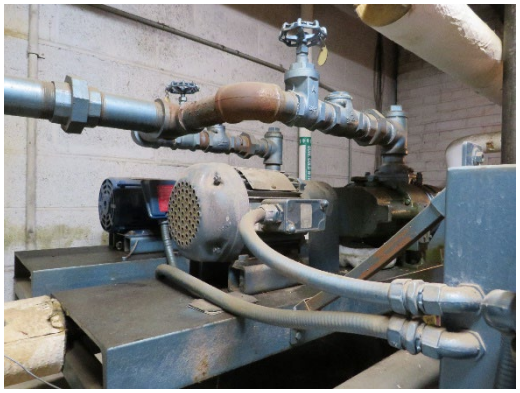
The key benefits of this ECM include:

- **Reduced energy usage** from improved boiler efficiency resulting from replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2G Vacuum Tank Replacements			■	■

EXISTING CONDITIONS

Several schools with steam systems have condensate return vacuum pump which are failing and in need of replacement.



Vacuum Tank – Samuel Smith ES

Vacuum Tank – Captain James Lawrence ES

Table 11. Existing Vacuum Tanks to be replaced

Building	Location	Manufacturer	Model	Capacity (MBH)	Qty
Samuel Smith ES	Boiler Room	FT Pump Industries	VBF-HCS	3,900	1
Captain James Lawrence ES	Boiler Room	Allen Pump	V-75 / VBFV200-50-1-5	3,900	1

PROPOSED SOLUTION

A condensate vacuum is important because it captures the condensate emitted from the boiler and allows it to be reused. Not only does this improve the efficiency of your equipment, but it also extends the life of it. A condensate receiver also makes it possible for to:

- Maintain a steady temperature
- Eliminate product quality issues
- Reduce corrosion
- Prevent damage to the equipment

- How Condensate Receivers Can Save You Money

Using a condensate vacuum tank can save energy in many ways:

- **Less Make-up Water Needed** – When the condensate escapes the steam trap, it still contains some of the original heat that was in the steam. By capturing this hot condensate and reusing it, the boiler does not have to be continually fed with new water. This means lower water costs over time.
- **Reduce Chemical Usage** – Since less fresh water needs to be used in the boiler, the amount of water treatments that are necessary are also greatly decreased.
- **Eliminate Penalties** – In many states, there are strict regulations about what can be drained into the sewer system. By returning condensate to the condensate receiver instead of through the drainage system, you can avoid fees for non-compliance.
- **Decrease Blow Down** – Condensate is essentially distilled water, so there are no dissolved solids in it like there are with the other water found in a boiler. Since the water is pure, the need for blow down is reduced, which also saves on energy costs.
- **A condensate vacuum tank/receiver is an essential part to any boiler system**. It will h reuse the condensate naturally produced by your boiler instead of it going to waste. This not only makes the entire operation more efficient, but it can have a dramatic impact on the money it takes to keep the system running.

Table 12. Proposed Vacuum Tanks

Building	Location	Manufacturer	Model	Capacity (MBH)	Qty
Samuel Smith ES	Boiler Room	Shipco	SHVM-107	3,900	1
Captain James Lawrence ES	Boiler Room	Shipco	SHVM-107	3,900	1

SCOPE OF WORK

The following outlines the vacuum tank replacement:

1. Secure gas and electric back to boiler and ensure boiler will not operate.
2. Disconnect condensate piping
3. Remove electric to existing vacuum tanks
4. Install new vacuum tanks and reconnect piping
5. Terminate and power new electric circuiting.
6. Start up, commissioning, and operator training.

EQUIPMENT INFORMATION

Manufacturer and Type	Several qualities and cost-effective manufacturers are available. Honeywell and the customer will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New vacuum tanks will be installed where existing in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

O&M IMPACT

The new vacuum pumps will decrease the O&M cost for maintaining the units.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.

ENVIRONMENTAL ISSUES

Resource Use	Annual savings will result from greater efficiency, reduced maintenance costs control and setback.
Waste Production	Existing Vacuum Tanks scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected; all regulations will be adhered to in accordance with EPA and local code requirements.

ECM 2H Kitchen Hood Controllers

The key benefits of this ECM include:

- **Reduced energy usage** from improved equipment control and reduced exhaust of conditioned air.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
2H Kitchen Hood Controllers	■	■		

EXISTING CONDITIONS

Honeywell observed that the kitchens utilize a constant volume kitchen exhaust hood system. This system operates at full load, even when there is no activity in the kitchen. It also requires operating the exhaust fan at full load. This wastes both fan energy and heating energy. When the hood is not utilized, an opportunity exists to reduce airflow and conserve energy.

Burlington City HS - Kitchen Hood

Wilber Watts IS - Kitchen Hood

PROPOSED SOLUTION

Honeywell recommends installing a microprocessor-based controls system whose sensors automatically regulate fan speed based on cooking load, time of day and hood temperature while minimizing energy usage. The system includes a temperature sensor installed in the hood exhaust collar, IP sensors on the ends of the hood that detect the presence of smoke or cooking effluent and VFD that control the speed of the fans. This will result in energy and cost savings, noise reduction, longer equipment life and reduction in cleaning costs.

Table 13. Existing Kitchen Hoods to Receive Controls

Building	Kitchen Hood (sq. ft.)
Burlington City HS	145
Wilber Watts IS	75

SCOPE OF WORK

1. Install a temperature sensor in the hood to monitor temperature of the exhaust gas.
2. Install a set of two photo sensors on the sides to monitor smoke density across the hood.
3. Install a control panel with a small point controller and a set of relays in the kitchen close to the hood.
4. Provide electric wiring from the new panel to the sensors, exhaust fan motor as well as to the closest electric panel for power supply.
5. Provide connection to the BMS system for remote monitoring, control, and alarming. This system could also be stand-alone to save on cost.
6. Commission control components and sequences and calibrate control loops.

Sequence of operation will enable the exhaust fans when either temperature or smoke density in the range hoods is above a pre-set value. Time delays between start and stop will be programmed to prevent motor short cycling. Schedule programming could be implemented as well.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based upon reducing the amount of conditioned air that is being exhausted when there is no cooking taking place.

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

There will be improvements in HVAC equipment and controls for not operating fans continuously.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced energy.
Waste Production	Any removed parts will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 3A Building Management System Upgrades

The key benefits of this ECM include:

- **Improve Air Quality** by more precise control of air filtration, air composition and ultra-violet cleaning to create a healthier school building environment.
- **Operational efficiency** resulting from better control and system wide visibility.
- **Remote operation** of HVAC systems via mobile phone or off-site computer.
- **Energy savings** from reducing total energy consumption with more efficient, state of the art technology.
- **Occupancy comfort and productivity** resulting from enhanced temperature and humidity control throughout your buildings.
- **Deliver a comprehensive open protocol Building Management System**. Verify design is customized for each building yet uniform throughout the district. Assure longevity of control system with proper commissioning and training.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
3A Building Management System Upgrades	■	■	■	■

EXISTING CONDITIONS

The Burlington City School District currently utilizes a wide variety of HVAC control strategies to achieve temperature control throughout their buildings. The systems in use range from pneumatic controls that are original to the building's construction, to modern Direct Digital Controls (DDC) that can be monitored and controlled through a front-end interface. These systems have been serviced by a large number of contractors in the past, which has contributed to a lack of standardization and preventative maintenance.

A Carrier iVu Building Management System (BMS) was installed in 2007 at the Burlington High School and the Wilbur Watts Intermediate School. This system is accessible through the Facility Maintenance office computer, where temperature setpoints and building schedules can be adjusted through the graphical interface. A review of the graphics revealed a significant amount of control issues at the High School, as compared to the Intermediate School. Neither building appears to be following a building occupancy schedule or standardized temperature setpoints. Despite the building being mostly unoccupied during the summer, most of the equipment was running and following occupied temperature setpoints. This is likely contributing to excessive energy usage and equipment failure.

The Samuel Smith Elementary School control system uses a combination of original pneumatic devices and DDC controllers that are currently being installed for the classroom unit ventilators and the Gym rooftop units. The new Siemens DDC controllers are being installed be Eccotrols and will be accessible through a newly installed Niagara BMS. Our site survey revealed a number of pneumatically controlled equipment that will remain after the current project is complete. These pneumatic controls are in very poor condition and likely do not provide any temperature control or night setback. The building's steam boilers are cycled On/Off manually by maintenance staff to prevent overheating.

The James Lawrence Elementary School control system uses a combination of original pneumatic devices and legacy Honeywell DDC controllers that were installed over 20 years ago and are passed their useful life. This Honeywell system can no longer be accessed by facility personnel and likely has many failed sensors, actuators, and control devices. The original pneumatic controls are mostly failed, and require replacement. There are currently pneumatics in the steam boiler plant. The building's steam boilers are cycled On/Off manually by maintenance staff to prevent overheating.

The current facility maintenance and control service teams utilizes a traditional scheduled preventative and reactive maintenance approach which is not an effective way to deliver the kind of resiliency that a manufacturing facility requires to maintain competitive advantage and ensure productivity due to the following challenges:

- Inefficient Planned Maintenance – Scheduled and routine maintenance plans spend too much time inspecting and maintaining assets that are not broken.
- Poor Asset Performance Visibility - Break fix and scheduled maintenance make it difficult to track and validate asset optimization and vendors costs.
- Low Vendor Accountability - Lack of transparency makes it difficult to measure vendor compliance and ROI.
- Aging, Shrinking Workforce - Large groups of maintenance staff are approaching retirement age, with a smaller, less skilled workforce to replace them.
- Complex Vendor Management - Building operators have to maintain several contracts with multiple vendors, making it difficult and costly to manage.

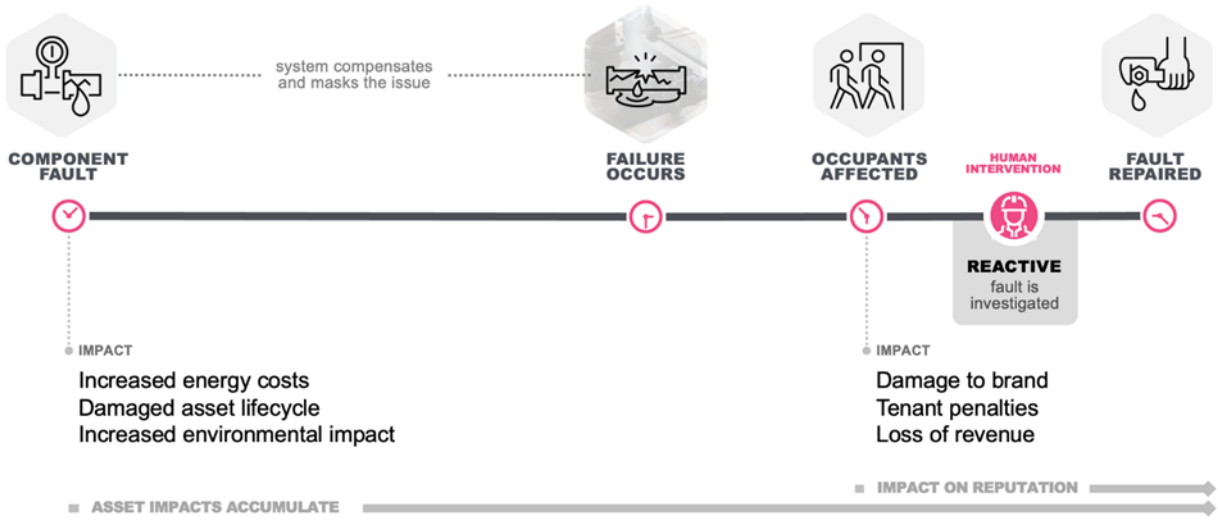


Table 14. Existing Building Management Controls

Building	Existing Building Management System
Burlington City HS	Carrier
Wilber Watts IS	Carrier
Samuel Smith ES	Honeywell Eccotrol
Captain James Lawrence ES	Honeywell XL10

Proposed Conditions

BURLINGTON HIGH SCHOOL

A. Retro-Commission Existing Field Controllers

Provide point-to-point checkout and functional testing of all existing Carrier field controllers. Provide repairs to defective sensors and control devices as needed to provide a fully functioning system. Provide retro-commissioning report that includes a list of any mechanical equipment found to be defective. Equipment included:

- Boiler Plant
- Chiller Plant
- 6 Air Handling Units
- 16 Rooftop Units
- ~50 VAV Boxes
- 1 Fan Coil Unit
- 69 Unit Ventilators

Additional Scope Details:

- Provide calibration of all CO2, airflow, and RH sensors.
- Note the programming changes listed in the "Sequence Upgrades" section herein.

Sequence Upgrades

Implement the following sequences of operation upgrades.

- Building-wide
  - Demand Control Ventilation
    - Furnish and install 78 new CO2 sensors.
  - Optimized Start / Stop
  - Standardized Schedules and Setpoints
    - After Hours Schedule
  - Increase Zoning (TBD)
  - HW and CHW Outside Air Reset
  - Morning Boost / Cooldown
  - Unoccupied HW Temperature Offset
- AHUs, FCUs, VAVs
  - Economizer
  - Discharge Air Reset

Additional Scope Details:

- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

Wilbur Watts Intermediate School

A. Retro-Commission Existing Field Controllers

Provide point-to-point checkout and functional testing of all existing field controllers. Provide repairs to defective sensors and control devices as needed to provide a fully functioning system. Provide retro-commissioning report that includes a list of any mechanical equipment found to be defective.
Equipment included:

- Boiler Plant
- Chiller Plant
- 10 Rooftop Units
- ~64 VAV Boxes
- ~10 Fan Coil Units

Additional Scope Details:

- Provide calibration of all airflow and RH sensors.
- Note the programming changes listed in the "Sequence Upgrades" section herein.

Sequence Upgrades

Implement the following sequences of operation upgrades.

- Building-wide
  - Demand Control Ventilation
    - Furnish and install 64 new CO2 sensors.
  - Optimized Start / Stop
  - Standardized Schedules and Setpoints
    - After Hours Schedule
    - Increase Zoning (TBD)
  - Hot Water Outside Air Reset
    - Morning Boost
    - Unoccupied Offset
  - AHUs and UVs
    - Economizer
    - Discharge Air Reset

Additional Scope Details:

- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

SAMUEL SMITH ELEMENTARY SCHOOL

Boiler Plant Control Upgrades

Furnish and install new DDC for the steam boiler plant. Minimum point shall include:

Boiler Plant	AI	AO	DI	DO
Boiler Start/Stop				2
Boiler Status			2	
Boiler Alarm			2	
Steam Pressure	1			
Steam Zone Valve		3		
Combustion Air Damper				1
Outside Air Temperature	1			
Outside Air Humidity	1			
Outside Air CO2	1			

Additional Scope Details:

- Furnish and install three (3) new steam zone valves.
- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

CAPTAIN JAMES LAWRENCE ELEMENTARY SCHOOL

Boiler Plant Control Upgrades

Furnish and install new DDC for the steam boiler plant. Minimum point shall include:

Boiler Plant	AI	AO	DI	DO
Boiler Start/Stop				2
Boiler Status			2	
Boiler Alarm			2	
Steam Pressure	1			
Steam Zone Valve		4		
Combustion Air Damper				1
Outside Air Temperature	1			
Outside Air Humidity	1			
Outside Air CO2	1			

Additional Scope Details:

- Furnish and install four (4) new steam zone valves.
- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

Rooftop Unit Control Upgrades

Furnish and install new DDC for four (4) rooftop units that have existing Honeywell Excel Controllers. Minimum point shall include:

Rooftop Unit	AI	AO	DI	DO
Fan Start/Stop				4
Fan Status			4	
Space Temp	4			
Space CO2	4			
Heating Valve		4		
DX Cooling				8
OA Damper		4		
Mixed Air Temp	4			
Discharge Air Temp	4			
Freeze Stat			4	

Additional Scope Details:

- Furnish and install new steam valves.
- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

Air Handling Unit Control Upgrades

Furnish and install new DDC for six (6) air handling units that have existing Honeywell Excel Controllers. Minimum point shall include:

Unit Ventilator	AI	AO	DI	DO
Fan Start/Stop				6
Fan Status			6	
Space Temp	6			
Space CO2	6			
Heating Valve		6		
OA Damper		6		
F&B Damper		6		
Mixed Air Temp	6			
Discharge Air Temp	6			
Freeze Stat			6	

Additional Scope Details:

- Furnish and install new steam valves.
- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

Unit Ventilator Control Upgrades

Furnish and install new DDC for 26 unit ventilators that have existing Honeywell Excel Controllers. Minimum point shall include:

Unit Ventilator	AI	AO	DI	DO
Fan Start/Stop				26
Fan Status			26	
Space Temp	26			
Space CO2	26			
Heating Valve		26		
DX Cooling				26
OA Damper		26		
F&B Damper		26		
Mixed Air Temp	26			
Discharge Air Temp	26			

Additional Scope Details:

- Furnish and install new steam valves.
- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

Fan Coil Unit Control Upgrades

Furnish and install new DDC for Fan Coil Units serving the main office area. Minimum point shall include:

Fan Coil Unit	AI	AO	DI	DO
Fan Start/Stop				2
Fan Status			2	
Space Temp	2			
Heating Valve		2		

Additional Scope Details:

- Furnish and install new steam valves.
- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

Classroom and Office Radiator Control Upgrades

Furnish and install new DDC for 11 radiators that are serving occupied spaces. Minimum point shall include:

Radiator	AI	AO	DI	DO
Space Temp	11			
Heating Valve		11		

Additional Scope Details:

- Furnish and install new steam valves.
- Furnish controls and instrumentation as necessary to accomplish the design intent described, including controllers, sensors, end-devices.
- Furnish integration labor as necessary to accomplish the design intent described, including communication wiring, programming, graphics.

Self-Contained Control Upgrade

Provide and install self-contained controls for fifty-four (54) convector radiators serving hallways, entryways and other unoccupied areas. Thermostatic radiator valves shall be installed with remote bulb and locking cover. The cabinet unit heaters shall be equipped with an aquastat fan controller. Implement reduced setpoint.

Energy Savings Methodology and Results

The savings approach is based upon reducing the amount of energy that needs to pre-heat or cool the outside air. The savings are generally calculated as:

Existing Heating BTU & Cost per BTU	*= Metered data from existing meter readings*
Cost of Existing Heating	*= Average site data $/CCF or $/Gallon*
Reduction in Heating/Cooling BTU	*= Reduction in outside air CFM x 1.08 x Delta T x Operating Hours*
	= Reduced BTU x Cost per BTU
Cost of Proposed Heating/Cooling	*= Existing Costs – Proposed Costs*
Energy Savings $	

The baseline adjustment calculations are included with the energy calculations.

CHANGES IN INFRASTRUCTURE

None.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced energy.
Waste Production	Any removed parts will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 3B FORGE Energy Optimization

The key benefits of this ECM include:

- **Improve Air Quality** by monitoring, analyzing and controlling key air quality parameters (pressurization, ventilation, temperature, humidity) to create a healthier school building environment.
- **Energy savings** from reducing total energy consumption with more efficient, state of the art technology.
- **Cloud-Based Solution** that connects to a building's existing systems - without the need for capital investment - and optimizes energy consumption to drive up savings.
- **Monitor Energy Consumption savings** and zone comfort levels for any duration of time.
- **Reduced Maintenance & Operational Costs** by reducing the runtime of HVAC systems.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
3B FORGE Energy Optimization	■	■	■	■

EXISTING CONDITIONS

HVAC Systems are the biggest consumer of energy in commercial facilities, and most rely on conservative inefficient control strategies. Manual or scheduled set-point adjustment strategies simply cannot account for the complexity of a building's dynamic occupancy and weather conditions – while maintaining comfort levels.

PROPOSED SOLUTION

District-Wide Honeywell Forge Predictive Maintenance and Healthy Buildings Solution

We propose to deploy Honeywell Forge Predictive Maintenance, an application that automates the detection of faults and anomalies in the operation of building heating, ventilation, and air conditioning (HVAC) systems which impact building comfort, energy consumption or the life cycle of the assets. Faults are raised in the way of service cases containing actionable recommendations about how to address the fault and are presented to the building operator via the enterprise dashboards. By adopting a Predictive Maintenance program, building operators can transition from costly preventative and reactive maintenance programs to a pro-active or just-in-time maintenance program. The benefits of a Predictive Maintenance program include:

- Reduced labor/subcontract cost associated with performing preventative maintenance activities
- Reduced labor/subcontract cost by identification of Service Case root cause with recommended actions to resolve the fault
- Reduced energy cost by immediately identifying and addressing anomalies which impact energy consumption
- Increased occupant productivity by immediately identifying and addressing anomalies which impact occupant comfort
- Reduced capital and operational expenses by identifying and addressing anomalies which impact the life cycle of equipment and components

- Boost operational continuity by reducing equipment failures and reactive activity

We propose to deploy Energy Optimization, a closed-loop optimization of HVAC system control setpoints utilizing machine learning algorithms to minimize energy costs without upsetting building comfort. The system continually monitors building meter data and HVAC data so that, every 15-minutes, it can calculate the optimum setpoints to be written to HVAC systems. No operator interaction is required but the energy savings and facility comfort conditions may be monitored via the enterprise dashboards.

Healthy Buildings Technologies provide a set of tools to help building operators optimize the health of their building environments, operate more cleanly and safely, comply with social distancing policies, and reassure occupants as part of a return-to-business strategy. Honeywell Forge integrates building controls, air quality sensors, video feeds and secure access points then applies advanced analytics to calculate a simple, real-time Healthy Building Score. Site-level performance scores are aggregated for comparison and benchmarking across your portfolio to inform your strategic plan. The package provides insights and analytics to improve indoor environment, highlight proactive actions and automate incident response standards to manage and respond to alerts, anytime, anywhere.

HVAC Equipment Control

HVAC Equipment Control

SCOPE OF WORK

SYSTEM AGNOSTIC – Works with the existing BMS system using the open integration power of Niagara ®.

SAFE & SECURED – Built-in safety features ensure HVAC systems are always controlled – even during unexpected disturbances.

Autonomous Control – No need for customer intervention or expertise through this closed loop, continuously monitored solution.

Real-Time Intelligence – Advanced machine learning calculates occupancy and weather data to optimize set-points every 15- minutes

DOMAIN EXPERTISE – A solution built on over one-hundred years of experience in building technologies.

SMART VISUALIZATION – Solution identifies pre-existing faults and delivers real-time energy, savings and comfort metrics. Energy needs fluctuate based on seasons, weather, occupancy and usage.

CHANGES IN INFRASTRUCTURE

None.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced energy usage.
Waste Production	No waste will be generated as a result of this ECM.
Environmental Regulations	No environmental impact is expected.

ECM 4A Building Envelope Improvements

The key benefits of this ECM include:

- **Energy savings** from reducing unwanted outside air infiltration.
- **Equipment longevity** due to more efficient and less wasteful equipment utilization.
- **Occupancy comfort and productivity** by way of enhanced temperature and humidity control throughout your buildings.
- **Improved building envelope** from addressing building gaps that allow unconditioned air penetration.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
4A Building Envelope Improvements	■	■	■	■

EXISTING CONDITIONS

Heat loss due to infiltration is a common problem, particularly in places with long and cold winter seasons such as NJ. This problem has been shown to represent the single largest source of heat loss or gain through the building envelopes of nearly all types of buildings. Our work has found 30% to 50% of heat loss attributable to air leaks in buildings.

Honeywell uncovered several leaks that allow for heat loss to occur during the winter season and unwanted heat gains during the summer season. These problems include door gaps, exhaust fans in poor condition, open windows or windows in poor condition, lack of air sealing, and insulation.

Typical Building Envelope

Typical Building Envelope

Honeywell has helped customers like you to address these problems with a comprehensive and thorough building envelope solution that seals up your buildings to improve occupancy comfort and help eliminate unwanted energy waste. We propose to conduct a comprehensive weatherization job to weatherproof doors and windows, caulk and seal leaks, and install spray foam and rigid foam boards to stop unwanted air movement and provide a thermal barrier between spaces. Part of this process may include decoupling floor-to-floor and compartmentalizing of components of the building to equalize pressure differences.

PROPOSED SOLUTION

Building	Attic Bypass Air Sealing (SF)	Attic Flat Insulation (SF)	Buck Frame Air Sealing (LF)	Door - Install Jamb Spacer (Units)	Door Weather Striping - Doubles (Units)	Door Weather Stripping - Singles (Units)	Overhang Air Sealing (SF)	Overhead Door Weather Stripping (Units)	Retrofit Attic Hatch (Units)	Roll-Up Door Weather Stripping (Units)	Roof-Wall Intersection Air Sealing (LF)	Wall Air Sealing (LF)	Wall Air Sealing (SF)
Burlington City High School			15		32	31	270	3		1	1,003		647
Lawrence Elementary School					4	19							
Samuel Smith Elementary School	9,452	9,452		3	7	4			1				
Watts Intermediate School					19	7		5			1,235	757	1,627
Total Quantity	9,452	9,452	15	3	62	61	270	8	1	1	2,238	757	2,274

Roof-Wall Joints

- **Existing** – Buildings were found to require roof-wall joint air sealing.
- **Proposed** – Honeywell recommends using a high-performance sealant. In some buildings, two-component foam will be used. Any cantilevers off the buildings will be sealed with backer rod and sealant. Finally, the inside vestibule corners should be sealed with backer rod and sealant.

Roof Penetrations

- **Existing** - Roof top exhaust fans that require damper cleaning, lubrication, and inspection for proper operation and to seal the roof deck to prevent penetration. Some units may be deemed to be too oversized for this service. Some buildings have roof-top AHUs with ducts that may show air leak during an IGA.
- **Proposed** – Honeywell recommends if there is leak, these duct penetrations will be sealed with two-component polyurethane foam. Skylights will also be sealed. Sealant will be injected behind the drip cap to eliminate airflow.

Roof Overhangs

- **Existing** – Roof overhangs at exterior doors are open to the drop ceilings, providing a pathway allowing heated and cooled air to escape between the interior and exterior of the building.
- **Proposed** – Honeywell proposes to install rigid foam boards and seal the perimeter and any penetrations with spray foam to prevent air leak and provide a sufficient thermal barrier between the spaces.

Windows

- **Existing** - The operable windows in most of the buildings could present air leak issues that require weather stripping with fuzz or gasket type materials.
- **Proposed** – Honeywell recommends installing weather stripping and door sweeps to prevent air leak.

Doors

- **Existing** – Doors may need full weather-stripping replacement and/or door sweeps.
- **Proposed** – Honeywell recommends new weather stripping and door sweeps to be installed where needed.

Benefits

This work will allow for more efficient operation of your buildings by reducing heating and cooling losses throughout the year. In addition, the draftiness of the buildings and hot and cold spots will be significantly reduced. A reduction in air infiltration will also minimize potential concerns for dirt infiltration or indoor air quality concerns including allergies.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The energy savings for this ECM are realized at the buildings' HVAC equipment. The improved building envelope will limit conditioned air infiltration through openings in the building air barrier. Less infiltration means less heating required by the heating system.

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

Building envelope will be improved with little or no noticeable changes.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minimal coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced HVAC energy usage and better occupant comfort.
Waste Production	Some existing caulking and weather-stripping will be removed and disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 4B Roofing Upgrades

The key benefits of this ECM include:

- **Energy savings** from reducing unwanted outside air infiltration.
- **Equipment longevity** due to more efficient and less wasteful equipment utilization.
- **Occupancy comfort and productivity** thanks to a tighter and more efficient building envelope.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
4B Roofing Upgrades			■	

EXISTING CONDITIONS

The existing roof at Samuel Smith ES is in poor condition. The heat loss and heat gains occurring due to low R-value of the existing roof insulation can be improved through sealing. Additionally, roofs in poor condition can lead to water migration and future building envelope problems. Potential problematic leakage areas can be around perimeters and equipment curbing. The following building roofs will be sealed to the extent needed to meet the maximum permissible solar installation.

Samuel Smith ES – Roof Replacement

Samuel Smith ES – Roof Replacement

PROPOSED SOLUTION

Honeywell proposes the installation of a new silicone coating or spray foam for the existing roof, provide resistance to water intrusion, UV exposure and natural weathering. The new sealing will allow for less infiltration through the roof and air conditioning units to work less.

EPDM vs Spray Foam

EPDM Single-ply roof with an initial R-Value of 18 will have a 15%+ loss in thermal resistance due to thermal shorts of steel fasteners. It will also have 10% increase in thermal transmittance when using single layer of insulation board. Finally, R-value and Air permeability of a deck, insulation and membrane has a major impact on System R-value. This will equate to a final overall System R-value equal to approximately 2.42.

An SPF roof has an R Value of approximately 6 per one (1) inch foam (R –Value 6) If three inches of SPF Foam where applied one monolithic, self-flashing system with air barrier – no loss of effective R-value would have an overall System R-value: 18

Durability

Single-ply EPDM roof will have a 45 mil water proofing layer, but will also have major fail points such as flashing, seams, fasteners and single-ply punctures. In contrast the SPF roof will not only have a top coat plus SPF insulation which is all water proofing, meaning even damaging top coat will not create leak.

Sustainability

Commercial buildings can have a maximum of 2 roofs in place. In traditional roofing, when a "third" roof is required, a partial or full tear-off is also required. This adds increased cost for tear-off, increased cost for disposal and a negative impact on the environment

With SPF roofing, the topcoat is the only part that needs to be re-applied after the warranty period. There is no "tear-off" required or disposal concerns. A quality applied SPF roof should last the life of the building

Table 15. Existing Roof Area to Upgrade

Building	Approximate Roof Square Footage
Burlington City HS	33,380
Wilber Watts IS	30,560
Samuel Smith ES	15,260
Captain James Lawrence ES	10,850

ENERGY SAVINGS METHODOLOGY AND RESULTS

The energy savings for this ECM are realized at the buildings' HVAC equipment. The improved roof will limit conditioned air infiltration through openings in the building air barrier. Less infiltration means less heating and cooling required by HVAC systems.

Following approach is used to determine savings for this specific measure:

Existing Roof Efficiency	*= Existing U + Existing Infiltration Rate*
Proposed Roof Efficiency	*= Proposed U + Proposed Infiltration Rate*
Energy Savings $	*= UAdTproposed – UAdTexisting*
Winter Savings (Therms)	*= Energy Savings/Boiler Eff./100,000*
Summer Savings (Tons Cooling)	*= Energy Savings/12,000 Btu/Ton*

INTERFACE WITH BUILDING

The new roof sealing will be constructed to match existing, maintaining contours of the existing building.

CHANGES IN INFRASTRUCTURE

The existing roofing will be sealed at the above referenced roof locations.

SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced HVAC energy usage and better occupant comfort.
Waste Production	Existing roof material will be removed and disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 5A Permanent Load Reduction- Reserved No Longer Applicable

The key benefits of this ECM include:

- **Reduced utility costs**.
- **Reduced energy usage** from improved efficiency resulting from replacement of older equipment.
- **Lower Operational Costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
5A Permanent Load Reduction	■	■	■	■

ECM OVERVIEW

This measure evaluates the savings from the decrease in power (KW) usage and the rebates associated with that reduction through the PJM Permanent Reduction Program. Honeywell proposes to continue to utilize a registered Demand Response Curtailment Service Provider (CSP) to provide energy response services to the School District. Through the CSP, the School District will participate in the PJM Capacity Market Program and PJM Energy Efficiency Program. These programs are offered through the PJM Regional Transmission Organization (RTO), and Independent System Operator (ISO). The Capacity Market Program allows PJM customers the ability to respond to capacity emergencies when called upon by PJM, and the energy efficiency program pays PJM customers for implementing Energy Conservation measures (ECMs) that result in permanent load reductions during defined hours.

Samuel Smith ES – Electric Meter

Burlington City HS – Switchboard

PJM CAPACITY MARKET PROGRAM

Capacity represents the need to have adequate resources to ensure that the demand for electricity can be met at all times. For PJM, that means that a utility or other electricity supplier, load serving entity, is required to have the resources to meet its consumers' demand plus a reserve amount. Electricity suppliers, load serving entities, can meet that requirement by owning and operating generation capacity, by purchasing capacity from others or by obtaining capacity through PJM's capacity market auctions.

Table 16. Permanent Load Reduction KW per Building

Building	Permanent Load Reduction (KW)
Burlington City HS	62
Wilber Watts IS	34
Samuel Smith ES	18
Captain James Lawrence ES	17
TOTAL	130

PJM operates a capacity market, called the Reliability Pricing Model (RPM). It is designed to ensure that adequate resources are available to meet the demand for electricity at all times. In the RPM, those resources include not only generating stations, but also demand response actions and energy efficiency measures by consumers to reduce their demand for electricity.

PJM must keep the electric grid operating in balance by ensuring there is adequate generation of electricity to satisfy the demand for electricity at every location in the region both now and in the future. PJM's markets for energy and ancillary services help maintain the balance now while the PJM market for capacity aims to keep the system in balance in the future. Resources, even if they operate infrequently, must receive enough revenue to cover their costs. Payments for capacity provide a revenue stream to maintain and keep current resources operating and to develop new resources. Investors need sufficient long-term price signals to encourage the maintenance and development of generation, transmission and demand-side resources. The RPM, based on making capacity commitments in advance of the energy need, creates a long-term price signal to attract needed investments for reliability in the PJM region.

PROPOSED SOLUTION

Honeywell proposes to work with a PJM Regional Transmission Organization (RTO), CSR to implement a Demand Response energy curtailment program which will generate revenue streams for the School District. Honeywell's Demand Response agent acting as the CSP will notify the district prior to potential events in order to advise and coordinate load curtailment participation in accordance with RTO program requirements and will work with the School District to benefit from energy efficiency improvements.

The PJM Markets are further described below.

The PJM Energy Efficiency Program Energy efficiency measures consist of installing more efficient devices or implementing more efficient processes/systems that exceed then-current building codes or other relevant standards. An energy efficiency resource must achieve a permanent, continuous reduction in demand for electricity. Energy efficiency measures are fully implemented throughout the delivery year without any requirement of notice, dispatch, or operator intervention. A demand response resource can reduce its demand for electricity when instructed; this means PJM considers it a "dispatchable resource". A demand response resource can participate in the RPM market for as long as its ability to reduce its demand continues. A demand response resource must be willing to reduce demand for electricity up to 10 times each year when called for a reduction. In a year without any reduction calls, the demand response resource is required to demonstrate the ability to reduce demand for electricity during a test of reduction capability. Data will be submitted by the demand response resource to prove compliance with reductions from actual calls or reductions from capability tests. An energy efficiency resource is one that reduced their demand for electricity through an energy efficiency measure that does not require any additional action by the consumer.

ENERGY SAVINGS METHODOLOGY AND RESULTS

Revenue is generated through participation in the PJM DR program.

Year	Distributed Generation Savings ($)
Installation	
1	$1,675.42
2	$1,712.28
3	$1,749.95
4	$1,788.45
5	$1,827.79
6	$1,868.00
7	$1,909.10
8	$1,951.10
9	$1,994.02
10	$2,037.89
11	$2,082.73
12	$2,128.55
13	$2,175.37
14	$2,223.23
15	$2,272.14
16	$2,322.13
17	$2,373.22
18	$2,425.43
19	$2,478.79
20	$2,533.32
Totals	**$41,528.91**

CHANGES IN INFRASTRUCTURE

None

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Initiation of demand response curtailment will be required.

ENVIRONMENTAL ISSUES

Resource Use	None.
Waste Production	This measure will produce no waste by-products.
Environmental Regulations	None.

ECM 6A CHP (Cogeneration)

The key benefits of this ECM include:

- **Energy savings** from utilizing a Combined Heat and Power (CHP) system to supplement the existing heating system.
- **Operational savings** resulting from improved operational efficiencies unique to CHP technology.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
6A Cogeneration CHP	■			

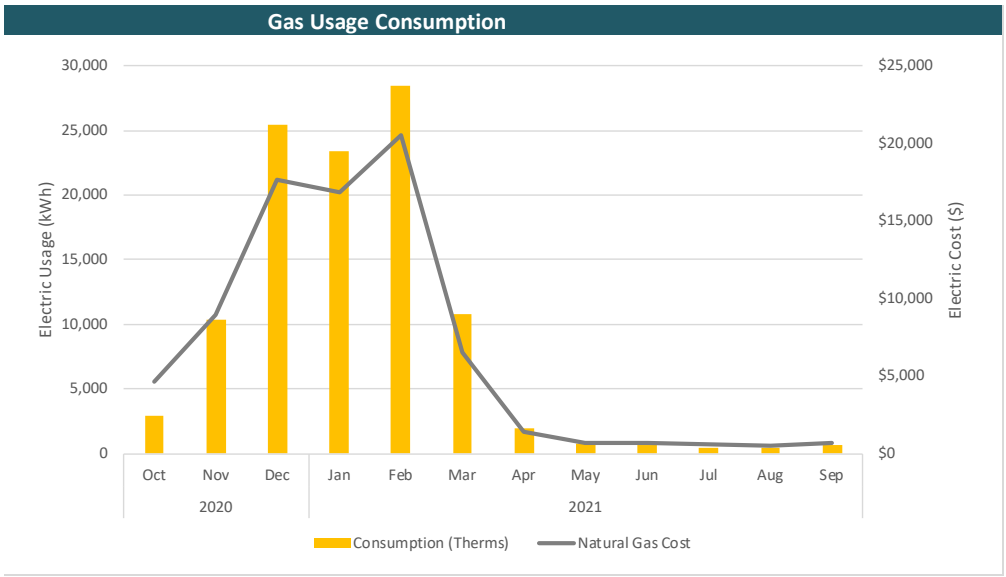
EXISTING CONDITIONS

No Combined Heat and Power (i.e. cogeneration) units are currently located within the District.

Cogeneration Configuration

Ecopower CHP

Annual Thermal Usage at HS



PROPOSED SOLUTION

Honeywell recommends the installation of the ecopower micro-cogeneration system provides heat and electrical power in a cost effective and environmentally friendly manner. Using a natural gas or propane fueled Marathon Engine, the system captures thermal energy for space heating or domestic hot water. The mCHP uses heat generated by an internal combustion engine to produce between 13,000 - 47,000 BTU of heat per hour while simultaneously co-generating 1.2 - 4.4kW of electricity per hour. The system is thermally driven. The ecopower will anticipate the heat demand from sensors located in the house, buffer tank or outside and varies it's output to satisfy the demand. It will modulate (slow down or speed up) to run at a level to maintain a constant heat requirement in order to keep the engine running as long as possible, ensuring maximum electrical generation.

SCOPE OF WORK

Table 17. Proposed Cogeneration Units

Building	Type	Manufacturer	KW	Model
Burlington City HS	Axiom	Ecopower	4.4	1

ENERGY SAVINGS METHODOLOGY AND RESULTS

Savings are based on energy conversion of natural gas to thermal and electrical energy.

EQUIPMENT INFORMATION

Manufacturer and Type	Axiom Ecopower, Electrical Output 1.2-4.4 kW, Thermal Output 13,000 -47,000 Btu/hr, Overall efficiency 93%
Equipment Identification	Product cut sheets and specifications for generally used are available upon request. As part of the measure design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

The proposed micro-generator unit would reside in or near the boiler room.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. The customer and Honeywell will decide upon the exact location of the CHP installation.

ENVIRONMENTAL ISSUES

Resource Use	Energy will be generated to supplement energy purchased from the electrical utility.
Waste Production	Any removed parts will be disposed of properly.
Environmental Regulations	Aside from the environmental benefits from on-site energy generation, no other environmental impact is expected.

ECM 7A Solar PPA

The key benefits of this ECM include:

- **Reduced utility costs**.
- **Guaranteed utility rates** for 15 years to provide a valuable hedge against future price volatility and deliver greater budgetary certainty utilizing clean electricity.
- **Additional savings** from solar can provide the schools with more potential ESIP funding to expand the overall project scope and include additional projects.
- **Educational asset** to provide additional tools for teachers to engage students on sustainability and the environment.
- **Low risk** given that maintenance is provided by the 3rd party system owner.
- **No upfront costs**.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
7A Solar PPA	■	■	■	■

ECM OVERVIEW

Honeywell recommends that the District further assess the feasibility of a solar photovoltaic system on District owned roofs to generate on-site renewable electricity. This could be provided at no upfront cost via a Power Purchase Agreement (PPA). A PPA is a public-private partnership financial arrangement in which a third-party solar company owns, operates, and maintains your photovoltaic system, while the host customer agrees to provide the site for the system on its property. The solar system's power production is purchased by you for a predetermined price ($/kWh) and for a predetermined period. This stable price for electricity will be lower than the utilities and third-party suppliers, thereby allowing you to benefit from lower electricity t prices, on-site renewable energy generation, a reduction in greenhouse gas emissions and a powerful educational tool for your teachers and students. Meanwhile, the system will not add any additional maintenance costs since it is owned by the third-party solar company. One of the more significant benefits of this potential ECM is that it will provide for a rate change, helping to deliver greater savings within your ESIP project to help fund other measures

Typical Rooftop Solar Array

Typical Parking Lot Solar Array

Honeywell will oversee the design and construction of the system. We will assist in the feasibility study during your IGA, in conjunction with your technical consultant and legal team, to provide RFP development, solicitation, and oversight of the installation of a solar photovoltaic system.

PROPOSED SOLUTION

Honeywell proposes to install the solar PPA system at the potential buildings listed in the chart below.

Table 18. Proposed Solar PPA System

Building	Type	KW DC	kWh AC Generated
Burlington City HS	PPA	333.8	461,631
Wilber Watts IS	PPA	305.6	422,631
Samuel Smith ES	PPA	152.6	211,039
Captain James Lawrence ES	PPA	108.5	150,051
Total		**520.0**	**1,245,352**

ENERGY SAVINGS METHODOLOGY AND RESULTS

Savings are based on the difference in kWh price between the PPA and the District's current electrical supplier.

CHANGES IN INFRASTRUCTURE

The proposed solar array would be roof-mounted only.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	None.
Waste Production	None.
Environmental Regulations	Aside from the environmental benefits of increasing energy awareness no other environmental impact is expected.

ECM 8A Roof Top Unit Replacements

The key benefits of this ECM include:

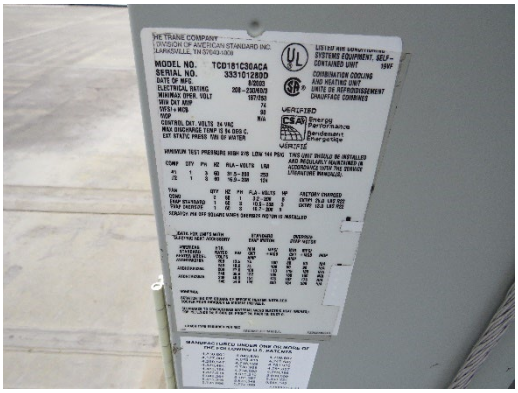
- **Reduced energy usage** from improved efficiency resulting from replacement or repair of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
8A Rooftop Unit Replacements	■			

EXISTING CONDITIONS

Some Rooftop Units (RTUs) serving the locations in the table below are inefficient or past their useful lives. Replacing these units with new, high efficiency units or repairing existing units will save energy costs over the long term.

Burlington City HS - RTU



Burlington City HS - RTU

EXISTING ROOFTOP UNITS TO BE REPLACED

Table 19. Existing Rooftop Units for Replacement

Building	Location Served	Manufacturer	Model	Tons	Qty
Burlington City HS	E Wing Gym	Trane	TCD181C30ACA	15.0	1
Burlington City HS	E Wing Gym	Trane	TCD181C30ACA	15.0	1

PROPOSED SOLUTION

Honeywell proposes replacing the existing rooftop units in the above table. The new units will be installed in the same location as the existing units. Existing electrical power supply will be reconnected to the new units. The new units will be equipped with factory-installed microprocessor controls that improve unit efficiency. The units will also communicate with the building management system.

Table 20. Proposed Rooftop Units for Replacement

Building	Location Served	Manufacturer	Model	Tons	Qty
Burlington City HS	E Wing Gym	Trane	TCD	15.0	1
Burlington City HS	E Wing Gym	Trane	TCD	15.0	1

SCOPE OF WORK

Install new rooftop units:

- Disconnect existing RTU electric connections.
- Disconnect piping and air ducts from the unit.
- Remove unit from the base.
- Modify base for new unit if necessary.
- Rig and set new unit at the base.
- Inspect piping and air ducts before reconnecting them to the unit.
- Reconnect piping and air ducts.
- Repair duct and piping insulation.
- Connect electric power.
- Start up and commissioning of new unit.
- Maintenance operator(s) training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy savings	*= Existing unit energy consumption (kWh) – proposed unit energy consumption (kWh)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. Honeywell and the customer will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New rooftop units will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing unit scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 8B AHU / RTU Refurbishments

The key benefits of this ECM include:

- **Energy savings** from increased equipment efficiency.
- **Equipment longevity** due to more efficient and less wasteful equipment utilization.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
8B AHU Refurbishments	■	■	■	■

EXISTING CONDITIONS

AHUs in the table below are inefficient. Repairing existing units will save energy costs over the long term.

AHU – Burlington City HS

AHU – Captain James Lawrence ES

Table 21. Existing AHU/ RTU Repair Scope Overview

Building	Total Supply CFM	Total OA CFM	Qty.
Burlington City HS	82,000	12,300	15
Wilber Watts IS	104,800	15,720	10
Samuel Smith ES	29,000	4,350	7
Captain James Lawrence ES	33,000	4,950	6

Table 22. Existing RTUs for Repair

Building	Manufacturer	Model	Location Served	Tons	Qty
Captain James Lawrence ES	Trane	THC060A3R0A07R2	Rm 123	5.0	1
Captain James Lawrence ES	Trane	THC092A3R0A0UE0000A	Hallway	7.5	1
Captain James Lawrence ES	Trane	TCD301C30ACA	Gymnasium	25.0	1
Captain James Lawrence ES	Trane	TCD301C30ACA	Gymnasium	25.0	1

Building	Manufacturer	Model	Location Served	Tons	Qty
Samuel Smith ES	Trane	TCD301C30ACA	Multipurpose Room	25.0	1
Samuel Smith ES	Trane	TCD301C30ACA	Multipurpose Room	25.0	1
Samuel Smith ES	Trane	THC060A3R0A0	100 Wing Hallway	5.0	1
Samuel Smith ES	Trane	THC060A3RUA07R3	Gym Hallway	5.0	1
Samuel Smith ES	Trane	YHC060A	300 Wing Hallway	5.0	1

Table 23. Existing AHUs for Repair

Building	Manufacturer	Model	Location Served	Heat Output	Cooling Tons	Qty
Burlington City HS	AnnexAir	ERP-E-07-HW-H-C	A-Wing Classrooms	180	18	1
Burlington City HS	AnnexAir	ERP-E-07-HW-H-C	A-Wing Classrooms	180	18	1
Burlington City HS	AnnexAir	ERP-E-12-HW-H-C	Media Center	320	32	1
Burlington City HS	AnnexAir	CRP-E-07-HW-H-C	Auditorium	180	18	1
Burlington City HS	AnnexAir	CRP-E-05-HW-H-C	Rm 159	140	14	1
Burlington City HS	AnnexAir	CRP-E-07-HW-H-C	B Wing Classrooms	180	18	1
Burlington City HS	AnnexAir	CRP-E-05-HW-H-C	F Wing Classrooms	140	14	1
Burlington City HS	AnnexAir	CRP-E-03-HW-H-C	Office	75	7.5	1
Burlington City HS	AnnexAir	ERP-E-04-HW-H-C	Rm 160	110	11	1
Burlington City HS	AnnexAir	CRP-E-03-HW-H-C	E Wing Locker Room	75	7.5	1
Burlington City HS	AnnexAir	ERP-E-06-HW-H-C	Office	150	15	1
Burlington City HS	AnnexAir	AHU-R-02-H-C		50	5	1
Burlington City HS	AnnexAir	ERP-E-04-HW-H-C	Stage	110	11	1
Burlington City HS	AnnexAir	ERP-E-04-HW-H-C	Auditorium	110	11	1
Burlington City HS	AnnexAir	ERP-E-02-HW-H-C	Rm 196 - Practice	50	5	1
Captain James Lawrence ES	Trane	SCRBC1060P03011A012AA00F	Cafeteria	100	10	1
Captain James Lawrence ES	Trane	SCRBA1060P03011A012AA00F	Cafeteria	100	10	1

Building	Manufacturer	Model	Location Served	Heat Output	Cooling Tons	Qty
Samuel Smith ES	Trane	TWE030P130B0		25	2.5	1
Samuel Smith ES	Trane	SCRBC1060P03011A012AA	Cafeteria	100	10	1
Wilber Watts IS	AnnexAire	ERP-E-07-HW-H-C	Classrooms	180	18	1
Wilber Watts IS	AnnexAire	ERP-E-12-HW-H-C	Auditorium	320	32	1
Wilber Watts IS	AnnexAire	ERP-E-16-HW-H-C	Classrooms	400	40	1
Wilber Watts IS	AnnexAire	ERP-E-04-HW-H-C	Office	110	11	1
Wilber Watts IS	AnnexAire	ERP-E-05-HW-H-C	Cafeteria	140	14	1
Wilber Watts IS	AnnexAire	ERP-E-12-HW-H-C	Gymnasium	320	32	1
Wilber Watts IS	AnnexAire	ERP-E-16-HW-H-C	Classrooms	400	40	1
Wilber Watts IS	AnnexAire	ERP-E-16-HW-H-C	Classrooms	400	40	1
Wilber Watts IS	AnnexAire	ERP-E-09-HW-H-C	Office	240	24	1
Wilber Watts IS	AnnexAire	ERP-E-04-HW-H-C	Lobbies and Commons Areas	110	11	1

PROPOSED SOLUTION

Honeywell proposes repairing the existing air handling units in the above table.

SCOPE OF WORK

Repair Path General:

- Mechanical Damper Repair
- **Coil Cleaning**
- For control systems that are electronic and end of life and no longer available a new DDC controller will be provided. In addition, a replacement thermostat (with CO2) and new actuator will be provided and installed.
- For unit ventilators where the controller is with-in the useful life the controller will be verified and actuator will be repaired or replaced if needed.
- Filter upgrade to highest MERV possible
- CO2 Sensor to provide continuous monitoring
- Qualified personnel and certified energy auditor for project implementation

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy savings	*=Existing unit energy consumption (kWh) – proposed unit energy (kWh)*

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing unit scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 8C Unit Ventilator Refurbishments

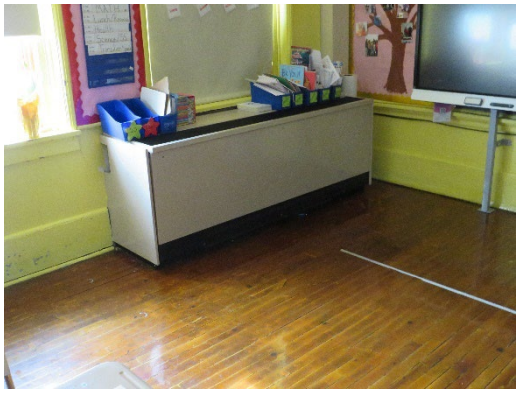
The key benefits of this ECM include:

- **Reduced energy usage** from improved efficiency resulting from replacement or repair of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
8C Unit Ventilator Refurbishments	■		■	■

EXISTING CONDITIONS

Honeywell observed that some existing unit ventilators are inefficient and need to be repair.



Samuel Smith ES – Unit Ventilator

Captain James Lawrence ES – Unit Ventilator

EXISTING UNIT VENTILATORS TO BE REFURBISHED

Table 24. Existing Unit Ventilators

Building	Room	Type	Make	Model	Unit Qty
Captain James Lawrence ES	Rm 206	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 108A	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 108B	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 200A	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 200B	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 120	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 118	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 104A	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 104B	Steam/DX	Trane	VUV*125	1

Building	Room	Type	Make	Model	Unit Qty
Captain James Lawrence ES	Rm 102	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 100	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 101	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 103	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 116A	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 201	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 203	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 205	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 207	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 106A	Steam/DX	Trane	VUV*100	1
Captain James Lawrence ES	Rm 106B	Steam/DX	Trane	VUV*100	1
Captain James Lawrence ES	Rm 108	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 112	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 111	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 109	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 107	Steam/DX	Trane	VUV*125	1
Captain James Lawrence ES	Rm 105	Steam/DX	Trane	VUV*125	1
Samuel Smith ES	Rm 113	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 107	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 101	Steam/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 103	Steam/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 103	Steam/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 304	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 306	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 308	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 310	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 312	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 314	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 313	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 311	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1

Building	Room	Type	Make	Model	Unit Qty
Samuel Smith ES	Rm 309	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 307	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 305	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 303	Hot Water/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 100A	Steam/DX	Lennox / Thermal Zone	VUV*100	1
Samuel Smith ES	Rm 100B	Steam/DX	Lennox / Thermal Zone	VUV*100	1
Samuel Smith ES	Rm 102	Steam/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 104	Steam/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 106 (Principal)	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 108 (Main Office)	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 206A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 206B	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 207A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 207B	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 208A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 208B	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 209A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 209B	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 210A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 210B	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 211A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 211B	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 212A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 212B	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 213A	Steam/DX	Lennox / Thermal Zone	VUV*075	1
Samuel Smith ES	Rm 213B	Steam/DX	Lennox / Thermal Zone	VUV*075	1

Building	Room	Type	Make	Model	Unit Qty
Samuel Smith ES	Rm 1	Steam/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 2	Steam/DX	Lennox / Thermal Zone	VUV*125	1
Samuel Smith ES	Rm 6	Steam/DX	Lennox / Thermal Zone	VUV*100	1
Burlington City HS	Throughout Building	Hot Water/Chilled Water	Carrier	VUV*125	69

PROPOSED SOLUTION

Honeywell proposes to refurbish existing unit ventilators.

Building	Existing	Proposed	Qty
Captain James Lawrence ES	Steam Unit Ventilators	Repair Existing Unit Ventilators	26
Samuel Smith ES	Hot Water and Steam Unit Ventilators	Repair Existing Unit Ventilators	42
Burlington City HS	Hot Water Unit Ventilators	Repair Existing Hot Water Unit Ventilators	69

SCOPE OF WORK

The following outlines the unit ventilator replacements:

1. Disconnect electrical and steam from existing units.
2. Install new unit vents and reconnect, steam and electric.
3. Start up, commissioning and operator training

ENERGY SAVINGS METHODOLOGY AND RESULTS

In general, Honeywell uses the following approach to determine savings for this specific measure:

Existing Univent Efficiency	*= Heat Input x Existing Efficiency*
Proposed Univent Efficiency	*= Heat Input x New Efficiency*
Energy Savings $	*= Heating Production (Proposed Efficiency – Existing Efficiency)*

CHANGES IN INFRASTRUCTURE

None.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.

ENVIRONMENTAL ISSUES

Resource Use	Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.
Waste Production	Existing units scheduled for removal will be disposed of properly.
Environmental Regulations	Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.

ECM 8D Heat Wheel Retrofit

The key benefits of this ECM include:

- **Reduced energy usage** from improved energy recovery efficiency resulting from heat wheel retrofit.
- **Lower operational costs** through less frequent maintenance and operational issues.
- **Increased comfort** of students and teachers.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
8D Heat Wheel Retrofit		■		

EXISTING CONDITIONS

Some Heat Wheels in Air Handling Units at Wilber Watts IS are not functioning or inefficient. Heat wheels are rotating exchangers that transfer heat between two air streams with different temperatures. Failure may occur on heat wheel components including media, seals, hub and bearings, shaft, spokes, motor, belt, or rims. Broken Heat Wheel reduces the efficiency of heat transfer from the exhaust air stream to the supply air stream and thus increases energy usage.

Typical Heat Wheel

Wilber Watts IS - AHU

EXISTING HEAT WHEEL TO BE REPAIRED

Table 25. Existing Heat Wheel for Repair

Building	Location Served	Manufacturer	Model	Tons	Qty
Wilber Watts IS	Classrooms	Annexair	ERP-E-07-HW-H-C	18	1
Wilber Watts IS	Auditorium	Annexair	ERP-E-12-HW-H-C	32	1
Wilber Watts IS	Classrooms	Annexair	ERP-E-16-HW-H-C	40	1
Wilber Watts IS	Office	Annexair	ERP-E-04-HW-H-C	11	1
Wilber Watts IS	Cafeteria	Annexair	ERP-E-05-HW-H-C	14	1

Building	Location Served	Manufacturer	Model	Tons	Qty
Wilber Watts IS	Gymnasium	Annexair	ERP-E-12-HW-H-C	32	1
Wilber Watts IS	Classrooms	Annexair	ERP-E-16-HW-H-C	40	1
Wilber Watts IS	Classrooms	Annexair	ERP-E-16-HW-H-C	40	1
Wilber Watts IS	Office	Annexair	ERP-E-09-HW-H-C	24	1
Wilber Watts IS	Lobbies and Commons Areas	Annexair	ERP-E-04-HW-H-C	11	1

PROPOSED SOLUTION

It is recommended that the Heat Wheels listed in the table above to be repaired. This will increase the heat transferred by the heat wheel and recover more energy from exhaust air. Repairing those failed Heat Wheels will reduce energy consumption, lower operational costs, and improve occupant comfort.

CHANGES IN INFRASTRUCTURE

New digital signs will be installed at each school.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher unit efficiency.
Waste Production	Existing components scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 8E HVAC Assessment and Verification for SSB-VEEVR

The key benefits of this ECM include:

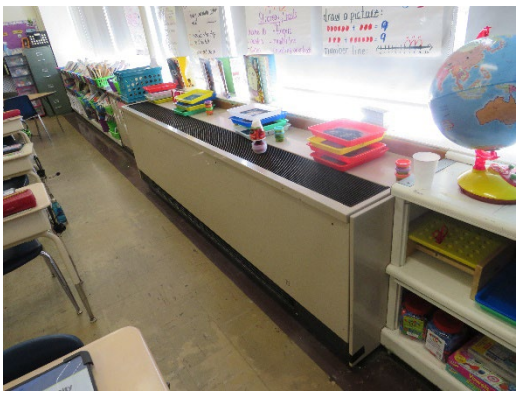
- **Reduced energy usage** from improved energy recovery efficiency resulting from heat wheel retrofit.
- **Lower operational costs** through less frequent maintenance and operational issues.
- **Increased comfort** of students and teachers.

ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
8E Assessment and Verification	■	■	■	■

PROPOSED SOLUTION

HVAC Assessment and Replacement/New System Pathway will be made for the purchase and installation of a new HVAC system or unit, by way of replacement, addition, or otherwise. Honeywell shall provide supporting documentation showing that the existing HVAC equipment (or lack thereof) is unable to meet the minimum ventilation and filtration standards described in this School and Small Business Ventilation and Energy Efficiency and Verification and Repair Program (SSB-VEEVR) Guide without an HVAC system or unit replacement. All proposed new systems or HVAC system replacements will meet or exceed the ventilation and filtration standards described in SSB-VEEVR Guide, and the new or replacement HVAC system must also meet the necessary and cost-effectiveness standards set forth in this Guide.

Burlington HS RTU



Lawrence Univent

EXISTING EQUIPMENT FOR ASSESSMENT ANDF VERIFICATION SCOPE OF WORK

Table 26. Assessment and Verification Scope of Work

Building	AHU/RTU Refurbished	AHU/RTU Replaced	Univentilators Refurbished
Burlington City HS	15	2	69
Wilber Watts IS	10		
Samuel Smith ES	7		42
Captain James Lawrence ES	6		

CHANGES IN INFRASTRUCTURE

None

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief periods.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher unit efficiency.
Waste Production	Existing components scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 9A ADA Elevator- 15% Non- Energy Measure- Not Selected

The key benefits of this ECM include:

- **Provide safe and quick accessibility** for people in need from floor to floor.
- **Meet ADA requirements** that will allow the school to be accessible to people with disabilities.
- The district has decided to not address the elevator in this project, but the savings and benefit for including this as part of the ESIP would have been to have Honeywell would manage the bid process and project management in conjunction with the other projects thus saving them additional resources. The district may select an alternate non-energy related project depending on their needs.

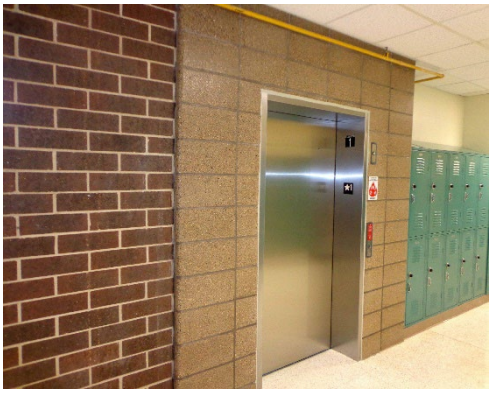
ECM Description	Burlington City HS	Wilber Watts IS	Samuel Smith ES	Captain James Lawrence ES
9A ADA Elevator				■

EXISTING CONDITIONS

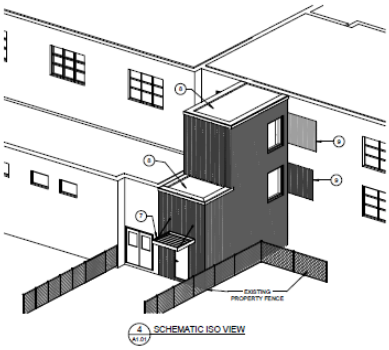
No Elevator is currently located at Captain James Lawrence ES. The basement and second floor of the building are not accessible to people with disabilities.

PROPOSED SOLUTION

Honeywell proposes to install a single car hydraulic elevator at Captain James Lawrence ES. The elevator will meet all ADA required compliance. This will provide quick and safe access from basement to second floor of the building. People with physical disabilities could use the elevator to get to classrooms, cafeteria, or offices for various events.



Typical School Elevator



Captain James Lawrence ES – Potential Elevator Location

CHANGES IN INFRASTRUCTURE

New elevator will be installed at Captain James Lawrence ES.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	New elevator may increase electricity usage, depending on existing conditions.
Waste Production	Construction waste will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

SECTION D
TECHNICAL & FINANCIAL SUMMARY

Section D — Technical & Financial Summary

1. Recommended ESIP Project

Recommended ESIP Project	
Value of Project	$5,528,278
Term of Repayment	20 YRS
Projected Savings Over Term	$6,199,387
Projected NJ Rebates & Incentives	$59,898
Projected Interest Rate	3.5%

Form II: Recommended Project — Energy Conservation Measures (ECMs) Summary Form

FORM II
ESCO's ENERGY SAVINGS PLAN (ESP):
ENERGY CONSERVATION MEASUREs (ECMs) SUMMARY FORM
BURLINGTON CITY SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: Honeywell International

Proposed Preliminary Energy Savings Plan: ECMs (Base Project)	Estimated Costs $	Estimated Annual Savings $	Estimated Simple Payback (years)
1A LED Lighting Upgrades	$ 1,870,787	$ 194,319	9.63
2D Chiller Replacements	$ 847,140	$ 6,998	121.05
2G Vacuum Tank Replacements	$ 159,294	$ 1,267	125.68
3A Building Management System Upgrades	$ 847,405	$ 38,366	22.09
4A Building Envelope Improvements	$ 257,398	$ 16,865	15.26
6A Cogeneration CHP	$ 148,308	$ 1,374	107.93
8A Rooftop Unit Replacement	$ 295,729	$ 3,213	92.05
8B AHU / RTU Refurbishments	$ 404,311	$ 12,846	31.47
8C Univentilator Refurbishments	$ 506,836	$ 11,883	42.65
8E HVAC Assessment and Verification for SSB-VEEVR	$ 191,071	$ -	-
Add additional lines as needed* **Project Summary:**	$ 5,528,278	$ 287,132	19.25

Optional ECMs Considered, but not included with base project at this time	Estimated Costs $	Estimated Annual Savings $	Estimated Simple Payback (years)
1B Lighting Controls	$ 68,913	$ 4,400	15.66
1C LED Field Lighting	$ 485,444	$ 32,371	15.00
1D De-Stratification Fans w/ UV Disinfection	$ 291,009	$ 3,322	87.60
2A Boiler Replacements	$ 833,426	$ 2,228	374.00
2B Burner Replacements and Controls	$ 182,041	$ 2,387	76.25
2C Domestic Water Heater Replacement	$ 229,394	$ 440	521.89
2E Split System Replacements	$ 2,844,723	$ 4,526	628.59
2F Convert Steam to Hot Water System	$ 10,736,385	$ 14,650	732.84
2H Kitchen Hood Controllers	$ 109,133	$ 2,075	52.58
3B FORGE Energy Optimization	$ 359,342	$ 27,842	12.91
4B Roofing Upgrades	$ 347,244	$ 7,253	47.87
5A Permanent Load Reduction	$ -	$ -	-
7A Solar PPA	$ 0	$ 13,300	0.00
8D Heat Wheel Retrofit	$ 758,506	$ 7,347	103.25

Proposed Energy Related Capital Improvements	Supporting ECM	Estimated Cost $	Percentage of Total Project Cost (Not to exceed 15%)
9A ADA Elevator - Not Selected		$ 1,571,119	22%

Add additional lines as needed*

Form III: Recommended Project — Projected Annual Energy Savings Data Form

FORM III

ESCO's ENERGY SAVINGS PLAN (ESP)
PROJECTED ANNUAL ENERGY SAVINGS DATA FORM
BURLINGTON CITY SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: **Honeywell International**

The projected annual savings for each fuel type MUST be completed using the following format. Data should be given in the form of fuel units that appear in the utility bills.

Energy/Water	ESCO Developed Baseline (Units)	ESCO Developed Baseline (Costs $)	Proposed Annual Savings (Units)	Proposed Annual Savings (Costs $)
Electric Demand (KW)	11,179	$86,149	2,936	$22,298
Electric Energy (KWH)	4,773,293	$639,750	1,573,425	$182,584
Natural Gas (therms)	257,911	$191,029	50,031	$30,911
Fuel Oil (Gal)	0	$0	0	$0
Steam (Pounds)				
Water (gallons)				
Other (Specify Units)				
Other (Specify Units)				
Avoided Emissions (1)	Provide in Pounds (Lbs)			
NOX	1,766			
SO2	1,054			
CO2	1,617,079			

(1) ESCOs are to use the rates provided as part of this RFP to calculate Avoided Emissions. Calculation for all project energy savings and greenhouse gas reductions will be conducted in accordance with adopted NJBPU protocols

(2) "ESCOs Developed Baseline": Board's current annual usages and costs as determined by the proposing ESCO; based off Board's utility information as provided to proposing ESCO.

(3) "Proposed Annual Savings": ESCOs proposed annual savings resulting from the Board's implementation of the proposed ESP, as based upon "ESCOs Developed Baseline".

Form IV: Recommended Project — Projected Annual Energy Savings Data Form in MMBTUs

FORM IV

ESCO's ENERGY SAVINGS PLAN (ESP):
PROJECTED ANNUAL ENERGY SAVINGS DATA FORM IN MMBTUs
BURLINGTON CITY SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: **Honeywell International**

The projected annual energy savings for each fuel type MUST be completed using the following format. Data should be given in equivalent MMBTUs.

ENERGY	ESCO Developed Baseline	ESCO Proposed Savings Annual	Comments
Electric Energy (MMBTUs)	16,286	5,369	
Natural Gas (MMBTUs)	25,791	5,003	
Fuel Oil (MMBTUs)	0	0	
Steam (MMBTUs)			
Other (Specify) (MMBTUs)			
Other (Specify)			

NOTE: MMBTU Defined: A standard unit of measurement used to denote both the amount of heat energy in fuels and the ability of appliances and air conditioning systems to produce heating or cooling.

Honeywell

Form VI: Recommended Project — District Preliminary Annual Cash Flow Analysis Form

FORM VI
ESCO's ENERGY SAVINGS PLAN (ESP):
ESCO's PRELIMINARY ANNUAL CASH FLOW ANALYSIS FORM
BURLINGTON CITY SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: **Honeywell International**

Note: Proposers must use the following assumptions in all financial calculations:
(a) The cost of all types of energy should be assumed to inflate at: **2.4%** gas, **2.2%** electric per year

1. Term of Agreement: **20** (Years) (Months)
2. Construction Period (months)[2]: **12**
3. Cash Flow Analysis Format:

Form II Costs	$	5,528,278
Energy Audit	$	40,015
Project Costs[1]	$	5,568,293
Bond Counsel Muni Advisor	$	35,000
SSB Grant First Payment	$	(604,550)
Contingency/Rounding		
Financed Value:	$	4,998,743

Interest Rate to Be Used for Proposal Purposes: **3.5%**

Year	Annual Energy Savings	Solar Savings	Annual Operational Savings	SSB-VEEVR Grant	Energy Rebates/Incentives[2]	Total Annual Savings	Annual Project Costs	Board Costs	Annual Service Costs[3]	Net Cash-Flow to Client
Installation	$ 82,528					$ 82,528	$ (82,528)	$ (82,528)	$ -	$ (0)
1	$ 235,793	$ -	$ 51,339	$ 697,493	$ 59,898	$ 1,044,523	$ (1,039,723)	$ (1,009,723)	$ 30,000	$ 4,800
2	$ 241,043	$ -	$ 51,339	$ 94,722	$ -	$ 387,103	$ (382,303)	$ (382,303)	$ -	$ 4,800
3	$ 246,409	$ -	$ 23,768		$ -	$ 270,177	$ (265,377)	$ (265,377)	$ -	$ 4,800
4	$ 251,895	$ -	$ 23,768		$ -	$ 275,663	$ (270,863)	$ (270,863)	$ -	$ 4,800
5	$ 257,503	$ -	$ 23,768			$ 281,271	$ (276,471)	$ (276,471)	$ -	$ 4,800
6	$ 263,236	$ -				$ 263,236	$ (258,436)	$ (258,436)	$ -	$ 4,800
7	$ 269,096	$ -				$ 269,096	$ (264,296)	$ (264,296)	$ -	$ 4,800
8	$ 275,088	$ -				$ 275,088	$ (270,288)	$ (270,288)	$ -	$ 4,800
9	$ 281,213	$ -				$ 281,213	$ (276,413)	$ (276,413)	$ -	$ 4,800
10	$ 287,474	$ -				$ 287,474	$ (282,674)	$ (282,674)	$ -	$ 4,800
11	$ 293,875	$ -				$ 293,875	$ (289,075)	$ (289,075)	$ -	$ 4,800
12	$ 300,419	$ -				$ 300,419	$ (295,619)	$ (295,619)	$ -	$ 4,800
13	$ 307,108	$ -				$ 307,108	$ (302,308)	$ (302,308)	$ -	$ 4,800
14	$ 313,947	$ -				$ 313,947	$ (309,147)	$ (309,147)	$ -	$ 4,800
15	$ 320,938	$ -				$ 320,938	$ (316,138)	$ (316,138)	$ -	$ 4,800
16	$ 328,085					$ 328,085	$ (323,285)	$ (323,285)	$ -	$ 4,800
17	$ 335,391					$ 335,391	$ (330,591)	$ (330,591)	$ -	$ 4,800
18	$ 342,860					$ 342,860	$ (338,060)	$ (338,060)	$ -	$ 4,800
19	$ 350,495					$ 350,495	$ (345,695)	$ (345,695)	$ -	$ 4,800
20	$ 358,301					$ 358,301	$ (355,895)	$ (355,895)	$ -	$ 2,406
Totals	$ 5,942,694	$ -	$ 173,981	$ 792,215	$ 59,898	$ 6,968,788	$ (6,875,183)	$ (6,845,183)	$ 30,000	$ 93,605

NOTES:

(1) Includes: Hard costs and project service fees defined in ESCO's PROPOSED "FORM V"

(2) No payments are made by Board during the construction period. regarding the procurement of all subcontractors.

(3) This figure should equal the value indicated on the ESCO's PROPOSED "FORM V". DO NOT include in the Financed Project Cost

(4) As of 7/1/21, Board approved utility EE programs replaced certain NJ CEP offerings. Subsequently, the BPU is requiring that all ESIP projects consult with the DCA and follow all DCA guidance regarding the procurement of all subcontractors. Additionally utility incentives must be detailed on ESIP forms.

HONEYWELL IS NOT ACTING AS A MUNICIPAL ADVISOR OR FIDUCIARY ON YOUR BEHALF. ANY MUNICIPAL SECURITIES OR FINANCIAL PRODUCTS INFORMATION PROVIDED IS FOR GENERAL INFORMATIONAL AND EDUCATIONAL PURPOSES ONLY AND YOU SHOU OBTAIN THE ADVICE OF A LICENSED AND QUALIFIED FINANCIAL ADVISOR REGARDING SUCH INFORMATION.

Building-by-Building Simple Payback Summary

Building & ECM	kWh Savings ($)	kW Savings ($)	Natural Gas Savings ($)	Annual Energy Cost Savings ($)	Annual Operational Savings ($)	Estimated Cost ($)	Simple Payback
Burlington City HS	**$ 83,982**	**$ 10,484**	**$ 7,451**	**$ 127,187**	**$ 25,270**	**$ 2,668,106**	**21.0**
1A LED Lighting Upgrades	$ 72,928	$ 10,121	$ (2,275)	$ 92,294	$ 11,520	$ 888,857	9.6
2D Chiller Replacements	$ 3,084	$ -	$ -	$ 3,084	$ -	$ 409,291	132.7
2G Vacuum Tank Replacements	$ -	$ -	$ -	$ -	$ -	$ -	-
3A Building Management System Upgrades	$ 3,103	$ -	$ 3,151	$ 6,254	$ -	$ 242,723	38.8
4A Building Envelope Improvements	$ 1,842	$ -	$ 4,442	$ 6,285	$ -	$ 90,420	14.4
6A Cogeneration CHP	$ 1,312	$ 363	$ (301)	$ 1,374	$ -	$ 148,314	107.9
8A Rooftop Unit Replacement	$ 1,713	$ -	$ -	$ 3,213	$ 1,500	$ 295,741	92.1
8B AHU / RTU Refurbishments	$ -	$ -	$ 433	$ 4,933	$ 4,500	$ 185,526	37.6
8C Univentilator Refurbishments	$ -	$ -	$ 2,001	$ 9,751	$ 7,750	$ 322,017	33.0
8E HVAC Assessment and Verification for SSB-VEEVR	$ -	$ -	$ -	$ -	$ -	$ 85,216	-
Captain James Lawrence ES	**$ 23,322**	**$ 2,613**	**$ 8,070**	**$ 42,832**	**$ 8,827**	**$ 715,092**	**16.7**
1A LED Lighting Upgrades	$ 19,068	$ 2,613	$ (644)	$ 23,593	$ 2,556	$ 160,100	6.8
2D Chiller Replacements	$ -	$ -	$ -	$ -	$ -	$ -	-
2G Vacuum Tank Replacements	$ -	$ -	$ -	$ -	$ -	$ -	-
3A Building Management System Upgrades	$ 3,953	$ -	$ 6,854	$ 13,257	$ 2,450	$ 318,586	24.0
4A Building Envelope Improvements	$ 301	$ -	$ 590	$ 2,912	$ 2,021	$ 117,870	40.5
6A Cogeneration CHP	$ -	$ -	$ -	$ -	$ -	$ -	-
8A Rooftop Unit Replacement	$ -	$ -	$ -	$ -	$ -	$ -	-
8B AHU / RTU Refurbishments	$ -	$ -	$ 319	$ 2,119	$ 1,800	$ 82,504	38.9
8C Univentilator Refurbishments	$ -	$ -	$ 952	$ 952	$ -	$ -	-
8E HVAC Assessment and Verification for SSB-VEEVR	$ -	$ -	$ -	$ -	$ -	$ 36,033	-

Samuel Smith ES	**$ 20,821**	**$ 2,923**	**$ 9,132**	**$ 40,347**	**$ 7,470**	**$ 735,286**	**18.2**
1A LED Lighting Upgrades	$ 17,683	$ 2,923	$ (679)	$ 22,848	$ 2,920	$ 196,766	8.6
2D Chiller Replacements	$ -	$ -	$ -	$ -	$ -	$ -	-
2G Vacuum Tank Replacements	$ -	$ -	$ 1,267	$ 1,267	$ -	$ 159,300	125.7
3A Building Management System Upgrades	$ 2,371	$ -	$ 5,994	$ 10,816	$ 2,450	$ 55,811	5.2
4A Building Envelope Improvements	$ 767	$ -	$ 1,069	$ 1,836	$ -	$ 39,953	21.8
6A Cogeneration CHP	$ -	$ -	$ -	$ -	$ -	$ -	-
8A Rooftop Unit Replacement	$ -	$ -	$ -	$ -	$ -	$ -	-
8B AHU / RTU Refurbishments	$ -	$ -	$ 300	$ 2,400	$ 2,100	$ 64,292	26.8
8C Univentilator Refurbishments	$ -	$ -	$ 1,180	$ 1,180	$ -	$ 184,840	156.6
8E HVAC Assessment and Verification for SSB-VEEVR	$ -	$ -	$ -	$ -	$ -	$ 34,323	-
Wilber Watts IS	**$ 54,458**	**$ 6,278**	**$ 6,258**	**$ 76,766**	**$ 9,772**	**$ 1,409,795**	**18.4**
1A LED Lighting Upgrades	$ 43,703	$ 6,278	$ (1,169)	$ 55,584	$ 6,772	$ 624,913	11.2
2D Chiller Replacements	$ 3,914	$ -	$ -	$ 3,914	$ -	$ 437,884	111.9
2G Vacuum Tank Replacements	$ -	$ -	$ -	$ -	$ -	$ -	-
3A Building Management System Upgrades	$ 4,939	$ -	$ 3,100	$ 8,039	$ -	$ 230,321	28.6
4A Building Envelope Improvements	$ 1,901	$ -	$ 3,932	$ 5,833	$ -	$ 9,166	1.6
6A Cogeneration CHP	$ -	$ -	$ -	$ -	$ -	$ -	-
8A Rooftop Unit Replacement	$ -	$ -	$ -	$ -	$ -	$ -	-
8B AHU / RTU Refurbishments	$ -	$ -	$ 395	$ 3,395	$ 3,000	$ 72,005	21.2
8C Univentilator Refurbishments	$ -	$ -	$ -	$ -	$ -	$ -	-
8E HVAC Assessment and Verification for SSB-VEEVR	$ -	$ -	$ -	$ -	$ -	$ 35,507	-
Project Total	**$ 182,584**	**$ 22,298**	**$ 30,911**	**$ 287,132**	**$ 51,339**	**$ 5,528,278**	**19.3**

2. Utility and Other Rebates & Incentives

PSE&G Prescriptive and Custom Programs

The PSE&G Prescriptive and Custom Incentive Program provides comprehensive energy efficiency services to municipalities, universities, schools, hospitals and other healthcare facilities, non-profit entities, and multi-family facilities.

By participating in the Programs, your organization can enjoy:

- Reduced energy and maintenance costs
- Project planning assistance
- Increased comfort
- Extended equipment life

Eligibility

Existing commercial, industrial and institutional buildings with a peak demand over 100 kW for any of the preceding twelve months are eligible to participate including hotels and casinos, large office buildings, multi-family buildings, supermarkets, manufacturing facilities, schools, shopping malls and restaurants. Buildings that fall into the following five customer classes are not required to meet the 100kW demand to participate in the Program: hospitals, public districts and universities, non-profits, affordable multifamily housing, and local governmental entities. Your Energy Reduction Plan must define a comprehensive package of measures capable of reducing the existing energy consumption of your building by 15% or more to utilize the Pay Performance Program.

Honeywell has determined that the City of Burlington Schools is eligible for **$59,898** in estimated total incentives for the projects included in the Prescriptive Lighting, Prescriptive, and Custom Measures. Please refer to the tables on below for a breakdown of City of Burlington Schools incentive levels on a building by building basis for each type of incentive.

Rebates and Incentives

Location	Prescriptive Lighting	Prescriptive Measures	Custom Measures	Total
Burlington City HS	$20,866	$2,400	$4,617	$27,883
Wilber Watts IS	$12,623		$5,022	$17,645
Samuel Smith ES	$8,100			$8,100
Captain James Lawrence ES	$6,270			$6,270
Totals	**$47,859**	**$2,400**	**$9,639**	**$59,898**

Total Rebates and Incentives

Year	Prescriptive Lighting	Prescriptive Rebates	Custom Measures	Total Incentives
Installation				
Year 1	$47,859	$2,400	$9,639	$59,898
Totals	**$47,859**	**$2,400**	**$9,639**	**$59,898**

NJ Grant School and Small Business Energy Efficiency Stimulus Grant

SSB-VEEVR Grant Summary

School	Address	Project Budget	Repair		Status	Application #
			75% - Grant Contribution	25% - BOE Contribution		
01 Captain James Lawrence ES	316 Barclay	$ 353,183	$ 264,887	$ 88,296	Approved	#67698
02 Samuel Smith Elementary School	250 Farner Ave	$ 339,921	$ 254,941	$ 84,980	Approved	#67699
03 Wilbur Watts Elementary School	550 High Street	$ 207,131	$ 155,348	$ 51,783	Approved	#67700
04 Burlington City HS	100 Blue Devil Way	$ 707,155	$ 530,366	$ 176,789	Approved	#67701
Total Repair		$ 1,607,390	**$ 1,205,542**	$ 401,848		
School		**Replacement**				
Burlington City HS		$ 258,796	194,097	$ 64,699	Approved	#67704
Total Repair and Replacement		**$ 1,866,186**	**$ 1,399,639**	**$ 466,547**		

SSB-VEEVR Grant Payment Schedule

Repair	First Payment	Second Payment	Third Payment
Captain James Lawrence ES	$132,444	$132,444	$0
Samuel Smith Elementary School	$127,471	$127,471	$0
Wilbur Watts Elementary School	$77,674	$77,674	$0
Burlington City HS	$265,183	$265,183	$0
Replacement			
Burlington City HS	$1,779	$94,722	$94,722
TOTAL	$604,550	$697,493	$94,722

The first payment ($604,550) from SSB-VEEVR Grant is expected in May 2023 and is subtracted from total financed amount on Form VI. The second and third payment are represented as payments in the cashflow in year 1 ($697,493) and year 2 ($94,722). The exact financing arrangement and payments will be decided between client and financial advisor.

3. Operational & Maintenance Savings

Operations and Maintenance and other non-energy-related cost savings are allowable in NJ ESIPs, and are defined as reduction in expenses (other than energy cost savings) related to energy and water consuming equipment. Energy-related cost savings can result from avoided expenditures for operations, maintenance, equipment repair, or equipment replacement due to the ESIP project.

Summary of Total Operational Savings

Year	Lighting Operation Savings	Maintenance Cost Savings	Total Operational Savings
Installation			
Year 1	$23,768	$27,571	$51,339
Year 2	$23,768	$27,571	$51,339
Year 3	$23,768		$23,768
Year 4	$23,768		$23,768
Year 5	$23,768		$23,768

Sources of Operational & Maintenance Savings include:

Decrease in repair costs: The client is responsible for maintenance both before and after the equipment installation. Although there is no reduction in staff for which to claim labor savings, there will be cost savings on replacement materials. Material-related savings frequently result from lighting and lighting controls projects.

Lower Maintenance Costs: The lighting and mechanical equipment & controls in many of the schools are obsolete and are continuing to fail more and more often. Due to the obsolescence the cost of emergency maintenance replacement is high. The district agrees this is a conservative amount and could be much higher based on the budgets to update the controls so they could return to a maintenance program vs a full replacement program each time an obsolete controller or system fails.

For this project maintenance savings will result from the following:

1. Reduced material requirements (e.g., lamps, controls, repairs)

2. Reduced operating time — Control measures increase equipment life by reducing the burn time of lamps and ballasts

3. Warranty-related savings — newly installed lamps, and fixtures come with a manufacturer warranty of 10 years. Year 1 O&M Savings

Year 1 Operation And Maintenance Savings as follows:

Lighting Energy Savings (5 Years)

This Lighting Operational Savings category calculates the existing material costs for lamps and ballasts considering failure rate and average costs and compares to the reduced maintenance costs with all new LEDs to establish the operational savings.

School	Burlington City HS	Captain James Lawrence ES	Samuel Smith ES	Wilber Watts IS	Facilities	Total Counts
Tube Count	5322	1442	1635	2643	100	11042
Tube Cost	$1.00	$1.00	$1.00	$1.00	$1.00	
Annual Cost	$5,322.00	$1,442.00	$1,635.00	$2,643.00	$100.00	$11,042.00
Ballast Count	2383	843	641	1300	54	5167
Ballast Cost	$5.12	$5.12	$5.12	$5.12	$5.12	
Annual Cost	$12,202.27	$4,316.62	$3,282.27	$6,656.71	$276.51	$26,457.87
Metal Halide - Mercury Vapor Count	0	19	16	2	0	37
Bulb Cost	$5.00	$5.00	$5.00	$5.00	$5.00	
Annual Cost	$0.00	$95.00	$80.00	$10.00	$0.00	$185.00
Ballast Count	0	19	16	2	0	37
Ballast Cost	$15.00	$15.00	$15.00	$15.00	$15.00	
Annual Cost	$0.00	$285.00	$240.00	$30.00	$0.00	$555.00
PAR's/Compact Fluorescent	338	40	165	340	0	883
Cost	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00
Annual Cost	$1,690.00	$200.00	$825.00	$1,700.00	$0.00	$4,415.00
Incandescent /Exits	153	45	38	397	0	633
Cost	$1.00	$1.00	$1.00	$1.00	$1.00	
Annual Cost	$153.00	$45.00	$38.00	$397.00	$0.00	$633.00
Total Lighting Ops Savings	$19,367	$6,384	$6,100	$11,437	$377	$43,288
					Total Operational Savings:	**$23,768**
					Failure Rate:	**55%**

Maintenance Cost Savings (2 Years)

The following maintenance cost savings have been identified in this sample project:

School	Control System Maintenance	Window and Door Weatherization	RTU Maintenance	AHU Maintenance	Unit Ventilator Maintenance	TOTAL
Burlington City HS			$1,500	$4,500	$7,750	$13,750
Wilber Watts IS				$3,000		$3,000
Samuel Smith ES	$2,450			$2,100		$4,550
Captain James Lawrence ES	$2,450	$2,021		$1,800		$6,271
Total:	**$4,900**	**$2,021**	**$1,500**	**$11,400**	**$7,750**	**$27,571**

4. Financing the ESIP

In accordance with P.L.2012, c.55 an ESIP can be financed through energy savings obligations. The term refers to the two primary financing tools, debt and lease-purchase instruments. Each of these options is discussed below.

Energy savings obligations shall not be used to finance maintenance, guarantees, or the required third-party verification of energy conservation measures guarantees. Energy saving obligations, however, may include the costs of an energy audit and the cost of verification of energy savings as part of adopting an energy savings plan or upon commissioning. While the audit and verification costs may be financed, they are not to be considered in the energy savings plan as a cost to be offset with savings.

In all cases, maturity schedules of lease-purchase agreements or energy savings obligations shall not exceed the estimated average useful life of the energy conservation measures.

An ESIP can also include installation of renewable energy facilities, such as solar panels. Under an energy savings plan, solar panels can be installed, and the reduced cost of energy reflected as savings.

The law also provides that the cost of energy saving obligations may be treated as an element of the local unit's utility budget, as it replaces energy costs.

Debt Issuance

The law specifically authorizes municipalities, school districts, cities, counties, and fire districts to issue refunding bonds as a general obligation, backed with full faith and credit of the local unit to finance the ESIP. Because an ESIP does not effectively authorize new costs or taxpayer obligations, the refunding bond is appropriate, as it does not affect debt limits, or in the case of a board of education, require voter approval. The routine procedures for refunding bonds found in the Local Bond Law and Public-School Bond Law would be followed for issuance of debt, along with any required Bond Anticipation Notes as authorized pursuant to law.

Regarding bonds for public schools, the Department of Education (DOE) has concluded that debt financed ESIP projects are not covered by State aid for debt service or a "Section 15 EFFCA Grant" as there is no new local debt being authorized.

Tax-Exempt Lease Purchase Financing

The tax-exempt lease is a common form of financing for ESIP projects. Tax-exempt leasing is a tool that meets the basic objectives of debt, spreading the cost of financing over the life of an asset, while avoiding constitutional or statutory limitations on issuing public debt. If structured properly, by including non-appropriation language in the financing documents, the tax-exempt lease will not be considered debt for state law purposes but will be considered debt for federal income tax purposes. Thus, for federal purposes, the interest component of the lease payment is tax-exempt.

Under the New Jersey Energy Savings Improvement Program (ESIP), the City of Burlington Schools may authorize a lease purchase agreement between the City and a financier. Ownership of the equipment or improved facilities will pass to the City of Burlington Schools when all the lease payments have been made. There are legal expenses and other minimal closing costs associated with this type of structure. The lease purchase agreement may not exceed 15 years (commencing upon completion of the construction work), or 20 years where a combined heat and power or cogeneration plant is included in the

project. The primary benefits of a lease are lower rates and the acquisition of essential use property without creating debt.

Under a lease there is typically a single investor. The lease may have non-appropriation language that allows the City to access low tax-exempt rates. Some previous customers have chosen to remove the non-appropriation language which has resulted in lower competitive rates.

Repayment of the lease payments is tailored to meet the requirements of the City. Payments are typically scheduled to commence after the construction is complete and acceptance of the project has been received by the City of Burlington Schools. Typically, payment terms are structured so there is no up-front capital expense to the City of Burlington Schools and payments are aligned within your cash flow and fiscal limits.

Certificates of Participation (COP's)

Certificates of Participation are another form of a lease purchase agreement with the differentiating factor being that there are multiple investors participating in the purchase of the lease. COP's require financial disclosure and are typically utilized on higher value projects where one investor doesn't have the capacity to hold a high value lease for a single customer.

Energy Savings Obligations

Energy Savings Obligations can be issued as refunding bonds in accordance with the requirements of N.J.S.A 40A:11-4.6(c)(3). These bonds may be funded through appropriation for the utility services in the annual budget of the contract unit and may be issued as refunding bonds pursuant to N.J.S.40A:2-52 et seq., including the issuance of bond anticipation notes as may be necessary, provided that all such bonds and notes mature within the periods authorized for such energy savings obligations. Energy savings obligations may be issued either through the contracting unit or another public agency authorized to undertake financing on behalf of the unit but does not require bond referendum.

SECTION E

MEASUREMENT & VERIFICATION AND MAINTENANCE PLAN

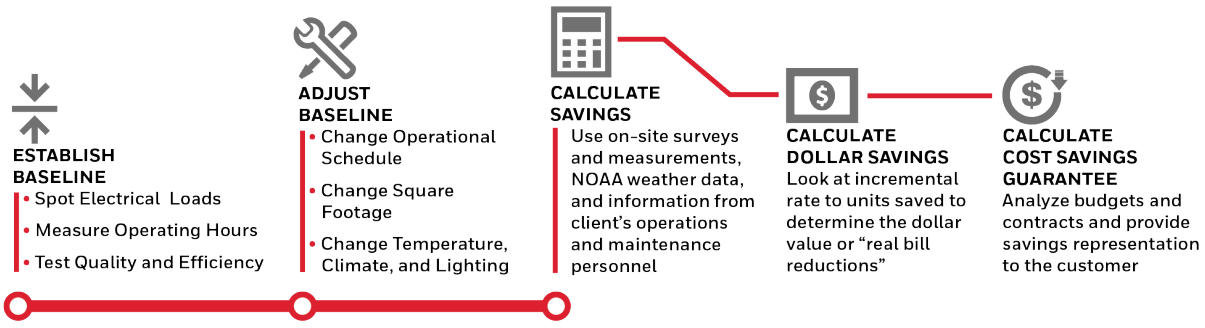
Section E – Measurement & Verification and Maintenance Plan

1. Baseline

The purpose for establishing a baseline for an energy performance project is to accurately predict what the energy consumption and costs would have been as if the energy project was never completed. The baseline can then be used to measure the improvement in efficiency and determine the overall energy savings of the project. Since the energy consumption of all facilities is somewhat affected by variable weather conditions, a baseline for heating and cooling systems is typically dependent on degree-days or outside temperature. A baseline also needs to incorporate changes in facility use, such as a change in hours of operation or increased levels of outside air. Once again, if these changes would have occurred in the absence of the energy project, they should be incorporated into the project's baseline.

Honeywell calculated the baseline based on the systems and operating conditions as they currently exist prior to the pandemic. The baseline was established from 10/2020-09/2021 in accordance with BPU guidelines as being considered a pre-pandemic baseline. Baseline development is most accurate if specific measurements are taken on equipment over a period of time (early in the audit phase) to determine actual kW, kWh, oil and gas consumption, cfm, gpm, hours of use, etc. A summary of some of the methods, which was used by Honeywell to establish baselines and support, calculated savings are listed below.

1. Spot measurements of electrical loads such as lighting, fan and pump motors, chillers, electric heat, etc.
2. Measurement of equipment operating hours using electric data recorders.
3. Measurement of existing operating conditions using data recorders for space temperature and humidity, air handler temperatures (mixed, return, cooling and heating coil discharges), and space occupancy using lighting loggers.



4. Spot measurement for boiler efficiencies, water use.
5. Running measurements of chiller operation, including simultaneous measurement of input kWh or steam flow, and chilled water supply and return temperatures and flow (gpm).
6. Records of operating conditions from building management systems and utility-grade meters.

The data from the above is used to calculate existing energy use, which is then reconciled with current facility utility bills, and adjusted as required to provide a mutually agreed baseline.

To provide valid savings evaluations, Honeywell's maintains a significant inventory of metering equipment utilized by its auditors and Energy Engineers to ascertain critical data about the operation of the facility.

Typically, auditors use the following equipment for their onsite measurements:

1. Recording and instantaneous power and harmonic analyzers.
2. Data loggers for pressures, temperatures, flow rates, humidity and CO2.
3. Lighting level and recording profile/run-hour and occupancy meters.
4. Multimeters, handheld kW meters.
5. Combustion analyzers.
6. Ultrasonic flow meters.
7. Infrared thermometers

The ECMs installed in many projects allow for energy savings to be identified by direct metering or a combination of metering and calculations with accepted assumptions. In the case of lighting, for example, it is relatively easy to meter representative samples of unique fixture types, both before and after a retrofit, to determine the power consumption difference in Watts. When multiplied by the quantity of each fixture type, the total connected load reduction can be derived. In combination with run time assumptions, or meters, the electrical reduction can be accurately determined. Where possible, direct measurement of ECMs during construction (before and after the retrofit) coupled with energy savings calculations is a method considered to be very accurate and cost-effective.

Due to the nature of some ECMs, or when a combination of ECMs is installed, individual (discrete) metering may not be either possible or able to fully document a baseline and calculate savings. Many of these situations can be handled by combining results from metering along with either engineering-based calculations or output from nationally recognized building simulation programs such as DOE II, ASEAM, TRACE or HAP. This method would be used for ECMs such as night setback, and where no other ECMs have significant interaction with the setback measure.

Formulas exercised in energy savings calculations follow the laws of physics, and many are included in the ASHRAE Handbook of Fundamentals. However, such calculations (i.e. equipment operation profiles) must be tempered by experience, past retrofit practice, and expectations of future operating conditions to arrive at achievable values in practice. The result is a coupled project where the final savings are equal to or greater than anticipated.

2. Adjustment to Baseline Methodology

The methodology for establishing and adjusting the baseline is determined by the characteristics of the facility, the conservation technology being installed, the technology being replaced, the type of measurement and verification the City of Burlington Schools requires and the needs of the City for future changes in facility use.

The purpose of this flexible approach is to make the most accurate possible measurement of the changes in energy uses that are specifically attributable to the installed ECMs. This creates the ability over the life of the contract to continue measuring only savings achieved by the ECM and leaves the City of Burlington Schools free to make future changes to the building or systems without affecting the savings agreement. It also necessitates fewer provisions for making adjustments to the baseline.

Modifications to the energy baseline or savings will be made for any of the following:

3. Energy Savings Calculations

In calculating energy savings, Honeywell's highly experienced audit staff uses onsite surveys and measurements, National Oceanic and Atmospheric Administration weather data, detailed discussions with the client's operations and maintenance personnel and engineers, utility records, and other sources to ensure accurate energy, water and O&M savings.

Typically, the following data is gathered:

- Local weather data.
- Utility bills and sub-metered consumption trends.
- Utility rate structure.
- Facility use and occupancy data.
- Internal equipment loads.
- Interviews of operations and maintenance staff and management.
- Building construction, age, use and layout.
- Schematics of energy and water distribution systems.
- Identification and inventory of HVAC equipment.
- Identification and inventory of process equipment.
- Design, configuration and operating characteristics of HVAC systems.
- Design, configuration and operating characteristics of process systems.
- Control strategies and sequences of operation for HVAC and other process equipment.
- Identification and count of all lighting fixtures and determination of power consumption for each type.
- Identification and inventory of lighting control methods.
- Measurement of foot-candle levels at sample locations.
- Power quality and harmonics, power factor.
- Indoor air quality issues.

Calculating the units of energy saved is a critical measure of energy efficiency improvements, but it does not indicate the actual dollars saved. To do this, Honeywell has established the base rates that will act as "floor" rates in calculating the savings. These are usually the rates that are in effect at the time of the start of the contract or rates used for audit estimated savings.

The equation below will be used to calculate the annual savings in dollars.

$$\text{Annual Savings (\$)} = \sum_{m=1}^{12} \{(Rate_{kWH,Base} \times kWH_{saved,m}) + (Rate_{fuel\ oil,Base} \times Fuel\ Oil_{saved,gal,m}) + (Rate_{Steam,Base} \times Steam_{Saved,klbs,m}) + (Rate_{NG} \times NG_{Saved,MCF,m})\} + (Agreed\ (\$))$$

Where

Rate$_{kWH,Base}$= defined base rate for kWh consumption
kWh$_{saved,m}$= calculated kWh savings for month *m*

Rate$_{Fuel\ Oil\ Base}$= defined base rate for fuel Oil Savings (XX/gal.)
Fuel Oil$_{saved,m}$= calculated chilled water savings in gal. for month *m*

Rate$_{Steam,\ Base}$= defined base rate for steam consumption ($XX/MMBtu.)
Steam$_{saved,m}$= calculated steam savings in MMBtu. for month *m*

Rate$_{NG,\ Base}$= defined base rate for natural gas consumption ($XX/Therm)
NG$_{saved,m}$= calculated natural gas savings in Therms for month *m*

Agreed($)= Annual savings in dollars (water, sewer, maintenance, etc.)

Honeywell assigns dollar values to the true incremental value of savings for energy and water. In other words, we do not combine for example, demand and consumptions numbers so that there is an average value to savings. Honeywell looks at each incremental rate to units saved to properly determine the value (dollar) to the City of Burlington Schools or “real bill reductions”. As noted in the cash flow, energy escalation rates will be established in accordance with New Jersey Board of Public Utility guidelines.

Based on this, Honeywell has reviewed all utility bills (hourly data), tariffs, special contracts and commodity contracts to develop the incremental value (costs) of each utility.

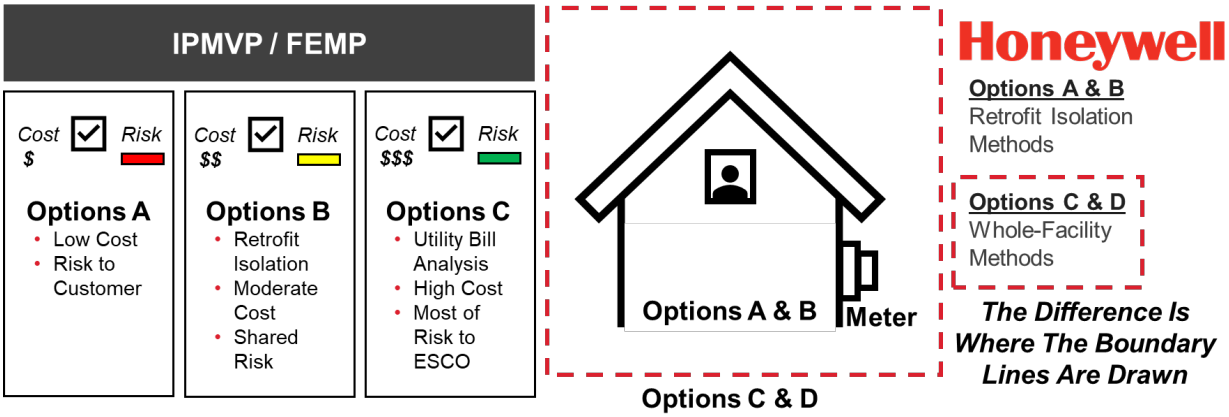
The O&M savings is typically a function of existing the City’s budgets (labor & direct costs), maintenance contracts and operations (supplier) contracts. Honeywell has analyzed the information to provide a conservative savings representation for the City’s review and acceptance. The information will include all calculations and assumptions.

4. Measurement & Verification

The purpose of performing any monitoring and verification is to establish an agreed upon process that provides the customer both a level of satisfaction that the improvements have been delivered and ongoing information as to their operation and performance. Additionally, this effort will be used to assess the actual dollars of savings versus the guarantee level.

It is essential for the success of this program that Honeywell and the City of Burlington Schools agree on a mutually acceptable methodology for measuring and verifying energy savings that are attributable to the energy conservation measures (ECMs) Honeywell installs. This M&V plan provides the procedures to document the energy and cost savings of each of the proposed ECMs.

The plan for monitoring and verifying energy savings for the proposed ECMs is based on the methods described in the ***International Performance Measurement and Verification Protocol (IPMVP)***[1]. Our approach to M&V is directly consistent with, and in compliance with, the IPMVP. This protocol provides a framework for the most widely accepted and used M&V methods by the industry.



Engineering calculations of energy and cost savings for the project are based on operating parameters (such as weather, temperature settings, run hours, occupancy patterns, and space usage) and equipment performance characteristics. The M&V plan uses the operating parameters established in the baseline for all savings calculations during the term of the project. The intent of the M&V plan is to verify that the ECMs installed by Honeywell will provide the expected energy savings. Therefore, Honeywell will collect data and relative information during the post-retrofit period to demonstrate that the installed equipment is performing at expected levels. It is assumed that the City of Burlington Schools will continue to be a dynamic institution adding or renovating buildings and desiring to retain the right to set comfort and operating characteristics. To accommodate this, Honeywell will develop its M&V plan in a way that allows the City of Burlington Schools to adapt to the demands of future campus growth and changes without the need for the City and Honeywell to negotiate energy baseline adjustments.

Our typical M&V plan will utilize broadband Internet access to the appropriate the City's control interfaces to both confirm operating status and to download trend data to verify proper equipment maintenance.

[1] www.ipmvp.org.

One year after the commencement date of the ECMs, Honeywell will submit a report verifying and calculating the energy and cost savings for the first year. This report will be submitted for facility review and approval. For the remaining contract term, Honeywell will provide annual reports. These reports will include results of inspections of the installed equipment/systems, energy and cost savings, and recommendations to provide optimum energy performance.

All permanent measurement equipment will be purchased new with a calibration certificate from the manufacturer. The power multi-meter and the TSI multi-meter will be calibrated annually before using them in the annual inspection.

M&V Options

The IPMVP guidelines classify the M&V procedures into four categories, Options A, B, C and D. As shown in the table below, these options differ in their approach to the level of complexity of the M&V procedures.

M&V Option	Performance Verification Techniques
Option A Verifying that the measure has the potential to perform and to generate savings.	**Option A** is appropriate for ECMs that have energy use that can be readily quantified, such as the use of high efficiency lighting fixtures, high efficiency constant speed motors, and other standard engineering calculations. Engineering calculations before and after installation spot measurements and use of EMS data points with stipulated values.
Option B Verifying that the measure has the potential to perform and verifying actual performance by end use.	**Option B** is appropriate for ECMs that require periodic or on-going measurements to quantify energy use; such as the use of variable frequency drives on pump or fan motors. Engineering calculations with metering and monitoring strategy throughout term of the contract.
Option C Verifying that the measure has the potential to perform and verifying actual performance (whole building analysis.)	**Option C** is used for ECMs for which the energy use or energy savings cannot be measured directly, such as building envelope modifications. Option C is based on the use of utility meters to quantify building energy use. Utility meter billing analysis-using techniques from simple comparison to multivariable regression analysis.
Option D Verifying actual performance and savings through simulation of facility components and/or the whole facility	**Option D** is used for ECMs for which the energy use or energy savings cannot be measured directly, or savings for individual ECMs are heavily interdependent. Calibrated building simulation is used to separate the energy savings attributable to each ECM. Calibrated energy simulation/modeling; calibrated with hourly or monthly utility billing data and/or end-use metering.

In general,

> *ECM Energy Savings = Baseline Energy Use - Post-Installation Energy Use*
>
> and
>
> *Energy Cost savings ($) = Total Energy Savings x Contractual Energy Rates*

Exceptions to this simple equation are as follows:

Projects where an on/off M&V method is used. For example, after a new energy management system is installed, control features are turned off for a set period of time to recreate baseline conditions. Thus, savings are determined after installation by comparing energy use with and without the control features activated.

Since energy use at a facility is rarely, if ever, constant, another way to define M&V is as a comparison of a facility's post-installation energy use with its usage if the ECM or system had not been installed. This takes into account situations in which baseline energy use must be adjusted to account for changing conditions, such as changes in facility operation, occupancy, or use or external factors such as weather.

Post-Retrofit M&V Activities

There are two components associated with M&V of performance contract projects:

1. Verifying the potential of the ECM to generate savings also stated as confirming that the proper equipment/systems were installed, are performing to specification and have the potential to generate the predicted savings.
2. Determining/verify energy savings achieved by the installed ECM(s).

Verifying The Potential To Generate Savings

Verifying baseline and post-installation conditions involves inspections (or observations), spot measurements, and/or commissioning activities. Commissioning includes the following activities:

- Documentation of ECM or system design assumptions
- Documentation of the ECM or system design intent for use by contractors, agencies and operators
- Functional performance testing and documentation necessary for evaluating the ECM or system for acceptance
- Adjusting the ECM or system to meet actual needs within the capability of the system

Post-Installation Verification

Post-installation M&V verification will be conducted by both Honeywell and the Client to ensure that the proper equipment/systems that were installed are operating correctly and have the potential to generate the predicted savings. Verification methods may include surveys, inspections, and/or spot or short-term metering.

Regular Interval Post-Installation Verification

At least annually, Honeywell will verify that the installed equipment/systems have been properly maintained, continue to operate correctly, and continue to have the potential to generate the predicted savings. Savings report for all the installed ECMs will be submitted each year after the acceptance date of the work performed by Honeywell.

Computation Of Energy Savings

After the ECMs are installed, energy and cost savings will be determined annually by Honeywell in accordance with an agreed-upon M&V approach, as defined in a project-specific M&V plan.

Construction/Interim Savings

Construction or Interim savings are usually measured by using the same methodology as described in the detail M&V plan for each ECM. The start and the completion time for each ECM must be agreed to between Honeywell and the City of Burlington Schools.

Electricity and thermal savings from the ECMs where no detailed long-term data is required to be collected will be stipulated and will be based on the starting and the final completion dates and verification of the operation of the ECMs. For other ECMs where long-term data collection is required by the M&V plan, data will be used to calculate the savings using the same equations as described in the detail plan. For example, to calculate electricity savings for the installation of a VFD, the kW is spot measured at a set speed for selected motors through a sampling plan. The measured kW is subtracted from the baseline kW to calculating the savings. Thermal savings are tied to the electrical savings in the manner described in the detail M&V plan. The results are extrapolated to cover all the VFDs installed by Honeywell.

The savings for each of the monitored VFD is calculated on an interval basis as follows:

> $kW_{Saved} = (kW_{Base} – kW_{Spot\ Measured})$
>
> kWh_{Saved} = Estimated operating hours during the interim period * kW_{Saved}
>
> The total kWh savings is the sum of the kWh_{Saved} for all the installed VFDs.

1. Changes in the number of days in the annual review cycle.
2. Changes in the square footage of the facilities.
3. Changes in the operational schedules of the facilities.
4. Changes in facility indoor temperatures.
5. Significant changes in climate.
6. Significant changes in the amount of equipment or lighting utilized in the facility.

Examples of situations where the baseline needs to be adjusted are: i) changes in the amount of space being air conditioned, ii) changes in auxiliary systems (towers, pumps, etc.) and iii) changes in occupancy or schedule. If the baseline conditions for these factors are not well documented it becomes difficult, if not impossible, to properly adjust them when they change and require changes to payment calculations. To compensate for any addition and deletion of buildings and impact on the baseline model, An M&V report should use sound technical methodologies to adjust the baseline. An example would be to add or delete building energy impact via the calculated cooling load in tons as a percentage of the existing campus tonnage baseline or use indices like W/ft2 and Btu/ft2 to calculate the energy consumption of the building and then add or subtract the energy usage to or from the baseline energy consumption.

5. Site Specific M&V Plan

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
1A LED Lighting Upgrades	▪ Upgrade Lighting systems: – Re-lamp/Re-ballast T8/T12 to LED, – Incandescent to LED – Metal Halide and Sodium Vapor to LED High Bays	**Option A** ▪ Pre and Post measurements ▪ Line by Line scope and engineering calculations	▪ **Pre-M&V**: Measurement of kW for 5% sample fixtures in each category ▪ Data log usage hours ▪ Data Log occupancy schedules ▪ Update Line by Line scope with measured kW and usage hours ▪ **Post M&V**: Measurement of kW for 5% sample fixtures in each category ▪ Usage Hours to remain same ▪ Occupancy schedules to remain same ▪ **Energy Savings**: Update Line by Line scope with measured kW and usage hours and compare to pre-retrofit calculated savings
1B Lighting Controls	▪ Upgrade Lighting Control systems: – Install Occupancy Sensors – Install Lighting Controls	**Option A:** ▪ Pre and Post measurements ▪ Line by Line scope and engineering calculations	▪ **Pre-M&V**: Measurement of kW for 5% sample fixtures in each category ▪ Data log usage hours ▪ Data Log occupancy schedules ▪ Update Line by Line scope with measured kW and usage hours ▪ **Post M&V**: Measurement of kW for 5% sample fixtures in each category ▪ Usage Hours to remain same ▪ Occupancy schedules to remain same ▪ Energy Savings: Update Line by Line scope with measured kW and usage hours and compare to pre-retrofit calculated savings

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
1C LED Field Lighting	▪ Upgrade Stadium Lighting systems: – Metal Halide to LED Field Lighting	**Option A:** ▪ Pre and Post measurements ▪ Line by Line scope and engineering calculations	▪ **Pre-M&V**: Measurement of kW for 5% sample fixtures in each category ▪ Data log usage hours ▪ Data Log occupancy schedules ▪ Update Line by Line scope with measured kW and usage hours ▪ **Post M&V**: Measurement of kW for 5% sample fixtures in each category ▪ Usage Hours to remain same ▪ Occupancy schedules to remain same ▪ Energy Savings: Update Line by Line scope with measured kW and usage hours and compare to pre-retrofit calculated savings
1D De-Stratification Fans & Disinfection	▪ Install De-Stratification fans in Gymnasiums to minimize stratification of hot air and maintain hot air flow below the fan level	**Option A** ▪ Electric energy savings - Engineering calculations based on programmed parameters. **Option C** ▪ Fuel Savings ▪ Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Verify existing operating parameters match the baseline calculation assumptions ▪ **Post M&V**: Verify that systems are installed as specified and controls are programmed to match the savings assumptions ▪ **Electric Energy**: Verify savings based on programmed parameters and engineering calculations ▪ **Fuel**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days
2A Boiler Replacements	▪ Replace boilers in select locations to handle base load	**Option C** ▪ Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ **Post M&V**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
2B Burner Replacements and Controls	▪ Replace boiler burners and install advanced combustion controls, on new burners.	**Option C:** ▪ Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ **Post M&V**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained
2C Domestic Hot Water Heater Replacement	▪ Replace heater in select locations to handle base load	**Option C** ▪ Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ **Post M&V**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained
2D Chiller Replacements	▪ Install new High Efficiency Chillers	**Option A** ▪ Electric energy savings - Engineering calculations based on material specifications.	▪ **Pre-M&V**: Verify manufacturer provided data for existing unit efficiency (EER) ▪ **Post M&V**: Verify manufacturer provided data for new rooftop unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer
2E Split System Replacements	▪ Replace select split systems with new high efficiency units.	**Option A** ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement Units	▪ **Pre-M&V**: Verify manufacturer provided data for existing unit efficiency (EER) ▪ **Post M&V**: Verify manufacturer provided data for new split system unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
2F Convert Steam to Hot Water System	▪ Convert from steam heating system to hot water system	**Option C** ▪ Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ **Post M&V**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained
2G Vacuum Tank Replacements	▪ Replace select vacuum tanks with new high efficiency units	**Option C** ▪ Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ **Post M&V**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained
2H Kitchen Hood Controllers	▪ Install control devices on the Kitchen hoods to control exhaust air in response to the cooking load. Replace fan motors with new premium efficiency motors and VFD drives.	**Option A** ▪ Energy savings - Engineering calculations based on programmed parameters.	▪ **Pre-M&V**: Verify existing operating parameters match the baseline calculation assumptions ▪ **Post M&V**: Verify that systems are installed as specified and controls are programmed to match the savings assumptions
3A Building Management Controls	▪ Upgrade Building Management Systems to DDC and integrate all systems to a central platform	**Option A** ▪ Electric energy savings - Engineering calculations based on programmed parameters. **Option C** ▪ Fuel Savings Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Verify existing operating parameters match the baseline calculation assumptions ▪ **Post M&V**: Verify that systems are installed as specified and controls are programmed to match the savings assumptions ▪ **Electric Energy**: Verify savings based on programmed parameters and engineering calculations ▪ **Fuel**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
3B FORGE Energy Optimization	▪ Install Forge Energy Optimization system	**Option A** ▪ Electric energy savings - Engineering calculations based on programmed parameters. **Option C** ▪ Fuel Savings Utility Bill Comparison for all fuel related measures	▪ **Pre-M&V**: Verify existing operating parameters match the baseline calculation assumptions ▪ **Post M&V**: Verify that systems are installed as specified and controls are programmed to match the savings assumptions ▪ **Electric Energy**: Verify savings based on programmed parameters and engineering calculations ▪ **Fuel**: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days
4A Building Envelope Improvements	▪ Install weather stripping on doors, seal roof wall joints and roof penetrations	**Option A** ▪ Engineering calculations based on nameplate and manufacturer supplied data	▪ **Pre-M&V:** Verify existing conditions ▪ **Post M&V**: Visual inspection per scope of work
4B Roofing Upgrades	▪ Install new high efficiency roofs on select areas/buildings	**Option A** ▪ Engineering calculations based on programmed parameters. **Option C** ▪ Utility Bill Comparison for fuel related measures	▪ **Pre-M&V**: Verify existing operating parameters match the baseline calculation assumptions ▪ **Post M&V**: Verify that systems are installed as specified to match the savings assumptions ▪ Electric Energy: Verify savings based on programmed parameters and engineering calculations ▪ Fuel: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days
5A Permanent Load Reduction	▪ Rebates for Load Reduction (KW)	N/A	N/A
6A Cogeneration CHP	▪ Install Cogeneration units	**Option A** ▪ Engineering calculations based on nameplate and manufacturer supplied data for the new unit.	▪ **Pre-M&V**: Verify manufacturer provided data for existing units efficiency ▪ **Post M&V**: Verify manufacturer provided data for new units verify the new equipment and controls are installed and commissioned as recommended by manufacturer

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
7A Solar PPA	▪ Install Solar Power using Power Purchase Agreement	N/A	▪ **Pre-M&V**: N/A ▪ **Post M&V**: N/A
8A Rooftop Unit Replacement	▪ Replace antiquated Roof Top Units with new high efficiency Rooftop Units or repair existing units.	**Option A** ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement Units	▪ **Pre-M&V:** Verify manufacturer provided data for existing unit efficiency (EER) ▪ **Post M&V:** Verify manufacturer provided data for new split system unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer
8B AHU Replacements	▪ Repair existing Air Handling Units.	**Option A** ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement Units	▪ **Pre-M&V:** Verify manufacturer provided data for existing unit efficiency (EER) ▪ **Post M&V:** Verify manufacturer provided data for new split system unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer
8C Unit Ventilator Replacements/Refurbishments	▪ Refurbish antiquated Unit Ventilators.	**Option A** ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement Units	▪ **Pre-M&V:** Verify manufacturer provided data for existing unit efficiency (EER) ▪ **Post M&V:** Verify manufacturer provided data for new split system unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer
8D Heat Wheel Retrofit	▪ Repair existing Heat Wheels on 100% OA Units to restore proper operation	**Option A** ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement Units	▪ **Pre-M&V:** Verify manufacturer provided data for existing unit efficiency (EER) ▪ **Post M&V:** Verify manufacturer provided data for new split system unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer
8E HVAC Assessment and Verification for SSB-VEEVR	▪ Conduct initial assessment of ventilation units (RTUs, AHUs, Unit Vents) and complete post verification of refurbished or replaced units	N/A	▪ **Pre-M&V:** N/A ▪ **Post M&V:** N/A
9A ADA Elevator	▪ Install ADA compliant Elevator	N/A	▪ **Pre-M&V:** N/A ▪ **Post M&V:** N/A

6. Recommended Preventive Maintenance Services

Per the NJ ESIP program, all services are required to be bid by the City of Burlington Schools for services as desired. Based on Honeywell's vast service organization, we are uniquely qualified to develop design specification for the public bidding per NJ Law.

Honeywell strongly believes that the long-term success of any conservation program is equally dependent upon the appropriate application of energy savings technologies, as well as solid fundamental maintenance and support. One of the primary contributors to energy waste and premature physical plant deterioration is the lack of operations, personnel training and equipment maintenance.

Honeywell recommends routine maintenance on the following systems throughout the City of Burlington Schools for the duration of an energy guarantee of savings.

Maintenance, Repair and Retrofit Services

- Mechanical Systems
- Building Automation Systems
- Temperature Control Systems
- Air Filtration

Honeywell will work with the City of Burlington Schools to evaluate current maintenance practices and procedures. This information will be the basis of a preventive maintenance and performance management plan designed to maximize building operating efficiencies, extend the useful life of your equipment and support the designed Energy Savings Plan.

At a minimum, we recommend the following tasks be performed on a quarterly basis with City Wide Building Management System.

SYSTEM SUPPORT SERVICES

1. Review recent mechanical system operation and issues with customer primary contact, on a monthly basis.
2. Review online automation system operation and event history logs and provide summary status to the customer primary contact. Identify systemic or commonly re-occurring events.
3. Check with customer primary contact and logbook to verify that all software programs are operating correctly.
4. Identify issues and prioritize maintenance requests as required.
5. Provide technical support services for trouble shooting and problem solving as required during scheduled visits.
6. Provide ongoing system review and operations training support; including two semi-annual lunches and learn sessions.
7. Establish dedicated, site-specific emergency stock of spare parts to ensure prompt replacement of critical components. These will be stored in a secure location with controlled access.

CONFIGURATION MANAGEMENT

1. Update documentation and software archives with any minor changes to software made during maintenance work.
2. Verify and record operating systems and databases.
3. Record system software revisions and update levels.
4. Archive software in designated offsite Honeywell storage facility, on an annual basis.
5. Provide offline software imaging for disaster recovery procedures, updated on a regular basis.

FRONT END / PC SERVICE

1. Verify operation of personal computer and software:
2. Check for PC errors on boot up
3. Check for Windows errors on boot up
4. Check for software operations and performance, responsiveness of system, speed of software
5. Routinely backup system files, on an annual basis:
6. Trend data, alarm information and operator activity data
7. Custom graphics and other information
8. Ensure disaster recovery procedures are updated with current files
9. Clean drives and PC housing, on an annual basis:
10. Open PC and remove dust and dirt from fans and surfaces
11. Open PC interface assemblies and remove dust and dirt
12. Clean and verify operation of monitors.
13. Verify printer operation, check ribbon or ink.
14. Initiate and check log printing functions.
15. Verify modem operation (if applicable).
16. Review IVR schedule for alarms and review (if applicable).

TEMPERATURE CONTROLS

Unit Vents

Services Performed

Annual Inspection

1. Inspect motor and lubricate.
2. Lubricate fan bearings.
3. Inspect coil(s) for leaks.
4. Vacuum interior.
5. Test operation of unit controls.

Pumps

Services Performed

Preseason Inspection

1. Tighten loose nuts and bolts.
2. Check motor mounts and vibration pads.
3. Inspect electrical connections and contactors.

Seasonal Start-up

1. Lubricate pump and motor bearings per manufacturer's recommendations.
2. Visually check pump alignment and coupling.
3. Check motor operating conditions.
4. Inspect mechanical seals or pump packing.
5. Check hand valves.

Mid-season Inspection

1. Lubricate pump and motor bearings as required.
2. Inspect mechanical seals or pump packing.
3. Ascertain proper functioning.

Seasonal Shut-down

1. Switch off pump.
2. Verify position of hand valves.
3. Note repairs required during shutdown.

Packaged Air-Conditioning Systems

Services Performed

Preseason Inspection

1. Energize crankcase heater.
2. Lubricate fan and motor bearings per manufacturer's recommendations.
3. Check belts and sheaves. Adjust as required.
4. Lubricate and adjust dampers and linkages.
5. Check condensate pan.

Seasonal Start-up

1. Check crankcase heater operation.
2. Check compressor oil level.
3. Inspect electrical connections, contactors, relays, operating and safety controls.
4. Start compressor and check operating conditions. Adjust as required.
5. Check refrigerant charge.
6. Check motor operating conditions.
7. Inspect and calibrate temperature, safety and operational controls, as required.
8. Secure unit panels.
9. Pressure wash all evaporator and condenser coils (if applicable).
10. Log all operating data.

Mid-season Inspection

1. Lubricate fan and motor bearings per manufacturer's recommendations.
2. Check belts and sheaves. Adjust as required.
3. Check condensate pan and drain.
4. Check operating conditions. Adjust as required.
5. Log all operating data.

Seasonal Shut-down *

1. Shut down per manufacturer's recommendations.

* If no Shut-down is required then (2) Mid-season Inspections are performed

Boilers

Services Performed

Preseason Inspection

1. Inspect fireside of boiler and record condition.
2. Brush and vacuum soot and dirt from flues (not chimneys) and combustion chamber.
3. Inspect firebrick and refractory for defects.
4. Visually inspect boiler pressure vessel for possible leaks and record condition.
5. Disassemble, inspect and clean low-water cutoff.
6. Check hand valves and automatic feed equipment. Repack and adjust as required.
7. Inspect, clean and lubricate the burner and combustion control equipment.
8. Reassemble boiler.
9. Check burner sequence of operation and combustion air equipment.
10. Check fuel piping for leaks and proper support.
11. Review manufacturer's recommendations for boiler and burner start-up.
12. Check fuel supply.
13. Check auxiliary equipment operation.

Seasonal Start-up

1. Inspect burner, boiler and controls prior to start-up.
2. Start burner and check operating controls.
3. Test safety controls and pressure relief valve.
4. Perform combustion analysis.
5. Make required control adjustments.
6. Log all operating conditions.
7. Review operating procedures and owner's log with boiler operator.

Mid-season Inspection

1. Review operator's log.
2. Check system operation.
3. Perform combustion analysis.
4. Make required control adjustments.
5. Log all operating conditions.
6. Review operating procedures and log with boiler operator.

Seasonal Shut-down

1. Review operator's log.
2. Note repairs required.

APPENDICES

Appendices

Appendix 1: ECM Calcs and Lighting

Please see file ***Appendix 1 Burlington ECM Calcs for ESP.pdf*** for Energy Savings Calculations.

Appendix 2: Equipment Cutsheets

Please see file ***Appendix 2 Burlington Lighting.pdf*** for the cutsheets

Appendix 3: Omnia Cooperative / NJ Procurement Documentation

Since the Burlington City Board of Education is a member in good standing with the Omnia Cooperative, use of Omnia Cooperative in the selection of Honeywell under contract # 171201 is allowed under NJ Public Contracts law as outlined in LFN 2012-10 and consists of the following elements and authorized by DLGS/DCA as well as the following elements:

- "an organization (profit or not-for-profit) that coordinates and aggregates contracts from different state and local governments and promotes their use."
- "in the context of the LPCL and PSCL, the provisions of this notice apply when the aggregate value of the goods or services (see N.J.A.C. 5:34-8.2) exceeds the contracting unit's bid threshold."
- the national cooperative contract must have been advertised as a national or regional cooperative and awarded pursuant to a competitive bidding process that complies with the laws applicable.
- The LFN requires if a national cooperative contract is chosen, the calculation of cost savings from using this approach must be documented: The Law requires a contracting unit can use national cooperatives only when the contracting unit determines " the use of the cooperative purchasing agreement shall result in cost savings after all factors, including charges for service, material, and delivery, have been considered."
- The LFN states if using an online ordering system, local officials must put "appropriate internal controls" in place to ensure purchases are documented and that an audit trail exists
- Per the LFN, the Burlington City BOE must verify the selected vendor complies with applicable New Jersey procurement documentation requirements by submitting the following required forms.
  - New Jersey Business Registration Certificate for the contractor and any subcontractors (i.e., copy of certificate)
  - Statement of Corporate Ownership (an original form prepared for the contracting agency awarding the contract)
  - Public Contract EEO Compliance (Employee Information Report form or proof of participation in a federally approved affirmative action program)
  - Non-collusion Affidavit

This document will certify Honeywell and the use of this cooperative purchasing agreement will **remain compliant with the services of the COOP for the Burlington City School District; that ALL public works in conjunction with the School District and in accordance with NJ Public Contract Law (NJSA 18A:18A-1 et seq.) will be procured according to State requirements. To clarify further, this applies to a public works projects including and not limited to installing electrical, lighting, plumbing, HVAC, BMS systems etc. Additionally, that no on-line ordering system will be used as part of this process.**

It is estimated the cost savings to the Burlington City School District by using the Cooperative Agreement will save approximately $5000 in legal fees, 100-man hours as well as significant lost energy savings per month for every month waiting to administer the RFP process on their own. Because Omnia has undertaken the competitive process on the district's behalf, the savings can be achieved as outlined in this plan approximately 10 months sooner than via a local competitive contracting approach.

Resolution to Select ESCO

Exhibit FO2
4/11/2022

City of Burlington Board of Education

518 Locust Avenue, Burlington, New Jersey 08016 • (609) 387–5877

Jennifer M. Montone
President

Ingrid T. Walsh
Business Administrator/ Board Secretary

RESOLUTION #3340-22

SELECTION OF ESCO FOR THE IMPLEMENTATION OF AN ENERGY SAVINGS IMPROVEMENT PROJECT (ESIP)

WHEREAS; N.J.S.A. P.L. 2011, c.139 (LFN 2012-10) enables local contracting units to utilize national cooperative contracts as a method of procurement, the City of Burlington Board of Education (BOE) being a member of the Omnia Partners Public Sector National Cooperative (Omnia) and;

WHEREAS; Energy Savings Performance Contract Services are available via contract No. 171201 within the Omnia portfolio; and;

WHEREAS; Omnia utilized a competitive bidding process in the selection of contractors capable of implementing an Energy Savings Performance Contract and,

WHEREAS; Honeywell International under contract # 171201 has competed and has been selected as a provider of Energy Savings Performance Contracts under Omnia and;

WHEREAS; Honeywell International is also designated under the Department of Management and Construction (DPMC) in the State of New Jersey under a CO36 classification as a qualified Energy Services Company (ESCO) and;

WHEREAS; Honeywell International has implemented multiple Energy Savings Performance Contracts within New Jersey as titled the Energy Savings Improvement Program (ESIP)

WHEREAS; the BOE has selected Honeywell International, 534 Fellowship Rd, Mt Laurel Township, NJ 08054 as the qualified Energy Service Company (ESCO) to detail, design and implement an Energy Saving Plan and ESIP project for the BOE in accordance with P.L 2012, c.55 (P.L.2009, c.4); and;

WHEREAS, Honeywell will provide an Energy Savings Plan, including engineering, construction, project management as part of their proposal and that the total cost of services will be a predetermined amount and paid for out of the energy savings as calculated in accordance with P.L. 2012, c.55,

WHEREAS, there is no cost for the Energy Savings Plan and the BOE will have an option to continue the process to full implementation of the ESIP project once the ESP has been reviewed and approved by an independent 3rd party in accordance with P.L.2012, c.55, and adopted by the BOE.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Education authorizes the School Business Administrator/Board Secretary to execute a Project Development Agreement with Honeywell upon review and approval from the Board Attorney.

We are PROUD – Partners Responsible Outstanding United Dedicated!

City of Burlington Board of Education

518 Locust Avenue, Burlington, New Jersey 08016 • (609) 387–5877

Jennifer M. Montone
President

Ingrid T. Walsh
Business Administrator/ Board Secretary

****

I, Ingrid Torres Walsh, School Business Administrator/Board Secretary of the City of Burlington Board of Education, do hereby certify the foregoing to be a true and correct copy of the Resolution adopted by the Board of Education at a meeting of the said Board held on **April 11, 2022.**

Ingrid Torres Walsh
School Business Administrator/Board Secretary

We are PROUD – Partners Responsible Outstanding United Dedicated!

Award Advertisement for National COOP

This award was advertised as per requirement the record of advertisement is as follows:

Burlington County Times, Willingboro

Publication Logo Unavailable

Publication Name:
Burlington County Times, Willingboro

Publication URL:
www.burlingtoncountytimes.com/

Publication City and State:
Willingboro , NJ

Publication County:
Burlington

Notice Popular Keyword Category:

Notice Keywords:
Omnia

Notice Authentication Number:
202210051723212311514
2612925188

Notice URL:

Back

Notice Publish Date:
Friday, April 01, 2022

Notice Content

BURLINGTON CITY BOARD OF EDUCATION 518 LOCUST AVENUE BURLINGTON, NEW JERSEY 08016 NOTICE OF INTENT TO AWARD A CONTRACT UNDER A NATIONAL COOPERATIVE PURCHASING AGREEMENT The Burlington City Board of Education (Burlington City BOE) intends to award a contract to Honeywell Building Solutions through Omnia Partners Public Sector National Cooperative, formerly the U.S. Communities Cooperative ("Omnia"), Contract No. R171201 covering Energy Performance Contracting Services related to the following: Energy Performance Contracting, preferred temperature control services, preferred automation maintenance services, preferred mechanical maintenance services, flex mechanical maintenance services. Information regarding Contract No. R171201 may be examined at the offices of the Business Administrator, Burlington City BOE 518 Locust Avenue, Burlington , New Jersey 08016 during regular business hours; the contract may also be accessed on Omnia's website at www.omniapartners.com/publicsector/contracts as well as on Burlington City Board of Education website at https: http://www.burlington-nj.net The Burlington City BOE is a member of Omnia. Omnia's contract term with Honeywell Building Solutions has been awarded beginning July 1, 2020 and terminating on February 28, 2023. It is the Burlington City BOE's intent to make a contract award to Honeywell Building Solutions pursuant to Honeywell proposal submitted in accordance with Contract No. R171201. The Burlington City BOE is authorized to purchase from national cooperatives, of which it is a member, pursuant to N.J.S.A. 52:34-6.2(b)(3). The comment period for this notice ends at 3:45 p.m. on Thursday, April 7, 2022. Comments should be submitted to Ingrid Walsh, Business Administrator via email: iwalsh@burlington-nj.net Adv. Fee: $43.24 BCT: April 1, 2022 Aff. Chg.: $20.00 7427581

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Appendix 4: Forms and Required Document

Non-Collusion Affidavit

NON-COLLUSION AFFIDAVIT

TO: Burlington City Board of Education
DATE: 10/05/2022
FROM: Honeywell
TELEPHONE: 856-437-1856
E-MAIL: caroline.jackson@honeywell.com
FACSIMILE:

In signing this proposal, we certify that we have not, either directly or indirectly, entered into any agreement or otherwise colluded in any manner with any other person, or otherwise taken any action that would restrain or impede open and free competition and competitive bidding for this project; that no attempt has been made to induce any other person or firm to submit or not to submit a proposal; that this proposal has been independently arrived at without agreement or collusion with any other Proposer, competitor, potential competitor or other person; and that this proposal has not been knowingly disclosed prior to the opening of proposals to any other Proposer, competitor or person not affiliated with Proposer.

We further certify that no requirement or commitment, direct or indirect, was made to any person, or elected official and that no undisclosed benefit of any kind was promised to anyone connected with this project.

We further certify that no person or selling agent has been employed or retained to solicit or secure the contract that is the subject of this RFP upon an agreement or understanding for a commission, percentage, brokerage or contingent fee.

We certify that the foregoing statements are true and accurate under penalty of perjury.

The undersigned, by submitting this proposal, hereby agrees with all the terms, conditions, and specifications required by the New Jersey School District Board of Education in this Request for Proposal, and declares that the attached proposal and pricing are in conformity therewith.

SIGNATURE: Caroline Jackson

DATE: 10/05/2022

TYPE OR PRINT NAME: Caroline Jackson

TITLE: Senior Business Consultant

FEIN or TAX ID NUMBER: 22-2640650

Certificate of Insurance

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 03/24/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Aon Risk Services Northeast, Inc. New York NY Office One Liberty Plaza 165 Broadway, Suite 3201 New York NY 10006 USA	PHONE (A/C. No. Ext): (866) 283-7122	FAX (A/C. No.): 800-363-0105
	E-MAIL ADDRESS:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Honeywell International Inc. 855 S. Mint Charlotte NC 28202 USA	INSURER A: XL Specialty Insurance Co	37885
	INSURER B: XL Insurance America Inc	24554
	INSURER C: Greenwich Insurance Company	22322
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 570092137348 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
C	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			RGC943763009	04/01/2022	04/01/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$5,000,000 $5,000,000 $50,000 $5,000,000 $5,000,000 Included
C	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			RAC943764209 AOS	04/01/2022	04/01/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$1,000,000
C	UMBRELLA LIAB X OCCUR X EXCESS LIAB CLAIMS-MADE DED RETENTION			RAO943764509 Excess Auto	04/01/2022	04/01/2023	EACH OCCURRENCE AGGREGATE	$4,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		RWD943540309 AOS	04/01/2022	04/01/2023	X PER STATUTE OTH-ER	
A				RWC943540209 AK, WI	04/01/2022	04/01/2023	E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	$5,000,000 $5,000,000 $5,000,000
A	Excess WC			RWE943540409 AZ, OH, WA SIR applies per policy terms & conditions	04/01/2022	04/01/2023	EL Each Accident EL Disease - Ea Emp EL Annual Aggregate	$5,000,000 $5,000,000 $5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Evidence of Coverage. Blanket Additional Insured where required by written contract endorsement is included on the General Liability and Automobile Liability policies. Blanket Contractual Liability is included on the General Liability and Auto policies per the policy coverage forms. A Waiver of Subrogation where required by written contract is included on applicable policies shown above. Honeywell will provide the General Liability ISO endorsement form numbers where required by written contract upon request.

CERTIFICATE HOLDER	CANCELLATION
Honeywell International Inc. 855 S. Mint Charlotte NC 28202 USA	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Aon Risk Services Northeast, Inc.

Holder Identifier : 15M

Certificate No : 570092137348

ACORD 25 (2016/03)

AGENCY CUSTOMER ID: 570000054391
LOC #:

ACORD

ADDITIONAL REMARKS SCHEDULE

Page _ of _

AGENCY Aon Risk Services Northeast, Inc.	NAMED INSURED Honeywell International Inc.
POLICY NUMBER See Certificate Number: 570092137348	
CARRIER See Certificate Number: 570092137348 / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: ACORD 25 **FORM TITLE:** Certificate of Liability Insurance

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER	
INSURER	
INSURER	
INSURER	

ADDITIONAL POLICIES If a policy below does not include limit information, refer to the corresponding policy on the ACORD certificate form for policy limits.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS	
	OTHER							
A				RWE943540509 Excess WC - NM SIR applies per policy terms & conditions	04/01/2022	04/01/2023		
A	Archit&Eng Prof			RGO9435408 Claims Made	04/01/2013	04/01/2023	Aggregate	$5,000,000
	Excess WC Limits							
	are Statutory in							
	AZ, OH, WA, & NM							

ACORD 101 (2008/01)

Certificate of Employee Information

Certificate Number
604863

Registration Date: 06/02/2022
Expiration Date: 06/01/2024

State of New Jersey

Department of Labor and Workforce Development

Division of Wage and Hour Compliance

Public Works Contractor Registration Act

Pursuant to N.J.S.A. 34:11-56.48, et seq. of the Public Works Contractor Registration Act, this certificate of registration is issued for purposes of bidding on any contract for public work or for engaging in the performance of any public work to:

Honeywell International Inc.

2022

Responsible Representative(s):
Doug Wright, President
Alastair Reynolds, Vice-President
Derek Skelton, General Manager

Responsible Representative(s):
Laura Laltrello, Vice-President
Matthew Drobish, Manager
Darius Adamczyk, Chairman

Robert Asaro-Angelo, Commissioner
Department of Labor and Workforce Development

NON TRANSFERABLE

This certificate may not be transferred or assigned and may be revoked for cause by the Commissioner of Labor and Workforce Development.

Business Registration Certificate

STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE

Taxpayer Name:	HONEYWELL INTERNATIONAL INC.
Trade Name:	ADI GLOBAL DISTRIBUTION
Address:	101 COLUMBIA RD MORRISTOWN, NJ 07960-4640
Certificate Number:	0073401
Effective Date:	August 19, 1985
Date of Issuance:	August 25, 2021

For Office Use Only:

20210825150427681

EXHIBIT A

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127)
N.J.A.C. 17:27

GOODS, PROFESSIONAL SERVICE AND GENERAL SERVICE CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor, where applicable, will send to each labor union or representative or workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to make good faith efforts to employ minority and women workers consistent with the applicable county employment goals established in accordance with N.J.A.C. l7:27-5.2, or a binding determination of the applicable county employment goals determined by the Division, pursuant to N.J.A.C. 17:27-5.2.

The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, labor unions, that it does not discriminate on the basis of age, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

In conforming with the applicable employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

Letter of Federal Affirmative Action Plan Approval

Certificate of Employee Information Report

Employee Information Report Form AA302

The contractor and its subcontractors shall furnish such reports or other documents to the Div. of Contract Compliance & EEO as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Div. of Contract Compliance & EEO for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code at N.J.A.C. 17:27**.

COMPANY: Honeywell International DATE: 10/05/2022

SIGNATURE: Caroline Jackson TITLE Business Consultant

PRINT NAME Caroline Jackson

Disclosure of Investment Activities in Iran

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY
DIVISION OF PURCHASE AND PROPERTY

33 WEST STATE STREET, P.O. BOX 230
TRENTON, NEW JERSEY 08625-0230

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM

BID SOLICITATION #: _____ **VENDOR/BIDDER:** Honeywell International Inc

PART 1

CERTIFICATION
VENDOR/BIDDER MUST COMPLETE PART 1 BY CHECKING ONE OF THE BOXES
FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of the Treasury's Chapter 25 list as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Vendors/Bidders **must** review this list prior to completing the below certification. **Failure to complete the certification will render a Vendor's/Bidder's proposal non-responsive.** If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

CHECK THE APPROPRIATE BOX

[X] A. I certify, pursuant to Public Law 2012, c. 25, that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the N.J. Department of the Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). Disregard Part 2 and complete and sign the Certification below.

OR

[ ] B. I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such information will result in the proposal being rendered as nonresponsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2

PLEASE PROVIDE ADDITIONAL INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

If you checked Box "B" above, provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, engaged in the investment activities in Iran by completing the boxes below.

ENTITY NAME: NONE
RELATIONSHIP TO VENDOR/BIDDER: _____
DESCRIPTION OF ACTIVITIES: _____
DURATION OF ENGAGEMENT: _____
ANTICIPATED CESSATION DATE: _____
VENDOR/BIDDER CONTACT NAME: _____
VENDOR/BIDDER CONTACT PHONE No.: _____
Attach Additional Sheets If Necessary.

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/Bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor/Bidder is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

Caroline Jackson — 10/05/2022

Signature — Date

Caroline Jackson, Business Consultant

Print Name and Title

DPP Rev. 6.19.17

Page 1 of 1

Political Contribution Disclosure Form

POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant To N.J.S.A. 19:44A-20.26

This form or its permitted facsimile must be submitted to the local unit no later than 10 days prior to the award of the contract.

Part I – Vendor Information

Vendor Name:	Honeywell International Inc.				
Address:	534 Fellowship Road				
City:	Mt Laurel	State:	NJ	Zip:	08053

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

Caroline Jackson	Caroline Jackson	Business Consultant
Signature	Printed Name	Title

Part II – Contribution Disclosure

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than $300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

☐ Check here if disclosure is provided in electronic form.

Contributor Name	Recipient Name	Date	Dollar Amount
None			

☐ Check here if the information is continued on subsequent page(s)

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Continuation Page

POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant To N.J.S.A. 19:44A-20.26

Page ___ of ______

Vendor Name:

Contributor Name	Recipient Name	Date	Dollar Amount
			$

☐ Check here if the information is continued on subsequent page(s)

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POLITICAL CONTRIBUTION DISCLOSURE FORM

Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a "fair and open" process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
    - of the public entity awarding the contract
    - of that county in which that public entity is located
    - of another public entity within that county
    - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed $300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 52:34-25(b) itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an "interest:" ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, "a contribution by that person's spouse or child, residing therewith, shall be deemed to be a contribution by the business entity." [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor's responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor's submission and is disclosable to the

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public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law.

[1] N.J.S.A. 19:44A-3(s): "The term "legislative leadership committee" means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures."

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Statement of Ownership/Ownership Disclosure Certification

STATEMENT OF OWNERSHIP
(OWNERSHIP DISCLOSURE CERTIFICATION)
N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This Statement Shall Be Included with
All Bid and Proposal Submissions

Name of Business: Honeywell International Inc.

Address of Business: 534 Fellowship Road, Mount Laurel, NJ 08054

Name of person completing this form: Caroline Jackson

N.J.S.A. 52:25-24.2:

"No corporation, partnership, or limited liability company shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies, unless prior to the receipt of the bid or proposal, or accompanying the bid or proposal of said corporation, said partnership, or said limited liability company there is submitted a statement setting forth the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be.

If one or more such stockholder or partner or member is itself a corporation or partnership or limited liability company, the stockholders holding 10 percent or more of that corporation's stock, or the individual partners owning 10 percent or greater interest in that partnership, or the members owning 10 percent or greater interest in that limited liability company, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member, exceeding the 10 percent ownership criteria established in this act, has been listed.

To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest."

The Attorney General has advised that the provisions of N.J.S.A. 52:25-24.2, which refer to corporations and partnerships apply to limited partnerships, limited liability partnerships, and Subchapter S corporations.

This Ownership Disclosure Certification form shall be completed, signed and notarized.

Failure of the bidder/proposer to submit the required information is cause for automatic rejection of the bid or proposal

Part I

Check the box that represents the type of business organization:

☐ Sole Proprietorship (skip Parts II and III, sign and notarize at the end)

☐ Non-Profit Corporation (skip Parts II and III, sign and notarize at the end)

☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership

☐ Limited Liability Company

☒ For-profit Corporation (including Subchapters C and S or Professional Corporation)

☐ Other (be specific): _____

Part II

☐ I certify that the list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be.

OR

☒ I certify that no one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or that no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be.

Sign and notarize the form below, and, if necessary, complete the list below.
(Please attach additional sheets if more space is needed):

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Name: _____

Address: _____

_____

Part III - Any Direct or Indirect Parent Entity Which is Publicly Traded:

"To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest."

☐ Pages attached with name and address of each publicly traded entity as well as the name and address of each person that holds a 10 percent or greater beneficial interest.

OR

☐ Submit here the links to the Websites (URLs) containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent.

_____

_____

AND

☐ Submit here the relevant page numbers of the filings containing the information on each person holding a 10 percent or greater beneficial interest.

_____

_____

Subscribed and sworn before me this ___ day of _____, 2 _____.

(Notary Public)

My Commission expires:

_____
(Affiant)

Caroline Jackson
(Print name of affiant and title if applicable)

(Corporate Seal if a Corporation)

Form W-9

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

► Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Honeywell International Inc.

2 Business name/disregarded entity name, if different from above
Honeywell Building Solutions

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☑ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ►

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
Exempt payee code (if any) 5
Exemption from FATCA reporting code (if any) D
(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
855 S. Mint Street

Requester's name and address (optional)

6 City, state, and ZIP code
Charlotte, NC 28202

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			–		–				

or

Employer identification number
2	2	–	2	6	4	0	6	5	0

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ► Mark L. Hall Date ► 1/14/2022

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

Cat. No. 10231X Form **W-9** (Rev. 10-2018)

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. Individual. Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. Sole proprietor or single-member LLC. Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation. Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. Other entities. Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. Disregarded entity. For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)

2—The United States or any of its agencies or instrumentalities

3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

4—A foreign government or any of its political subdivisions, agencies, or instrumentalities

5—A corporation

6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

7—A futures commission merchant registered with the Commodity Futures Trading Commission

8—A real estate investment trust

9—An entity registered at all times during the tax year under the Investment Company Act of 1940

10—A common trust fund operated by a bank under section 584(a)

11—A financial institution

12—A middleman known in the investment community as a nominee or custodian

13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over $600 required to be reported and direct sales over $5,000[1]	Generally, exempt payees 1 through 5[2]
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.ssa.gov*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: *A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.*

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account[1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor[2]
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee[1] The actual owner[1]
5. Sole proprietorship or disregarded entity owned by an individual	The owner[3]
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor[4]
For this type of account:	**Give name and EIN of:**
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity[4]
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

[4] List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

*Note. Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov*. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: *spam@uce.gov* or contact them at *www.ftc.gov/idtheft* or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

Appendix 5: Energy Audit

Please see file ***Appendix 5:*** Burlington City School District Level II Energy Audits.pdf

BURLINGTON CITY PUBLIC SCHOOLS
FACILITIES/TRANSPORTATION OFFICE

Thomas Carter
Facilities/Transportation
Manager
609-387-5883

Burlington City BOE
Facilities Office
552 High St
Burlington, NJ 08016
(609) 387-5883

Dr. John Russell
Superintendent of Schools

March 27, 2023

To Whom it May Concern:

The Level II Energy audits provided by CHA through the Local Government Energy Audit Program dated September 2014 are representative of the current systems in the building. The audits have been updated with new Utility Bills.

Besides routine maintenance the only other change a was one new Chiller and two new roof top units in the Burlington City High School which have been accounted for in out ESP and PSE&G engineer solutions Audits.

Please feel free to reach out to me if you have any questions.

Tom Carter

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Thank you for considering our proposal. We look forward to working with you in the future.