



Marsha DeGennaro <mdegennaro@woodbridgeps.org>

[External Email] Public comment/correspondence to the WBOE

1 message

Sheila McCreven <sheila.mccreven@gmail.com>

Mon, Mar 16, 2026 at 3:46 PM

To: Marsha DeGennaro <mdegennaro@woodbridgeps.org>

Cc: Christopher Montini <cmontini@woodbridgeps.org>

Dear Marsha,

Please consider the attached letter and Scope Document as correspondence/public comment for the WBOE at tonight's meeting.

Should it be determined that the Scope Document contains information that should remain confidential, please mark it accordingly and distribute in a manner that is non-public. I think the letter and table should be fine as a public-facing document.

Many thanks, as always.

S.

2 attachments



Beecher_prior_work_with_table.pdf

148K



Beecher_TBC_Scope_2014-03-11.pdf

3099K

To: Woodbridge Board of Education

From: Sheila McCreven

Date: March 16, 2026

Subject: Clarification of Prior Capital Work at Beecher Road School included in the 2015–2016 Renovation Project

Dear WBOE members,

As the Board prepares to consider the scope of the proposed Beecher Road School capital project, it is important that the record accurately reflect the work completed during the 2015–2016 renovation project. The attached scope document from that project details extensive upgrades to major building systems across several wings of the school.

Ensuring that this work is clearly recognized in the current planning documents will help support a more accurate assessment of remaining needs and priorities.

Summary of Key Work Completed in the 2015–2016 Renovation

The 2015–2016 renovation addressed major building systems including HVAC infrastructure, lighting and electrical systems, building controls, portions of the building envelope, renewable energy systems, and plumbing upgrades.

Mechanical Systems and Introduction of Air Conditioning

Prior to the 2015–2016 renovation, Beecher Road School did not have comprehensive air conditioning serving classroom spaces. The renovation introduced central air-conditioning capability for the building through installation of a central chilled-water system including a 100-ton air-cooled chiller, pumps, and chilled water distribution piping. Classroom ventilation systems were replaced in the A, B, and C wings, and major air-handling equipment was upgraded. These improvements introduced mechanical cooling capability throughout the building.

Other Major Systems Upgraded

Additional work completed during the renovation included installation of a digital building automation system, lighting retrofits with occupancy sensors, replacement of electrical transformers, curtain wall replacement in portions of the A, B, and C wings, roof replacement in designated roof areas (commonly described as the north building section), plumbing fixture upgrades, and installation of renewable energy systems including rooftop solar panels and a micro-turbine system.

Importance for Current Project Planning

As the Board evaluates the scope of the proposed capital project, it may be helpful to ensure that planning documents clearly distinguish between systems already replaced or modernized during the 2015–2016 renovation and systems that remain in need of replacement. Accurately reflecting prior capital investments will support more informed decision-making.

See attached Project Scope document for details.

Appendix A – Summary of Prior Work vs. Current Scope Considerations

System / Building Component	Work Completed in 2015–2016 Renovation	Implication for Current Planning
Air Conditioning / Cooling	Central chilled-water system installed; building gained mechanical air-conditioning capability	Planning documents should acknowledge that central cooling infrastructure was installed during the renovation
Classroom Ventilation	Unit ventilators replaced in A, B, and C wings	These systems were modernized during the renovation
Mechanical Plant	New 100-ton chiller, pumps, and distribution piping installed	Major cooling infrastructure already upgraded
Pool Mechanical System	Oil-fired system removed; new high-efficiency gas boiler installed	Pool mechanical system already converted and modernized
Building Automation	Digital building automation (DDC) system installed for HVAC and building systems	Central control infrastructure already implemented
Lighting Systems	Lighting fixtures replaced and occupancy sensors installed	Energy efficiency lighting improvements already completed
Electrical Infrastructure	Transformers replaced in several building locations	Portions of electrical infrastructure already upgraded
Curtain Wall / Windows	Curtain wall systems replaced in portions of A, B, and C wings (24 openings)	Some building envelope systems already modernized
Roof	Roof replacement completed in designated areas (inc. A, B and C wings)	Roof work partially completed during renovation
Renewable Energy Systems	Solar photovoltaic array, micro-turbine, and small wind turbine installed	Energy infrastructure already added to building systems
Plumbing Fixtures	Toilets, urinals, faucets, and sinks replaced with water-efficient fixtures	Water-efficiency upgrades already implemented
Security Systems	(see documents for details)	Upgraded and enhanced

EXHIBIT A: SCOPE OF WORK

TABLE OF CONTENTS

	<u>Pages</u>
Scope of Work	2-22
Attachments	23-87
Exhibit A-1	23-31
Exhibit A-2	32
Exhibit A-3	33
Exhibit A-4	34
Exhibit A-5	35
Exhibit A-6	36
Exhibit A-7	37
Exhibit A-8	38
Mechanical Drawings	39-49
Plumbing Drawings	50-51
Security Drawings	52-54
Security Specification	55-87

EXHIBIT A: SCOPE OF WORK

This document details the scope of work for the measures listed in the table below.

ECM #	ECM Description
1	Lighting and Sensors Retrofit
2	Mechanical Upgrades (Fuel Switching Savings)
3	Building Control Upgrades (Full)
4	Demand Control Ventilations (CO2)
5	Building Envelope Improvement
6	Electric DHW Controls
7	Plug Load Controls
8	Walk-in & Freezer Controllers
9	Transformer Replacement
10	Water Retrofit
11	Swimming Pool Cover
12	Micro-Turbines
13	Multizone to VAV Conversion
14	UVs Replacement
15	Curtain Wall Replacement
16	Roof Replacement
17	Mechanical (Boilers, chillers, uvs, ahus, rtus)
18	Electrical Upgrades
19	Ceiling Work, relocate ductwork, sprinklers and lights
20	Wall Penetrations (included above)
21	Fire stopping (included above)
22	Temporary Protection
23	Solar PV Panels
24	Wind Turbines
25	ADD - Casework ABC & K Wing
26	Security Features & Painting
27	Window Film
28	Security Doors
29	Canopy
30	Security Access
31	Magnetic Doors
32	Wall Painting

Energy Systems Group (ESG) will furnish and install the materials and labor at Owner's facilities in accordance with the applicable engineering specifications and as identified and detailed in Exhibit A in accordance with a schedule approved by Owner.

Energy Systems Group shall be responsible for:

- Items as specified in the agreement including necessary piping and wiring of systems.
- Restoration of any facilities as changed by the system to at least substantially the same appearance and functional integrity as existed before the system was installed.

- All costs associated with labor, material, equipment, tools and supplies.
- Piping insulation as required by the addition of new piping for this project.
- Electrical work for the work as stated.
- System start-up.
- Final adjustments and operational checks.
- Project management.
- Progress meetings on intervals as agreed upon.
- Mechanical, Electrical and Energy Systems Group engineering.
- Demolition as necessary.
- Training on new equipment.
- As-Built Drawings – only for temperature controls scope
- Permits and fees
- Rigging
- Startup and Commissioning

Energy Systems Group shall not be responsible for:

- Asbestos Abatement, unless specifically included
- Anything not specifically stated herein

ASSUMPTIONS AND EXCLUSIONS

The following general assumptions and exclusions apply to all measures except where explicitly included in the scope of work.

- In the case of conflict between this scope of work and the drawings dated 11-10-2012 the written scope of work will govern.
- Full Access, escorts and parking to be provided by owner
- Project schedule includes major work activities during the summers of 2014 and 2015, assuming a contract date of March 3rd, 2014. The final completion date is scheduled for December 9, 2015.
- ESG has included specific abatement for the curtain walls (ECM 15) and roof replacement (ECM 16). Any abatement scope not specifically outlined is excluded from ESG's scope. Hazmat includes, but not limited to, mold, lead, asbestos, etc.;
- Any scope not explicitly outlined is excluded;
- Any existing infrastructure we propose to reuse is assumed to be in good working condition and hence not included in the proposed scope of work. For example:
 - Existing electrical system that is reused is adequate for new equipment and otherwise assumed to be in good condition and suitable for interconnection;
 - ESG has not included in the scope or cost replacement of defective electrical wiring or bringing any existing wiring up to current code, unless explicitly included in the scope;
 - Existing controls, valves, dampers, safeties and wiring, if reused, are assumed to be functional;

- Unless specifically noted and included in scope, such as for the micro turbine (ECM 12) or the air-cooled chiller (ECM 2), we have assumed that existing structure and load bearing capability are adequate. Any structural evaluation or strengthening not specifically identified in scope has been excluded;
- ESG's engineering scope excludes any tasks toward LEED Certification;
- Temporary lighting, heating and cooling is excluded unless at the contractor's discretion.

ECM #1 - LIGHTING AND SENSORS RETROFIT

Provide all applicable equipment, materials and labor to implement the lighting retrofit project in accordance with an in-depth lighting audit, as detailed in the line by line scope – **Exhibit A-1** attached hereto and incorporated herein by reference. Coordinate all lighting retrofit activities with the customer to minimize classroom and school activity disruptions.

1. Provide for the disposal/recycling of all replaced fixtures and lamps.
2. Lighting Retrofit Scope: Please refer to the attached lighting room-by-room audit (**Exhibit A-1**) for details of the proposed fixtures throughout the school.
3. Lighting Control scopes includes dual technology sensors use a combination of passive infrared and micro-phonics to determine the occupancy conditions in the room. This technology allows the sensors to determine occupancy in the room based on both motion and sound variations.
4. Installation will comply with IES standards
5. Provide a certificate showing the lamps and ballasts have been disposed of properly.
6. Provide 2% of attic stock for lamps and ballasts.
7. M&V requirements for the Lighting sub
8. EPACT data collection

ECM #2 MECHANICAL UPGRADES

The mechanical scopes to furnish the necessary supervision, labor, equipment and materials based on AKF Mechanical drawings¹ (M-100 to M-602) dated 11/20/2012. The scope of work of the mechanical upgrades is presented below.

A. New chilled water plant:

Install new central chilled water plant, and pumps

- Furnish and install (1) 200-ton air cooled chiller
- Furnish and install two primary chilled water pumps.
- Furnish and install support steel and enclosure for the new chiller.
- Insulate existing water piping (as necessary).
- Provide ATC services to connect the new chiller to new BMS (included in ECM #3).
- Provide new electrical circuits and modify existing wiring for the new and relocated equipment.
- New distribution (secondary) pumps and VFDs
- Existing hot water distribution piping will be used to serve both hot water and chilled water (dual temp system)

¹ Not all design details shown on the above referenced drawings are reflective of the written scope of work described in this document. For example, in drawing M-400 the micro turbine is shown on the north end, whereas the proposal is to locate the unit on the south side close to the swimming pool. The drawings will be modified as needed in the next phase of the project.

B. Replace Pool Side Oil Boilers with a Gas Boiler

- Demolish existing oil boilers
- Demolish associated oil tanks, oil pumps and piping
- Furnish and install one (1) condensing gas boiler (Aerco or equal), 143 kBtu/h input capacity
- Modify existing flue or provide new flue for the condensing boiler
- Furnish and install gas train vent piping
- Reuse existing infrastructure such as electrical, HW piping, pumps, & etc.
- Reuse, as applicable, existing concrete pad
- Furnish and install gas connection from utility termination point on the South side of school to boiler
- Provide start up for the installed system
- Provide one-time training to school staff

C. Replace existing RTUs, AHUs, H&Vs, FCU's and VAV Boxes (per AKF Mechanical drawings M-100 to M-602):

- Remove existing RTUs, AHUs and H&Vs
- Install new RTUs, AHUs ERVs, FCU's and VAV Boxes
- Re-insulate existing piping
- Provide DDC on new units (included in ECM #3)
- Re-use existing Hot Water Piping
- Install new piping for the FCU's from the hallway mains.
- Provide Test and Balance services on air and water side for the new equipment.

D. Replace existing unit ventilators (per AKF Mechanical drawings M-100 to M-602)¹:

- Replace Unit Ventilators in A, B, C and K Wing
- Hot water distribution piping to be reused
- Use existing hot water distribution piping for chilled water
- Remove and reinsulate distribution piping, with vapor barrier
- Provide Test and Balance services for the new equipment.
- Reuse existing electrical infrastructure for UV

E. Temporary protection

Provide the following items to temporarily protect the building systems and maintain conditions acceptable for building occupancy and normal use in portions of building that are being used for routine school business. Protection to include:

- Floors, walls and ceiling;
- Safety;
- Indoor air quality (IAQ) provisions for acceptable air quality in occupied space;
- Progressive and final cleaning;
- Dumpsters

F. Boiler Plant Remaining Work

ESG recently installed new boilers at the school. Remaining work in the main boiler room will be completed as reflected in AKF Drawings dated 11-20-2012.

Exclusions

- Exclude - repair of existing damage to floors, walls and ceiling;
- Exclude IAQ impact from factors not directly associated with construction;
- Exclude Temporary lighting, heating and cooling except at contractor's discretion.

ECM #3 - BUILDING CONTROL UPGRADES (FULL)

A complete Honeywell Webs DDC system per AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012 which includes:

1. New DDC for new boilers, chiller, hot & chilled water systems as specified.
2. New DDC for new AHU's, RTU's and ERV's.
3. New DDC for U.V.'s & FCU's.
4. New DDC for VAV boxes
5. Summer/Winter isolation valves for heating only equipment (unit heaters/cabinet heaters).
6. New DDC for exhaust fans (toilet and general).
7. Kitchen Hood Controllers
 - a) An automated DDC control system will control the hood exhaust fan, and will include the input/output processor, and keypad. Variable frequency drives will be mounted on the utility cabinet. A temperature sensor will be mounted in the exhaust duct and the optic sensor will be mounted inside the hood.
 1. Install a variable speed drive in a NEMA approved enclosure for the kitchen hood exhaust fan
 2. Provide a motion sensor and an optical sensor at the kitchen exhaust hood to determine use
 3. Provide variable speed drive control points for start/stop, speed and alarm
 4. Provide control logic and software to accomplish sequences and incorporate into DDC system
 5. Commission control components and sequences, and calibrate control loops
8. Swimming Pool
 - a. The DDC control system will monitor the pool cover and indicate when the pool cover is extended and the pool is not in use
 - b. The DDC system shall duty cycle the Natatorium Dehumidification System during these times to maintain unoccupied temperature and humidity levels.
9. ATC wiring for control points including manufacturer controls that require field wiring such as boiler limit controls, Micro Turbine, Chiller, Smoke Detectors, Occupancy Sensors, Boiler & ERV Controls.
10. Energy saving sequences to be programmed and implemented for new and existing DDC Controls.
11. Programming, commissioning and check out for a complete operational system as specified.
12. Re-commission each building system to confirm / implement the proper day / night schedules as well as the proper VFD and demand control sequences for each piece of equipment identified within
13. We have assumed the existing valves and dampers can be reused, unless specifically included in scope
14. Custom graphic screens for all new equipment & controls.

15. Training & one year warranty as specified.

Exclude:

- a. Submission of color graphics & arch' drawings locating end devices per sec.230900, p.5
- b. Uninterruptable Power Supply (UPS) per sec.230900, p.13.
- c. Monitoring of HOA status per sec.230900, p. 15.
- d. KW Meter Monitoring per sec.230900, p.21.
- e. Nema 4X enclosures for pressure transmitters per sec.230900, p.46.
- f. Leak Detection with gold plated probes per sec 230900, p.47.
- g. Airflow Measuring Stations, Printer, Fire/Smoke Dampers & Smoke Detectors.
- h. Demolition & removal of existing controls, air compressor, etc.

Sequence of Operation: - shall follow AKF's design document "230993 - Sequence of Operations 11.21.12"

Following sequence of operation shall be utilized where applicable:

1. Provide Day / Night Control (60 degree F).
 - Time of Day Scheduling.
 - Occupancy Scheduling.
2. Provide Hot Water Reset Control for the Hydronic System.
 - Monitor Outdoor Air Temperature.
 - Automatic and Override capability of Hot water Supply Temperature Setpoint.
 - Hot water Supply Temperature Indication.
 - Hot water Return Temperature Indication.
3. Provide Pump Control and Status feedback on each Hot Water Circulator Pumps.
 - On / Off Control Capability.
 - Lead / Lag Control.
 - Warm Weather Shutdown.
 - Alarm Feedback.
4. Unit Ventilators:
 - Unit Ventilator Controls: Re-commission existing Direct Digital Controls for ASHRAE Cycle 2 automatic control.
5. Roof Top Units:
 - 16 point unitary controller for temperature control and scheduling
 - Remote diagnostics for troubleshooting
6. Provide Day / Night Control for each zone.
 - Time of Day Scheduling.
 - Occupancy Scheduling.
 - Automatic Operation and Override capability of Day / Night control.
7. Provide Boiler Control.
 - On / Off Control Capability.
 - Lead / Lag Control.

- Warm Weather Shutdown.
 - Boiler Run Time Optimization
 - For the schools getting new boilers, new boilers shall be the primary boilers.
8. Provide Exhaust Fan Control.
 - On / Off Control Capability for large exhaust fans
 - Scheduling.
 - Status and alarm
 9. Swimming Pool Cover.
 - Position of pool cover as dictated by end switches.
 - Status and alarms
 10. Kitchen Hood Controllers.
 - Status and alarms.

ECM #4 – DEMAND CONTROL VENTILATIONS (CO2) – INCLUDED (IN ECM #3 BUILDING CONTROL UPGRADES)

1. ESG will furnish and install CO2 sensors in the Auditorium for interoperation with the air-handling unit via DDC control to limit the amount of entering outside air based on space demand.
2. The CO2 sensor will read the levels of CO2 in the space and ensure that only the required air is supplied to meet minimum outdoor air requirements.
 - i. Sequence of operation to include:
 - a) 1 Ventilation to handle the non-occupant related ventilation as determined via CO2 concentration
 - b) Pre Occupancy Purge
 - c) Post Occupancy flush
 - d) Outdoor air damper positioning during occupied periods
 - e) Trending indoor and outdoor CO2 on BMS system
 - f) The outside air damper shall have a minimum position of 20% (adjustable) when unit is enabled to limit CO2 levels

Provide the above sequence of operations for each unit.

ECM #5 BUILDING ENVELOPE IMPROVEMENTS

1. Weather-strip 92 standard doors
2. Weather-strip 1 garage doors
3. Seal the 1950's & 60's roof/wall intersection 1,083 linear feet
4. Seal the 1970's roof/wall intersection 1,295 linear feet
5. Install 1,295 square feet of (1) one inch thermax in the "I-beam" along the exterior wall of the 1970's section of the structure
6. Seal the 1990's roof/wall intersection 976 linear feet
7. Install 2,440 square feet of (1) one inch Thermax to close off the seams, joints and connections of the 1990's roof/wall intersection.
8. Caulk 4,000 linear feet of seams, joints and connections on the wood ceilings as directed by the blower door

9. Insulate the wall between the pool and the pool ramp with thermax (1) one inch thick 256 square feet
10. Seal the roof/wall intersection between the pool and the ramp to the pool 128 linear feet

Please refer to **Exhibit A-2** for the areas in schools receiving envelope upgrades.

ECM #6 - ELECTRIC DHW CONTROLS

ESG will install hot water controllers that will turn off the hot water heaters when the buildings are scheduled to be unoccupied. The programmable timers are capable of override and time adjustment depending upon the use of the area.

1. Turn off power to the hot water heater.
2. Install new timer (24 Hr Electronic Timer or Mechanical Timer 120V control with battery backup) control into existing circuit and mount to unit securely to wall where the existing power supply is located.
3. Program the on off period across the seven-day week.
4. Re-energize the unit and test for proper operation.

Note: The scope of work presented for ECM 6 is tied to the ultimate location of the micro turbine (MT). The scope will be modified in line with changes to the location of MT and the utilization of waste heat from the MT.

The DHW replacement scope shown on the AKF Mechanical drawings¹ (M-100 to M-602) dated 11/20/2012, is no longer included in this project, due to the relocation of the MT to the South side (pool area).

ECM #7 - PLUG LOAD CONTROLS

ESG will install remote control devices which control power to electric appliances, equipment and fixtures securely over the Internet

1. CORIS OMs (or approved equal) will be installed printers/copiers and overhead projectors
Note: Coris OMs will not be installed on computer circuits.
2. Will enable them to be turned off automatically during un-occupied hours
3. We will provide installation and training, product support and alarm monitoring for the duration of the project.

ECM #8 - WALK IN FREEZER AND COOLER CONTROLLERS

1. Install a controller refrigeration sensor as manufactured by Intellidyne, to reduce the compressor cycles of the kitchen walk-in coolers and freezer. The installation of this ECM will have no negative impact on system operation and freezing of food products.
2. Furnish and install Intellidyne, or equal, Controllers on one (1) walk-in coolers and one (1) walk-in freezer
3. Provide all electrical work as required for a complete system.
4. Start-up, test and commission.

ECM # 9 - TRANSFORMER REPLACEMENT

ESG will replace the existing standard-efficiency transformers with high efficiency transformers. Transformers are electrical equipment designed to convert (step up or step down) one alternating current (AC) voltage to another. The proposed transformers will be Power Smiths High Efficiency K-Star Harmonic Mitigating units with aluminum windings. They are Energy-Star rated and meet the new TP1 Law requiring replacement of transformers of 600 volts or under.

Location	Qty.	kVA	Primary	Secondary
Electrical / Boiler Room	1	150	480 Delta	208/120
Electrical / Boiler Room	1	112.5	480 Delta	208/120
Kitchen Basement	1	150	480 Delta	208/120
Janitor's Closet	1	30	480 Delta	208/120
Custodian Office Closet	1	45	480 Delta	208/120
Custodian Office Closet	1	15	480 Delta	208/120
Gym Storage	1	45	480 Delta	208/120

Per Transformer Unit:

- Shut off the main electric power to the transformer to be replaced
- Disconnect and remove the existing transformer
- Install replacement unit
- Turn power back on
- Inspect unit operation by performing electrical and harmonics testing
- Dispose old transformers off properly.
- Reuse existing pad or support for transformer units as applicable

ECM # 10 - WATER RETROFIT

ESG recommends the replacement of high-flow plumbing fixtures (faucets, urinals, toilets and showerheads) with low-flow fixtures. The spreadsheet below specifies the scope of work for the water conservation measures.

Below is a summary of the scope.

1. Remove existing floor mount, flushometer toilets and replace with new 1.28 gallon per flush toilets and new flush valve.
2. Remove existing wall mount, flushometer toilets and replace with new 1.28 gallon per flush toilets and new flush valve.
3. Install ½ -gallon per minute moderators on existing standard and infra-red lavatory faucets.
4. Retrofit existing urinal valves with ½ -gallon per flush retrofit kits.

5. ADA Sinks - Replace kitchen type sinks with faucets in a new counter top
6. Include pre and post M&V measurements

ROOM BY ROOM SURVEY INFORMATION									
ID	Room	Existing Fixture Description	Existing Qty	Existing Usage	Units	Measure Description	Qty Upgraded	New gal / unit	Gallons Saved per Unit
1	Restroom	Closet Floor Elongated Sloan	49	3.5	per flush	New floor mounted elongated bowl and new 1.28 gpf valve	49	1.3	2.2
2	Restroom	Closet Wall Elongated Sloan	9	3.5	per flush	New wall mounted elongated bowl with new 1.28 gpf valve	9	1.3	2.2
3	Restroom	Closet Floor Elongated Sloan	6	1.6	per flush	New wall mounted elongated bowl with new 1.28 gpf valve	6	1.3	0.3
4	Restroom	Lavatory Sink 4" Standard	43	2.2	per minute	Retrofit with 0.5 gpm vandal proof spray moderator	43	0.5	1.7
5	Restroom	Lavatory Sink 4" IR	17	2.2	per minute	Retrofit with 0.5 gpm vandal proof spray moderator	17	0.5	1.7
6	Restroom	Lavatory Sink Gang Foot Pedal	3	0.5	per minute	Don't Do	0	0.5	0.0
7	Restroom	Urinal Wall Round Sloan	8	1.5	per flush	Retrofit existing valve with .5 gpf kit	8	0.5	1.0
8	Restroom	Shower Brass Standard	23	2.0	per minute	Don't Do	0	2.0	0.0
9	Restroom	Shower Brass Standard	3	2.5	per minute	Don't Do	0	2.5	0.0

ECM# 11 - SWIMMING POOL COVER

Furnish and install a Pool cover for the swimming pool

1. Install one swimming pool blanket and motorized reel
2. Provide power and safety controls to operate the reel assembly
3. Install signs warning people not to use pool when cover is on
4. Train staff on advantages of pool cover and the mechanics of use
5. The DDC control system will monitor the pool cover and indicate when the pool cover is extended and the pool is not in use.
6. The DDC system shall duty cycle the Natatorium Dehumidification System during these times to maintain unoccupied temperature and humidity levels.

Customer Responsibilities:

1. Back stroke flags/pennants MUST be removed prior to on/off of blankets.
2. Lane lines should be removed prior to on/off of blankets.
3. Remove pool ladder from blanket path.

ECM#12 - MICRO-TURBINE

Micro Turbine (MT) - Capstone 65 kW (nominal) micro-turbine system

1. New MT for dual purpose to operate as a back-up generator
2. MT to be located by the South Side by the Pool Mechanical Room
3. Provide as needed appropriate structural support for the MT
4. Furnish and install gas connection from utility termination point on the South side to the MT
5. Provide piping connection to pool water heating for heat recovery off the turbine
6. Provide start up for the installed system
7. Provide one-time training to school staff

NOTE: Emergency Circuits - Scope details are pending for interconnecting the MT to existing emergency circuits. ESG has included an allowance in the construction cost for the interconnection.

ECM # 13 - MULTI-ZONE TO VAV CONVERSION – INCLUDED IN MECHANICAL ECM (as per AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012)

Please refer to AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012 for detailed description.

This ECM was originally intended for the S-Wing, but has been revised for FCUs with Energy Recovery Ventilator (ERV) units.

ECM # 14 - UVS REPLACEMENT - INCLUDED IN MECHANICAL ECM (as per AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012). - Included in Mechanical ECM #2-D above.

Please refer to AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012 for detailed description.

ECM #15 - CURTAIN WALL REPLACEMENT

ESG will provide a turn-key installation of the Window Wall System. Exhibit A-3 attached hereto and incorporated herein by reference for locations

1. Remove existing curtain wall system
2. Provide and install new thermal windows and FRP insulated doors within A, B and C wings of Beecher Road School as described herein. There are 24 openings that shall receive complete new window walls with associated doors and two openings that will receive new doors and have old glazing gaskets removed and new gaskets installed. The products are as follows:
 - 2 x 4 ½" Thermal Storefront Framing
 - 3 ½" Winco Series 3600 AW-50 Thermal Sliding Windows
 - Laminated Glass ¼" clear tempered Low E x Argon glass x ¼" 2.25" Insulated Panels (R-10.55) at bottom of window openings
 - Special-Lite SL-17 Fiberglass Reinforced Panel (FRP) Pebble grain flush doors
 - Von Duprin Exit Hardware at door pairs (active leafs only), Sargent Locksets at single doors
 - Heavy Duty Continuous Hinges, LCN Door Closers, Aluminum Thresholds, Door Bottom Sweeps
 - Furnish and install 9 new pieces of glass in place of existing air conditioners
3. Installation includes perimeter caulking, painting of exterior exposed steel columns between window jambs, 1" x 3" paintable trim closer along window and cabinet top
4. Cutting of insulated panel to receive louver protrusion where required, pressure treated blocking, and on site storage containers
5. Port-a-let, field measuring, and final shop drawing design

ECM #16 - ROOF REPLACEMENT- Exhibit A-4 attached hereto and incorporated herein by reference for locations.

Remove the existing roofing system down to the structural deck and dispose of all dirt and debris. Replace the existing roof with a new membrane roofing system and also increase the insulation additional thickness to improve its overall insulating value.

1. Protect existing grounds and conditions
2. Remove and dispose existing BUR with gravel, fiberglass insulation and base flashings
3. Over existing gypsum deck, mechanically fasten one layer of fiberglass base sheet
4. Install one layer of 2" poly-iso roof insulation set in adhesive
5. Install ¼" tapered poly- iso roof insulation set in adhesive
6. Install fully adhered 60 mil PVC Energy Star roof system.
7. Install new PVC flashings at roof drains, curbs and all roof penetrations
8. Install fully adhered PVC base flashings with termination bar and re-dress existing counter flashing
9. Tie- onto existing EDPM roof s at expansion joints
10. At perimeter edge install 2 x 6 PT wood nailer over existing, PVC base flashings and pre-fabricated Kynar Aluminum AnchorGard fascia system
11. All work to be performed in strict accordance with manufactures printed specifications and details.
12. Upon completion provide Owner with 20 year Manufacture's Labor and Material warranty
13. *Add new drains and drain lines, which will be required, due the inadequate number of existing roof drains.*
14. *Remove and replace deteriorated / defective PT 2 x 6 wood nailers – assumed to be 1,000 LF*
15. *Remove and replace defect gypsum decking - Assumed to be 3,500 SF*

NOTE: For Items 14 and 15 above, ESG has included an allowance to cover the cost associated for the **indicated scope.**

ECM # 17 – MECHANICAL (BOILERS, CHILLER, UVs, AHUS AND RTUS) - INCLUDED IN MECHANICAL ECM #2 (AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012

ECM # 18 – ELECTRICAL - INCLUDED IN MECHANICAL ECM #2 (AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012

ECM#19 – CEILING WORK

Please refer to **Exhibit A-5** for areas of the school included for this upgrade.

1. Remove existing tiles
2. Properly dispose of the removed tiles
3. Furnish and install new ceiling tiles to match existing general quality and look using Armstrong Cortega #769 Square Lay-In tile.
4. Clean up area and restore to original condition

ECM #20 – WALL PENETRATIONS - INCLUDED IN MECHANICAL ECM #2 (AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012

ECM #21 – FIRE STOPPING - INCLUDED IN MECHANICAL ECM #2 (AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012

ECM #22 – TEMPORARY PROTECTION - INCLUDED IN MECHANICAL ECM #2 (AKF Mechanical drawings (M-100 to M-602)¹ dated 11/20/2012

ECM # 23 - SOLAR PV PANELS

Provide and install racking system on roofs of B and A wings, including slip sheets as required by manufacturer; arrange for pre- and post-construction inspections with roof warranty-holder.

Major Components

- 360 x REC 260 Watt (DC) Photovoltaic (PV) Modules
 - 3 x Advanced Energy REFUSol 23.2kW inverters
 - Daetwyler EcoTop racking system
 - Draker web-based system performance monitoring package
-
1. Mobilization / job site setup
 2. Roofing (Pre and post inspection)
 3. Roofing (Safety/ penetration/flashings and slip-sheets)
 4. Demobilization / job site teardown
 5. Provide and install PV modules.
 6. Provide and install inverters; string PV arrays and wire homeruns to inverters.
 7. All AC electrical work/equipment to point of interconnection (POI); terminate AC circuit on breaker in service panel in building
 8. Provide and install fused, lockable DC disconnecting means to provide isolation (lock-out/tag-out) of inverters and over-current protection
 9. Label all components per NEC.
 10. All conduit/raceway and wire (per spec), equipment and labor required to perform this scope of work, including storage and other general conditions as needed.
 11. Provide PE stamped drawings to include: plan and mounting details; electrical one-line and equipment schedule; electrical (voltage/wire sizing) and structural (wind up-lift) calculations; equipment data sheets and installation guides; provide other project-related documentation (AHAs, safety manuals, QC plans, etc.) as required
 12. Provide energy production modeling (PV System) and information on estimates on available utility or other incentive
 13. Process of interconnection agreement with service provider.
 14. Generate and submit signed as-built documentation according to owner's requirement.
 15. Commission and energize systems in conjunction with owner and/or owner's agent
 16. Provide safety training for facilities staff, including owner's manuals

17. Provide system performance monitoring hardware/software/equipment and install/program for access to energy production data via the internet; equipment includes revenue grade energy meters, weather station and monitoring system data logger
18. Meteorological Station, which will collect weather data (insolation, air temp, wind speed) and analyze this data in conjunction with energy production (via the meter).
19. Tie-in and set-up two LCD monitors. The monitors will display the graphics from the web portal, which rotates between current and historical energy production as well as environmental benefits (equivalent trees planted, etc.)

Please refer to **Exhibit A-6** for proposed location of the PV array on the roof.

ECM #24 - WIND TURBINE

Provide and install (1) – 4kW Wind Turbine system of 4 kW total capacity; vertical for very small power production. This system will be used for curriculum and educational purposes. Woodbridge is a low wind area. There will be a two (2) dashboard placed in the science classrooms and public area for educational purposes only.

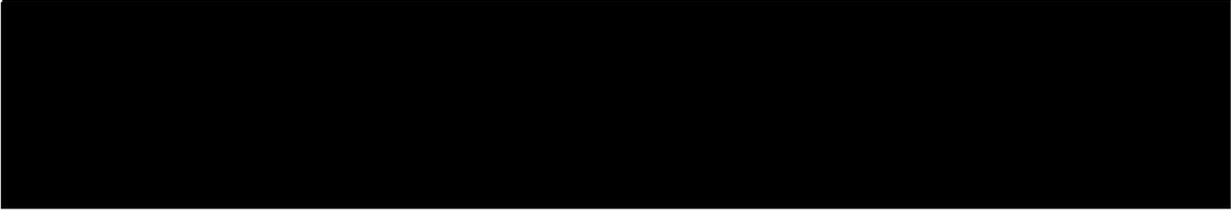
1. Provide and install the (1) - BWE 4kW (Beach Wind Energy) Wind Turbine and its associated concrete base and anchors and underground conduit and wiring to a location to be determined up to 300' distance from Turbine Unit itself.
2. Height at which the WT would be mounted -25' to top of turbine
3. Add meter and associate programming for tie it into the gateway. The web portal will have graphics which show both sources but will aggregate total energy production. Users will be able to download reports for each source as they will be separately metered.
4. Provide 1 time training to cover the monitoring system and how that can be used to track performance.

ECM #25 - CASEWORK ABC & K WING - Exhibit A-7 attached hereto and incorporated herein by reference for locations.

Provide and install 32 units on each side of the new unit ventilators in A, B and C wing.

1. The millwork is new laboratory grade plastic laminated covered cabinetry – uppers, lowers, and countertop
2. Replace existing sink units in classrooms; 28 locations.
3. Mill work to replace 7-foot unit ventilators being replaced in the K wing as shown in **Exhibit A-7**

ECM #26 – SECURITY FEATURE AND PAINTING (SCOPE OF WORK IS INCLUDED IN ECM #27 THROUGH 32 BELOW)



ECM #32 - WALL PAINTING - Exhibit A-8 attached hereto and incorporated herein by reference for locations for painting classrooms area A, B, C, D and Corridors

1. The classrooms and corridors will be properly prepared for painting (2) coats of an acrylic epoxy paint
2. Classroom ceilings will receive (1) coat of acrylic flat paint
3. The steel beams will receive (2) coats of DTM metal protective paint (as accent color).
4. Doors, frames and window frames will receive (2) coats of Sherwin Williams, or equal, Trim Enamel.
5. Frames between the hall and classroom will be painted both sides if the classroom is being painted. If the classroom or other type room does not receive new paint, the room side of the frame will not be painted.
6. No doors in Area A will be painted. They are laminated.
7. Owner is responsible for removal of educational materials and items affixed to walls or ceilings prior to ESG beginning work in each area.
8. One classroom will be painted and lighting upgraded prior to starting work up as a mock up for approval by the owner.

EXHIBIT A-1

Project Name: Beecher Road School, Fed ID: 612110
 Site Name: Beecher Road School
 Building Identifier: #1 Beecher Road
 Worksheet: CL

Line Item	Building	Area Description	Usage	PRE-INSTALLATION					POST-INSTALLATION								
				Pre Flat No.	Pre Flat Description	Pre Watts/Flat	Pre kW/Space	Measured Foot-Candles	Flat Cost	Flat No.	Post Flat Description	Post Technology Description	Post Watts/Flat	Post kW/Space	Prop Cost		
0		FIRST FL	FIRST FL														
2	Beecher Road School	Office - Misc	Office	10	3L F020178 UTUVE	141	1.02	72.79	Switch	10	3L F020178 UTUVE	141	1.02	72.79	Switch		
3	Beecher Road School	Office - Principal	Office	4	3L F020178 UTUVE	141	0.45		Switch	4	3L F020178 UTUVE	141	0.45		Switch		
4	Beecher Road School	Office - Asst Principal	Office	4	3L F020178 UTUVE	141	0.45		Switch	4	3L F020178 UTUVE	141	0.45		Switch		
5	Beecher Road School	Teacher	Teacher	1	3L F020178 UTUVE	78	0.27	34.0	Switch	1	3L F020178 UTUVE	78	0.27	34.0	Switch		
6	Beecher Road School	Mail Room	Office	3	3L F020178 UTUVE	141	0.50		Switch	3	3L F020178 UTUVE	141	0.50		Switch		
7	Beecher Road School	Conference	Office	6	3L F020178 UTUVE	141	0.54	22.0	Switch	6	3L F020178 UTUVE	141	0.54	22.0	Switch		
8	Beecher Road School	Library	Library	13	3L F020178 UTUVE	141	0.77	32.21	Switch	13	3L F020178 UTUVE	141	0.77	32.21	Switch		
9	Beecher Road School	Nurse	Nurse	2	3L F020178 UTUVE	78	0.18		Switch	2	3L F020178 UTUVE	78	0.18		Switch		
10	Beecher Road School	Lab	Lab	1	LED	4	0.05		Breaker	1	LED	4	0.05		Breaker		
11	Beecher Road School	Room - Storage	Storage	3	3L F020178 UTUVE	141	0.12		Switch	3	3L F020178 UTUVE	141	0.12		Switch		
12	Beecher Road School	Classroom - Young	Classroom	4	3L F020178 UTUVE	141	0.44		Switch	4	3L F020178 UTUVE	141	0.44		Switch		
13	Beecher Road School	Classroom - Math	Classroom	10	3L F020178 UTUVE	141	0.77		Switch	10	3L F020178 UTUVE	141	0.77		Switch		
14	Beecher Road School	Junior Class	Storage	1	LED	4	0.05		Switch	1	LED	4	0.05		Switch		
15	Beecher Road School	Storage - Book Room	Storage	2	3L F020178 UTUVE	141	0.12		Switch	2	3L F020178 UTUVE	141	0.12		Switch		
16	Beecher Road School	FIRST FL - A WANG	FIRST FL - A WANG														
17	Beecher Road School	Classroom A1	Classroom	1	3L F020178 UTUVE	141	0.54		Switch	1	3L F020178 UTUVE	141	0.54		Switch		
18	Beecher Road School	Classroom A2	Classroom	1	3L F020178 UTUVE	141	0.54	21.5	Switch	1	3L F020178 UTUVE	141	0.54	21.5	Switch		
19	Beecher Road School	Classroom A3	Classroom	6	3L F020178 UTUVE	141	0.98	55.0	Switch	6	3L F020178 UTUVE	141	0.98	55.0	Switch		
20	Beecher Road School	Classroom A4	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
21	Beecher Road School	Classroom A5	Classroom	6	3L F020178 UTUVE	141	0.98		Switch	6	3L F020178 UTUVE	141	0.98		Switch		
22	Beecher Road School	Classroom A6	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
23	Beecher Road School	Classroom A7	Classroom	1	3L F020178 UTUVE	141	0.54	4.5	Switch	1	3L F020178 UTUVE	141	0.54	4.5	Switch		
24	Beecher Road School	Classroom A8	Classroom	1	3L F020178 UTUVE	141	0.54		Switch	1	3L F020178 UTUVE	141	0.54		Switch		
25	Beecher Road School	Classroom A9	Classroom	1	3L F020178 UTUVE	141	0.54		Switch	1	3L F020178 UTUVE	141	0.54		Switch		
26	Beecher Road School	Classroom A10	Classroom	1	3L F020178 UTUVE	141	0.54		Switch	1	3L F020178 UTUVE	141	0.54		Switch		
27	Beecher Road School	Classroom A11	Classroom	6	3L F020178 UTUVE	141	0.98		Switch	6	3L F020178 UTUVE	141	0.98		Switch		
28	Beecher Road School	Classroom A12	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
29	Beecher Road School	Classroom A13	Classroom	6	3L F020178 UTUVE	141	0.98	55.46	Switch	6	3L F020178 UTUVE	141	0.98	55.46	Switch		
30	Beecher Road School	Classroom A14	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
31	Beecher Road School	Classroom A15	Classroom	6	3L F020178 UTUVE	141	0.98		Switch	6	3L F020178 UTUVE	141	0.98		Switch		
32	Beecher Road School	Classroom A16	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
33	Beecher Road School	Classroom A17	Classroom	6	3L F020178 UTUVE	141	0.98	55.46	Switch	6	3L F020178 UTUVE	141	0.98	55.46	Switch		
34	Beecher Road School	Classroom A18	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
35	Beecher Road School	Classroom A19	Classroom	1	3L F020178 UTUVE	141	0.54		Switch	1	3L F020178 UTUVE	141	0.54		Switch		
36	Beecher Road School	Classroom A20	Classroom	1	3L F020178 UTUVE	141	0.54		Switch	1	3L F020178 UTUVE	141	0.54		Switch		
37	Beecher Road School	Library - A West Front	Library	14	3L F020178 UTUVE	141	0.82	32.28	Switch	14	3L F020178 UTUVE	141	0.82	32.28	Switch		
38	Beecher Road School	Lab	Lab	1	LED	4	0.05		Breaker	1	LED	4	0.05		Breaker		
39	Beecher Road School	Classroom - Speech	Classroom	4	3L F020178 UTUVE	141	0.65	7.0	Switch	4	3L F020178 UTUVE	141	0.65	7.0	Switch		
40	Beecher Road School	Classroom - Speech	Classroom	2	3L F020178 UTUVE	141	0.33		Switch	2	3L F020178 UTUVE	141	0.33		Switch		
41	Beecher Road School	Classroom A7	Classroom	1	3L F020178 UTUVE	141	0.54	41.0	Switch	1	3L F020178 UTUVE	141	0.54	41.0	Switch		
42	Beecher Road School	Classroom A7	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
43	Beecher Road School	Storage	Storage	1	3L F020178 UTUVE	141	0.54	31.0	Switch	1	3L F020178 UTUVE	141	0.54	31.0	Switch		
44	Beecher Road School	Classroom A1	Classroom	6	3L F020178 UTUVE	141	1.24		Switch	6	3L F020178 UTUVE	141	1.24		Switch		
45	Beecher Road School	Classroom A1	Classroom	4	3L F020178 UTUVE	141	0.65		Switch	4	3L F020178 UTUVE	141	0.65		Switch		
46	Beecher Road School	Classroom A1	Classroom	1	3L F020178 UTUVE	141	0.54		Switch	1	3L F020178 UTUVE	141	0.54		Switch		
47	Beecher Road School	Library	Library	1	3L F020178 UTUVE	141	0.58		Switch	1	3L F020178 UTUVE	141	0.58		Switch		

EXHIBIT A-1

Line Item	Building	Area Description	Usage Group ID	Fire Fmt. No.	PRE-INSTALLATION				POST-INSTALLATION						
					Pre Flat Description	Pre Wt./Vol	Pre Area/Space	Measured Foot-Candles	Exit Coat	Exit Fmt. No.	Post Flat Description	Post Technology Description	Post Wt./Vol	Post Area/Space	Prop Coat
99	Teacher Road School	PLST FL - Mechanical - Boiler Room	Mechanics	5	MECH BOILER	43	0.28	15.0	Switch	5	MECH BOILER	Floorcoat, 0145, 14 Imp, Interior Sca...	42	0.21	Switch
100	Teacher Road School	PLST FL - Electrical	Electric	2	ELCTR	82	0.15		Switch	2	ELCTR	Floorcoat, 0145, 14 Imp, Interior Sca...	42	0.21	Switch
101	Teacher Road School	PLST FL - Electrical	Electric	1	ELCTR	81	0.15	17.0	Existing Wall Service	1	ELCTR	Floorcoat, 0145, 14 Imp, Interior Sca...	42	0.21	Existing Wall Service
102	Teacher Road School	PLST FL - Office - Gen	Office	1	OFFICE GEN	89	0.20	27.0	Switch	1	OFFICE GEN	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.13	Existing Wall Service
103	Teacher Road School	PLST FL - Classroom (North)	Classroom	14	CLAS N	82	0.72	22.2	Switch	14	CLAS N	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.13	Push to Start
104	Teacher Road School	PLST FL - Classroom (North)	Classroom	29	CLAS N	89	1.04	22.2	Breaker	29	CLAS N	Floorcoat, 0145, 14 Imp, Interior Sca...	6	0.23	Breaker
105	Teacher Road School	PLST FL - Classroom (North)	Classroom	4	CLAS N	89	0.24		Switch	4	CLAS N	Floorcoat, 0145, 14 Imp, Interior Sca...	31	0.12	Push to Start
106	Teacher Road School	PLST FL - Classroom (North) - Corv	Classroom	2	CLAS N	89	0.24		Switch	2	CLAS N	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.13	Switch
107	Teacher Road School	PLST FL - Classroom (North) - Corv	Classroom	8	CLAS N	89	0.31		Switch	8	CLAS N	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.17	Switch
108	Teacher Road School	PLST FL - Classroom (North) - Corv	Classroom	2	CLAS N	89	0.24		Switch	2	CLAS N	Floorcoat, 0145, 14 Imp, Interior Sca...	31	0.12	Switch
109	Teacher Road School	PLST FL - Office	Office	2	OFFICE	4	0.28		Breaker	2	OFFICE	EMT Light Fixtures, 0145, 14 Imp, Interior Sca...	4	0.28	Breaker
110	Teacher Road School	PLST FL - Office	Office	5	OFFICE	89	0.49		Switch	5	OFFICE	NEW LED RECESSED JOYOFFER	32	0.28	Overhead Ceiling Mount SCF det. Sensor
111	Teacher Road School	PLST FL - Office	Office	13	OFFICE	89	0.58		Switch	13	OFFICE	NEW LED RECESSED JOYOFFER	32	0.28	Overhead Ceiling Mount SCF det. Sensor
112	Teacher Road School	PLST FL - Office	Office	1	OFFICE	89	0.59		Switch	1	OFFICE	NEW LED RECESSED JOYOFFER	31	0.28	Switch
113	Teacher Road School	PLST FL - Office	Office	1	OFFICE	109	0.15		Switch	1	OFFICE	NEW LED RECESSED JOYOFFER	11	0.21	Switch
114	Teacher Road School	PLST FL - Office	Office	2	OFFICE	4	0.28		Breaker	2	OFFICE	EMT Light Fixtures, 0145, 14 Imp, Interior Sca...	4	0.28	Breaker
115	Teacher Road School	PLST FL - Office	Office	1	OFFICE	66	0.24		Switch	1	OFFICE	NEW LED RECESSED JOYOFFER	11	0.21	Switch
116	Teacher Road School	PLST FL - Classroom - K-12	Classroom	9	CLAS K-12	78	0.70	67.0	Switch	9	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Existing Wall Service
117	Teacher Road School	PLST FL - Classroom - K-12	Classroom	6	CLAS K-12	78	0.49	37.0	Switch	6	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Wall Service
118	Teacher Road School	PLST FL - Storage - Telephone Closet	Storage	1	STOR	89	0.59		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
119	Teacher Road School	PLST FL - Storage - Paper	Storage	1	STOR	89	0.54		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
120	Teacher Road School	PLST FL - Hallway - Maintenance	Hallway	1	HALLWAY	89	0.41		Switch	1	HALLWAY	Floorcoat, 0145, 14 Imp, Interior Sca...	16	0.12	Switch
121	Teacher Road School	PLST FL - Hallway - Maintenance	Hallway	5	HALLWAY	89	0.17		Switch	5	HALLWAY	Floorcoat, 0145, 14 Imp, Interior Sca...	16	0.12	Switch
122	Teacher Road School	PLST FL - K-WING	ED	4	ED	4	0.28		Breaker	4	ED	EMT Light Fixtures, 0145, 14 Imp, Interior Sca...	4	0.21	Breaker
123	Teacher Road School	PLST FL - K-WING	Classroom K-12	14	CLAS K-12	78	1.02		Switch	14	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Overhead Ceiling Mount SCF det. Sensor
124	Teacher Road School	PLST FL - K-WING	Office	2	OFFICE	89	0.18		Switch	2	OFFICE	Floorcoat, 0145, 14 Imp, Interior Sca...	31	0.26	Wall Service
125	Teacher Road School	PLST FL - K-WING	Classroom	1	CLAS K-12	89	0.54		Switch	1	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.22	Switch
126	Teacher Road School	PLST FL - K-WING	Classroom K12	14	CLAS K-12	78	1.02	45.0 W	Switch	14	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Switch
127	Teacher Road School	PLST FL - K-WING	Office	3	OFFICE	89	0.17	31.2 W	Switch	3	OFFICE	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.22	Switch
128	Teacher Road School	PLST FL - K-WING	Classroom	1	CLAS K-12	89	0.54		Switch	1	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.22	Switch
129	Teacher Road School	PLST FL - K-WING	Classroom	1	CLAS K-12	89	0.54		Switch	1	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.22	Switch
130	Teacher Road School	PLST FL - K-WING	Classroom K12	14	CLAS K-12	78	1.02		Switch	14	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Overhead Ceiling Mount SCF det. Sensor
131	Teacher Road School	PLST FL - K-WING	Storage - Teachers	9	STOR	89	0.25		Switch	9	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	60	0.23	Overhead Ceiling Mount SCF det. Sensor
132	Teacher Road School	PLST FL - K-WING	Storage - Teachers	1	STOR	89	0.24		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	31	0.21	Switch
133	Teacher Road School	PLST FL - K-WING	Classroom K12	14	CLAS K-12	78	1.02		Switch	14	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Overhead Ceiling Mount SCF det. Sensor
134	Teacher Road School	PLST FL - K-WING	Office	3	OFFICE	89	0.17		Switch	3	OFFICE	Floorcoat, 0145, 14 Imp, Interior Sca...	33	0.22	Switch
135	Teacher Road School	PLST FL - K-WING	Classroom K12	14	CLAS K-12	78	1.02		Switch	14	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Overhead Ceiling Mount SCF det. Sensor
136	Teacher Road School	PLST FL - K-WING	Storage	1	STOR	89	0.59		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
137	Teacher Road School	PLST FL - K-WING	Storage	1	STOR	89	0.54		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
138	Teacher Road School	PLST FL - K-WING	Storage	1	STOR	89	0.54		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
139	Teacher Road School	PLST FL - K-WING	Storage	1	STOR	89	0.59		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
140	Teacher Road School	PLST FL - K-WING	Classroom K12	14	CLAS K-12	78	1.02		Switch	14	CLAS K-12	Floorcoat, 0145, 14 Imp, Interior Sca...	43	0.21	Overhead Ceiling Mount SCF det. Sensor
141	Teacher Road School	PLST FL - K-WING	Storage - K-Wing	15	STOR	89	0.18	32.0 W	Switch	15	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	16	0.12	Switch
142	Teacher Road School	PLST FL - K-WING	Storage	2	STOR	4	0.28		Breaker	2	STOR	EMT Light Fixtures, 0145, 14 Imp, Interior Sca...	4	0.28	Breaker
143	Teacher Road School	PLST FL - K-WING	Storage	1	STOR	89	0.54		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
144	Teacher Road School	PLST FL - K-WING	Storage	1	STOR	89	0.54		Switch	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Switch
145	Teacher Road School	PLST FL - K-WING	Storage	1	STOR	89	0.54		Breaker	1	STOR	Floorcoat, 0145, 14 Imp, Interior Sca...	22	0.22	Breaker

EXHIBIT A-1

Line Item	Area Description-Building/Room	Usage	Group ID	PRE-INSTALLATION				POST-INSTALLATION							
				Pre-Fit No.	Pre-Fit Description	Pre Watts/Total	Pre AW/Space	Maximized Power	Exist Cost	Post Fit No.	Post Fit Description	Post Technology Description	Post Watts/Total	Post AW/Space	Prep Cost
Kingpin describing the line	Upper description of the location for location for the site map	Designation for the usage group		No. of fixtures for the fixture	No. of fixtures for the fixture	Value from Table of Standard Power Wages	Per W/m ² (Per W/m ²)	Per W/m ² (Per W/m ²)	Per W/m ² (Per W/m ²)	Proposed fixture or implement	Proposed fixture or implement	Value from Table of Standard Power Wages	Per W/m ² (Per W/m ²)	Per W/m ² (Per W/m ²)	
149	Booster Road School	Mechanical - Elevator	Mechanical	1	21.4 TR 31.80"	51	0.25		Switch	1	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.25	Switch
150	Booster Road School	Staircase - Kitchen	Staircase	3	21.4 TR 31.80"	52	0.16		Switch	3	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.12	Wall Sensor
151	Booster Road School	Mechanical - Shop	Mechanical	2	21.4 TR 31.80"	53	0.16		Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.12	Switch
152	Booster Road School	Staircase - Maintenance	Staircase	6	21.4 TR 31.80"	52	0.11		Switch	6	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.17	Switch
153	Booster Road School	Electrician	Electrician	3	21.4 TR 31.80"	52	0.16		Switch	3	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.12	Switch
154	Booster Road School	Plumber - Restroom	Plumber	8	21.4 TR 31.80"	52	0.45		Switch	8	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.33	Switch
155	Booster Road School	Plumber	Plumber	2	LED	4	0.28		Breaker	2	NO UPGRADE	EXIT Light Emergency Double, CW LED	4	0.28	Breaker
156	Booster Road School	Plumber	Plumber	1	LED	4	0.28		Breaker	1	NEW LED EXISTING W/ BATTERY BACK UP	EXIT Light Emergency Double, CW LED	4	0.28	Breaker
157	Booster Road School	Plumber	Plumber	1	LED	4	0.28		Breaker	1	NEW LED EXISTING W/ BATTERY BACK UP	EXIT Light Emergency Double, CW LED	4	0.28	Breaker
158	Booster Road School	Plumber	Plumber	13	21.4 TR 31.80"	79	1.04	68.0	Switch	13	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.81	Switch
159	Booster Road School	Plumber	Plumber	2	21.4 TR 31.80"	52	0.16		Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.26	Switch
160	Booster Road School	Plumber	Plumber	2	21.4 TR 31.80"	52	0.16		Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.26	Switch
161	Booster Road School	Plumber	Plumber	4	21.4 TR 31.80"	40	1.54		Switch	4	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.53	Switch
162	Booster Road School	Plumber - Dish Wash	Plumber	4	21.4 TR 31.80"	78	0.31	67.0	Switch	4	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.24	Wall Sensor
163	Booster Road School	Plumber	Plumber	2	21.4 TR 31.80"	78	0.18	74.0	Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.15	Wall Sensor
164	Booster Road School	Plumber	Plumber	1	21.4 TR 31.80"	78	0.25		Switch	1	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.25	Switch
165	Booster Road School	Plumber - Restroom	Plumber	2	60W INCANDESCENT	60	0.13		Switch	2	11W LED A19	11W LED Screw in Ball (11)	11	0.22	Switch
166	Booster Road School	Plumber - Entry	Plumber	2	21.4 TR 31.80"	52	0.15		Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.24	Switch
167	Booster Road School	Plumber - Food	Plumber	4	60W INCANDESCENT	60	0.24		Switch	4	11W LED A19	11W LED Screw in Ball (11)	11	0.24	Switch
168	Booster Road School	Plumber	Plumber	3	LED	4	0.25		Breaker	3	NO UPGRADE	EXIT Light Emergency Double, CW LED	4	0.25	Breaker
169	Booster Road School	Plumber	Plumber	1	LED	4	0.25		Breaker	1	NO UPGRADE	EXIT Light Emergency Double, CW LED	4	0.25	Breaker
170	Booster Road School	Plumber - Corridor	Plumber	56	21.4 TR 31.80"	52	4.92	21	Excess Capacity Control	56	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	4.23	Excess Capacity Control
171	Booster Road School	Plumber - Corridor	Plumber	41	21.4 TR 31.80"	40	1.93		Switch	48	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.41	Switch
172	Booster Road School	Plumber - ID	Plumber	8	21.4 TR 31.80"	52	0.45		Switch	8	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.33	Switch
173	Booster Road School	Plumber	Plumber	4	LED	4	0.25		Breaker	4	NO UPGRADE	EXIT Light Emergency Double, CW LED	4	0.25	Breaker
174	Booster Road School	Plumber - Entry	Plumber	2	21.4 TR 31.80"	44	0.76		Switch	2	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.23	Switch
175	Booster Road School	Plumber	Plumber	25	21.4 TR 31.80"	78	1.55	50.5437	Switch	25	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	1.37	Overhead Control Ceiling w/ Motion Sensor
176	Booster Road School	Plumber	Plumber	23	21.4 TR 31.80"	78	1.58		Switch	23	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	1.27	Overhead Control Ceiling w/ Motion Sensor
177	Booster Road School	Plumber	Plumber	25	21.4 TR 31.80"	78	1.55		Switch	25	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	1.37	Overhead Control Ceiling w/ Motion Sensor
178	Booster Road School	Plumber	Plumber	2	21.4 TR 31.80"	78	0.16		Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.12	Switch
179	Booster Road School	Plumber	Plumber	4	LED	4	0.25		Breaker	4	NO UPGRADE	EXIT Light Emergency Double, CW LED	4	0.25	Breaker
180	Booster Road School	Plumber - A.V.	Plumber	1	21.4 TR 31.80"	78	0.27		Switch	1	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.22	Overhead Control Ceiling w/ Motion Sensor
181	Booster Road School	Plumber - Store Room	Plumber	8	21.4 TR 31.80"	40	0.33		Switch	8	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.52	Switch
182	Booster Road School	Plumber - Trash	Plumber	2	21.4 TR 31.80"	78	0.15		Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.12	Switch
183	Booster Road School	Plumber - Cafeteria to Library	Plumber	78	21.4 TR 31.80"	52	1.87		Breaker	24	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.78	Switch
184	Booster Road School	Plumber	Plumber	2	LED	4	0.28		Breaker	2	NO UPGRADE	EXIT Light Emergency Double, CW LED	4	0.28	Breaker
185	Booster Road School	Plumber - Sun et	Plumber	1	21.4 TR 31.80"	59	0.58		Switch	1	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.25	Switch
186	Booster Road School	Plumber	Plumber	1	21.4 TR 31.80"	59	0.58		Switch	1	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.25	Switch
187	Booster Road School	Plumber - Lavatory	Plumber	2	21.4 TR 31.80"	59	0.18		Switch	2	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.25	Switch
188	Booster Road School	Plumber - Entry	Plumber	6	21.4 TR 31.80"	59	0.34		Switch	6	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.19	Switch
189	Booster Road School	Plumber	Plumber	1	21.4 TR 31.80"	59	0.58		Switch	1	21.4 TR 31.80"	Fluorescent (11'48" x 14' long, Endcap Sign - Ballast, E10/EP-0145	42	0.25	Switch
190	Booster Road School	Plumber - Classroom C1	Plumber	6	61.4 TR 31.80"	143	0.24	55.62	Switch	6	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.40	Overhead Control Ceiling w/ Motion Sensor
191	Booster Road School	Plumber - Classroom C1	Plumber	4	21.4 TR 31.80"	78	0.31		Switch	4	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.27	Overhead Control Ceiling w/ Motion Sensor
192	Booster Road School	Plumber - Classroom C2	Plumber	6	61.4 TR 31.80"	143	0.24		Switch	6	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.40	Overhead Control Ceiling w/ Motion Sensor
193	Booster Road School	Plumber - Classroom C2	Plumber	4	21.4 TR 31.80"	78	0.31		Switch	4	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.27	Overhead Control Ceiling w/ Motion Sensor
194	Booster Road School	Plumber	Plumber	1	21.4 TR 31.80"	31	0.27	4.4	Switch	1	NEW 17W LED 5.6 Watt Down Fixture	17W Recessed LED	14	0.14	Switch
195	Booster Road School	Plumber	Plumber	3	21.4 TR 31.80"	31	0.25		Switch	3	NEW 17W LED 5.6 Watt Down Fixture	17W Recessed LED	14	0.14	Switch
196	Booster Road School	Plumber	Plumber	1	21.4 TR 31.80"	31	0.23		Switch	1	NEW 17W LED 5.6 Watt Down Fixture	17W Recessed LED	14	0.14	Switch
197	Booster Road School	Plumber - Classroom C1	Plumber	6	61.4 TR 31.80"	143	0.24	44.57	Switch	6	NEW 17W Recessed Can Retrofit R4 (12) 270	17W Recessed LED	17	0.40	Overhead Control Ceiling w/ Motion Sensor

EXHIBIT A-1

Line Item	Item Description	Area Description - Sub Item	Usage Group ID	PRE-INSTALLATION				POST-INSTALLATION						
				Pre Est. No.	Pre Est. Description	Pre Watts/Th	Pre AW/Space	Measured Foot Cdn	Est. Cost	Post Est. Description	Post Technology Description	Post Watts/Th	Post AW/Space	Post Cost
198	Booster Road School	CLASS FL-C	Classroom C3	4	3.4 TB/ELEC	78	0.31	Switch	4	NEW 1X4 LED PENDANT INDULG-T VOLT (LITTEONTRC, 42-20-83 50000)	Fluorescent (1) 48", 1.8 lamp, Instant Start	53	0.20	Overhead Center Ceiling W/ Mount Sensor
199	Booster Road School	CLASS FL-C	Classroom C4	4	3.4 TB/ELEC	143	0.53	Switch	4	NEW 1X4 LED PENDANT INDULG-T VOLT (LITTEONTRC, 42-20-83 50000)	Fluorescent (1) 48", 1.8 lamp, Instant Start	147	0.50	Overhead Center Ceiling W/ Mount Sensor
200	Booster Road School	CLASS FL-C	Classroom C4	4	3.4 TB/ELEC	78	0.31	Switch	4	NEW 1X4 LED PENDANT INDULG-T VOLT (LITTEONTRC, 42-20-83 50000)	Fluorescent (1) 48", 1.8 lamp, Instant Start	53	0.21	Overhead Center Ceiling W/ Mount Sensor
201	Booster Road School	CLASS FL-C	Classroom C5	4	3.4 TB/ELEC	143	0.54	Switch	4	NEW 1X4 LED PENDANT INDULG-T VOLT (LITTEONTRC, 42-20-83 50000)	Fluorescent (1) 48", 1.8 lamp, Instant Start	147	0.51	Overhead Center Ceiling W/ Mount Sensor
202	Booster Road School	CLASS FL-C	Classroom C5	4	3.4 TB/ELEC	78	0.31	Switch	4	NEW 1X4 LED PENDANT INDULG-T VOLT (LITTEONTRC, 42-20-83 50000)	Fluorescent (1) 48", 1.8 lamp, Instant Start	53	0.21	Overhead Center Ceiling W/ Mount Sensor
203	Booster Road School	CLASS FL-C	Classroom C6	4	3.4 TB/ELEC	143	0.53	Switch	4	NEW 1X4 LED PENDANT INDULG-T VOLT (LITTEONTRC, 42-20-83 50000)	Fluorescent (1) 48", 1.8 lamp, Instant Start	147	0.50	Overhead Center Ceiling W/ Mount Sensor
204	Booster Road School	CLASS FL-C	Classroom C6	4	3.4 TB/ELEC	78	0.31	Switch	4	NEW 1X4 LED PENDANT INDULG-T VOLT (LITTEONTRC, 42-20-83 50000)	Fluorescent (1) 48", 1.8 lamp, Instant Start	53	0.21	Overhead Center Ceiling W/ Mount Sensor
205	Booster Road School	CLASS FL-C	Restroom	1	(2) 178 CF Flu In	31	0.12	Switch	1	NEW 1X4 LED S-Face Down Fixture	1X4 Incandescent LEE	11	0.04	Switch
206	Booster Road School	CLASS FL-C	Restroom - C/Wing	1	2.4 TB/ELEC	59	0.21	Switch	15	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, 1W Energy Saver, Instant Start, N.O. (E) 48"	21	0.07	Switch
207	Booster Road School	CLASS FL-C	Restroom	1	2.4 TB/ELEC	59	0.22	Switch	1	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, 1W Energy Saver, Instant Start, N.O. (E) 48"	21	0.07	Switch
208	Booster Road School	CLASS FL-C	Restroom	3	LED	4	0.13	Breaker	3	NO UPGRADE	EMI Light Emitting Diode, 4X LED	4	0.12	Breaker
209	Booster Road School	CLASS FL-C	Restroom - C/Wing	4	2.4 TB/ELEC	59	0.22	Switch	4	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, 1W Energy Saver, Instant Start, N.O. (E) 48"	21	0.12	Switch
210	Booster Road School	CLASS FL-C	Restroom	2	LED	4	0.20	Breaker	2	NO UPGRADE	EMI Light Emitting Diode, 4X LED	4	0.20	Breaker
211	Booster Road School	CLASS FL-C	Restroom - Shower	9	NEW UPGRADE	69	0.24	Switch	9	1X4 LED PAR	1x4 LED PAR	14	0.12	Switch
212	Booster Road School	CLASS FL-C	Classroom - Computer Lab	18	3.4 TB/ELEC	78	0.31	Switch	18	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	63	1.13	Overhead Center Ceiling W/ Mount Sensor
213	Booster Road School	CLASS FL-C	Restroom	2	LED	4	0.20	Breaker	2	NO UPGRADE	EMI Light Emitting Diode, 4X LED	4	0.20	Breaker
214	Booster Road School	CLASS FL-C	Office	5	3.4 TB/ELEC	78	0.31	Switch	5	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.31	Wall Sensor
215	Booster Road School	CLASS FL-C	Office - Outside Lab	1	3.4 TB/ELEC	78	0.29	Switch	1	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.29	Switch
216	Booster Road School	CLASS FL-C	Storage	3	3.4 TB/ELEC	144	0.43	Switch	3	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.12	Switch
217	Booster Road School	CLASS FL-C	Storage - Storage	2	2.4 TB/ELEC	59	0.14	Switch	2	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, 1W Energy Saver, Instant Start, N.O. (E) 48"	21	0.12	Switch
218	Booster Road School	CLASS FL-C	Storage - North to South	14	2.4 TB/ELEC	59	0.12	Switch	14	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, 1W Energy Saver, Instant Start, N.O. (E) 48"	21	0.12	Switch
219	Booster Road School	CLASS FL-C	Restroom	2	LED	4	0.20	Breaker	2	NO UPGRADE	EMI Light Emitting Diode, 4X LED	4	0.20	Breaker
220	Booster Road School	CLASS FL-C	CLASS FL-D WING	9	3.4 TB/ELEC	78	0.31	Switch	9	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	63	0.16	Overhead Center Ceiling W/ Mount Sensor
221	Booster Road School	CLASS FL-C	Classroom D1	4	3.4 TB/ELEC	78	0.31	Switch	4	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.25	Overhead Center Ceiling W/ Mount Sensor
222	Booster Road School	CLASS FL-C	Classroom D1	1	(2) 178 CF Flu In	31	0.12	Switch	1	NEW 1X4 LED S-Face Down Fixture	1X4 Incandescent LEE	11	0.04	Switch
223	Booster Road School	CLASS FL-C	Classroom D2	4	3.4 TB/ELEC	78	0.31	Switch	2	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.12	Switch
224	Booster Road School	CLASS FL-C	Classroom D2	2	2.4 TB/ELEC	59	0.13	Switch	2	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.08	Overhead Center Ceiling W/ Mount Sensor
225	Booster Road School	CLASS FL-C	Restroom	1	(2) 178 CF Flu In	31	0.12	Switch	1	NEW 1X4 LED S-Face Down Fixture	1X4 Incandescent LEE	11	0.04	Switch
226	Booster Road School	CLASS FL-C	Classroom D3	6	3.4 TB/ELEC	99	0.38	Switch	6	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	63	0.25	Overhead Center Ceiling W/ Mount Sensor
227	Booster Road School	CLASS FL-C	Classroom D3	2	2.4 TB/ELEC	59	0.13	Switch	2	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.08	Overhead Center Ceiling W/ Mount Sensor
228	Booster Road School	CLASS FL-C	Restroom	1	(2) 178 CF Flu In	31	0.12	Switch	1	NEW 1X4 LED S-Face Down Fixture	1X4 Incandescent LEE	11	0.04	Switch
229	Booster Road School	CLASS FL-C	Classroom D3	6	3.4 TB/ELEC	99	0.38	Switch	6	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	63	0.25	Overhead Center Ceiling W/ Mount Sensor
230	Booster Road School	CLASS FL-C	Classroom D3	1	2.4 TB/ELEC	59	0.25	Switch	1	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.25	Overhead Center Ceiling W/ Mount Sensor
231	Booster Road School	CLASS FL-C	Restroom	1	(2) 178 CF Flu In	31	0.12	Switch	1	NEW 1X4 LED S-Face Down Fixture	1X4 Incandescent LEE	11	0.04	Switch
232	Booster Road School	CLASS FL-C	Classroom D4	9	3.4 TB/ELEC	99	0.38	Switch	4	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	63	0.25	Overhead Center Ceiling W/ Mount Sensor
233	Booster Road School	CLASS FL-C	Classroom D4	4	2.4 TB/ELEC	59	0.23	Switch	4	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.19	Overhead Center Ceiling W/ Mount Sensor
234	Booster Road School	CLASS FL-C	Restroom	1	(2) 178 CF Flu In	31	0.12	Switch	1	NEW 1X4 LED S-Face Down Fixture	1X4 Incandescent LEE	11	0.04	Switch
235	Booster Road School	CLASS FL-C	Storage	2	2.4 TB/ELEC	59	0.12	Switch	2	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.04	Wall Sensor
236	Booster Road School	CLASS FL-C	Storage	1	2.4 TB/ELEC	59	0.15	Switch	1	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.04	Switch
237	Booster Road School	CLASS FL-C	Restroom - D/Wing of East	4	3.4 TB/ELEC	116	0.33	Switch	4	NEW 1X4 WRAP LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.19	Switch
238	Booster Road School	CLASS FL-C	Restroom - D/Wing of East	1	2.4 TB/ELEC	59	0.25	Switch	1	NEW 1X4 WRAP LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.25	Switch
239	Booster Road School	CLASS FL-C	Restroom	2	LED	4	0.20	Breaker	2	NO UPGRADE	EMI Light Emitting Diode, 4X LED	4	0.20	Breaker
240	Booster Road School	CLASS FL-C	Classroom D5	16	3.4 TB/ELEC	99	1.56	Switch	16	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, Instant Start	63	1.64	Overhead Center Ceiling W/ Mount Sensor
241	Booster Road School	CLASS FL-C	Office	2	3.4 TB/ELEC	99	0.12	Switch	2	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.06	Wall Sensor
242	Booster Road School	CLASS FL-C	Classroom D5	16	3.4 TB/ELEC	99	1.56	Switch	16	2X1-2X4 LED NORMAL/REPL	Fluorescent (1) 48", 1.8 lamp, Instant Start	63	1.64	Overhead Center Ceiling W/ Mount Sensor
243	Booster Road School	CLASS FL-C	Restroom	1	(2) 178 CF Flu In	31	0.12	Switch	1	2X1-2X4 LED LOW	Fluorescent (1) 48", 1.8 lamp, 1W Energy Saver, Instant Start, N.O. (E) 48"	21	0.07	Switch
244	Booster Road School	CLASS FL-C	Office D7	6	3.4 TB/ELEC	78	0.30	Switch	6	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.17	Wall Sensor
245	Booster Road School	CLASS FL-C	Office	2	2.4 TB/ELEC	59	0.12	Switch	2	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.04	Switch
246	Booster Road School	CLASS FL-C	Office	2	3.4 TB/ELEC	78	0.15	Switch	2	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.12	Switch
247	Booster Road School	CLASS FL-C	Storage	2	3.4 TB/ELEC	78	0.15	Switch	2	3.4 TB/ELEC	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.12	Switch
248	Booster Road School	CLASS FL-C	Storage	1	2.4 TB/ELEC	59	0.12	Switch	1	2X1-2X4 LOW	Fluorescent (1) 48", 1.8 lamp, Instant Start	43	0.04	Switch

EXHIBIT A-1

Line Item	Energy Classifying the Use	Area Description - Building Room	Voltage	PRE-INSTALLATION				POST-INSTALLATION								
				Pre-Fat. No.	Pre-Fat. Description	Pre Watts/Fat	Pre AW/Space	Measured Watts/Condition	Exist. Cost	Post Fat. No.	Post Fat. Description	Post Technology Description	Post Watts/Fat	Post AW/Space	Prop. Cost	
249	Residential School	CLASS FL - D	Resroom - Wagon	Resroom	3	N.E. 18.5E.18.0	71	0.219		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.126	Switch
250	Residential School	CLASS FL - D	Resroom - Wagon	Resroom	1	N.E. 18.5E.18.0	66	0.256		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.272	Switch
251	Residential School	CLASS FL - D	Hallway - B Wing	Hallway	4	N.E. 18.5E.18.0	59	0.292		Switch	4	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	16	0.112	Switch
252	Residential School	CLASS FL - 5	OFFICE - 1st Floor	Office	3	N.E. 18.5E.18.0	59	0.177		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	33	0.209	Wall Sensor
253	Residential School	CLASS FL - 5	CLASSROOM - 5th	Classroom	6	N.E. 18.5E.18.0	78	0.456	63.0	Switch	6	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.278	Wall Sensor
254	Residential School	CLASS FL - 5	CLASSROOM - Wagon	Classroom	3	N.E. 18.5E.18.0	72	0.144		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.282	Wall Sensor
255	Residential School	CLASS FL - 5	CLASSROOM 51	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
256	Residential School	CLASS FL - 5	Storage	Storage	2	N.E. 18.5E.18.0	59	0.118		Switch	2	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.204	Switch
257	Residential School	CLASS FL - 5	CLASSROOM 52	Classroom	14	N.E. 18.5E.18.0	78	1.092	52.0	Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
258	Residential School	CLASS FL - 5	CLASSROOM 53	Classroom	8	(2) 18W CF Fluor. In.	40	0.320		Switch	8	NEW 17W P/ Instant Start Ballast R10/0.02-0.45	17W Energy LED	17	0.136	Switch
259	Residential School	CLASS FL - 5	Storage	Storage	3	N.E. 18.5E.18.0	59	0.257		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.202	Switch
260	Residential School	CLASS FL - 5	CLASSROOM - Language Arts	Classroom	8	N.E. 18.5E.18.0	78	0.624		Switch	8	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.824	Wall Sensor
261	Residential School	CLASS FL - 5	CLASSROOM - Language Arts	Classroom	6	N.E. 18.5E.18.0	78	0.468		Switch	6	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.178	Wall Sensor
262	Residential School	CLASS FL - 5	CLASSROOM 54	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
263	Residential School	CLASS FL - 5	CLASSROOM 55	Classroom	8	(2) 18W CF Fluor. In.	40	0.320		Switch	8	NEW 17W P/ Instant Start Ballast R10/0.02-0.45	17W Energy LED	17	0.136	Switch
264	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	42	0.287	Overhead Ceiling Ceiling W/ Motion Sensor
265	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.287	Switch
266	Residential School	CLASS FL - 5	CLASSROOM 54	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
267	Residential School	CLASS FL - 5	Storage	Storage	3	N.E. 18.5E.18.0	59	0.256		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.256	Switch
268	Residential School	CLASS FL - 5	CLASSROOM - Boys	Classroom	2	N.E. 18.5E.18.0	59	0.118		Switch	2	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	32	0.246	Switch
269	Residential School	CLASS FL - 5	CLASSROOM - Common Area	Classroom	6	15W INSTANT START	156	0.260		Switch	6	17W LED Ballast	17W LED Screw in lamp (1)	17	0.100	Switch
270	Residential School	CLASS FL - 5	CLASSROOM - Common Area	Classroom	12	15W INSTANT START	256	3.54		Switch	12	20W LED PAR38 Nac. Dimmable	20W LED Screw in lamp (1)	21	0.278	Overhead Ceiling Ceiling W/ Motion Sensor
271	Residential School	CLASS FL - 5	Locker - Teachers	Locker	6	N.E. 18.5E.18.0	78	0.468		Switch	6	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.282	Overhead Ceiling Ceiling W/ Motion Sensor
272	Residential School	CLASS FL - 5	Locker - Teachers	Locker	1	(2) 18W CF Fluor. In.	40	0.34		Switch	1	NEW 17W P/ Instant Start Ballast R10/0.02-0.45	17W Energy LED	17	0.21	Switch
273	Residential School	CLASS FL - 5	CLASSROOM - Language Arts	Classroom	6	N.E. 18.5E.18.0	78	0.468		Switch	6	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.278	Switch
274	Residential School	CLASS FL - 5	CLASSROOM - Orca	Classroom	2	N.E. 18.5E.18.0	59	0.118		Switch	2	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.248	Switch
275	Residential School	CLASS FL - 5	CLASSROOM 55	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
276	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.287	Switch
277	Residential School	CLASS FL - 5	CLASSROOM 56	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
278	Residential School	CLASS FL - 5	CLASSROOM 56	Classroom	8	(2) 18W CF Fluor. In.	40	0.320		Switch	8	NEW 17W P/ Instant Start Ballast R10/0.02-0.45	17W Energy LED	17	0.136	Switch
279	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.287	Switch
280	Residential School	CLASS FL - 5	CLASSROOM - Computer Lab	Classroom	9	N.E. 18.5E.18.0	78	0.702		Switch	9	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.57	Overhead Ceiling Ceiling W/ Motion Sensor
281	Residential School	CLASS FL - 5	CLASSROOM 57	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
282	Residential School	CLASS FL - 5	CLASSROOM 57	Classroom	8	(2) 18W CF Fluor. In.	40	0.320		Switch	8	NEW 17W P/ Instant Start Ballast R10/0.02-0.45	17W Energy LED	17	0.136	Switch
283	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.278	Switch
284	Residential School	CLASS FL - 5	CLASSROOM 58	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
285	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.278	Switch
286	Residential School	CLASS FL - 5	CLASSROOM - Boys	Classroom	2	N.E. 18.5E.18.0	59	0.118		Switch	2	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	32	0.264	Switch
287	Residential School	CLASS FL - 5	Office - Booth	Office	3	N.E. 18.5E.18.0	59	0.177		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.208	Wall Sensor
288	Residential School	CLASS FL - 5	CLASSROOM - Orca	Classroom	1	N.E. 18.5E.18.0	78	0.272		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.242	Switch
289	Residential School	CLASS FL - 5	CLASSROOM - Orca	Classroom	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.242	Switch
290	Residential School	CLASS FL - 5	CLASSROOM - Orca	Classroom	1	(1) 18W CF Fluor. In.	40	0.256		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.204	Switch
291	Residential School	CLASS FL - 5	CLASSROOM 59	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
292	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.287	Switch
293	Residential School	CLASS FL - 5	CLASSROOM 512	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
294	Residential School	CLASS FL - 5	CLASSROOM 512	Classroom	8	(2) 18W CF Fluor. In.	40	0.320		Switch	8	NEW 17W P/ Instant Start Ballast R10/0.02-0.45	17W Energy LED	17	0.136	Switch
295	Residential School	CLASS FL - 5	Storage	Storage	1	N.E. 18.5E.18.0	59	0.287		Switch	1	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.287	Switch
296	Residential School	CLASS FL - 5	Office - Copy	Office	9	N.E. 18.5E.18.0	78	0.702		Switch	9	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.567	Wall Sensor - Dual Tech
297	Residential School	CLASS FL - 5	Office - Reception, Parth	Office	3	N.E. 18.5E.18.0	59	0.177		Switch	3	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, 15w Energy Saver, Instant Start Ballast, R10/0.02-0.45	32	0.208	Switch
298	Residential School	CLASS FL - 5	CLASSROOM 511	Classroom	14	N.E. 18.5E.18.0	78	1.092		Switch	14	N.E. 18.5E.18.0	Floorscan (1) 45" x 14" lamp, Instant Start Ballast, R10/0.02-0.45	42	0.858	Overhead Ceiling Ceiling W/ Motion Sensor
299	Residential School	CLASS FL - 5	CLASSROOM 511	Classroom	8	(2) 18W CF Fluor. In.	40	0.320		Switch	8	NEW 17W P/ Instant Start Ballast R10/0.02-0.45	17W Energy LED	17	0.136	Switch

EXHIBIT A-1

Line Item	Area Description - Building Room	Usage Group ID	Pre-Fit No.	Pre-Fit Description	PRE-INSTALLATION			POST-INSTALLATION			Post Watt/Flt	Post A/WSpace	Prep Cost
					Pre-Fit Watt/Flt	Pre-Fit A/WSpace	Measured Post-Cost	Post-Fit No.	Post-Fit Description	Post Technology Description			
320	Teacher Road School	Classroom	1	2L F32TUFLUE	59	0.09	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	23	0.02	Switch
321	Teacher Road School	Classroom	14	2L F32TUFLUE	79	1.09	Switch	14	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.82	Overhead/Cover Ceiling W/ Mount Sensor
322	Teacher Road School	Classroom	1	2L F32TUFLUE	59	0.09	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	23	0.02	Switch
323	Teacher Road School	Classroom	2	2L F32TUFLUE	71	0.14	Switch	2	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	41	0.04	Overhead/Cover Ceiling W/ Mount Sensor
324	Teacher Road School	Classroom	4	2L F32TUFLUE	59	0.09	Switch	4	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	19	0.17	Overhead/Cover Ceiling W/ Mount Sensor
325	Teacher Road School	Classroom	1	2L F32TUFLUE	59	0.09	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	23	0.02	Switch
326	Teacher Road School	Classroom	4	2L F32TUFLUE	59	0.09	Switch	4	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	26	0.15	Switch
327	Teacher Road School	Classroom	1	2L F32TUFLUE	59	0.09	Switch	1	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	16	0.20	Switch
328	Teacher Road School	Classroom	11	2L F32TUFLUE	59	0.69	Switch	11	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	14	0.26	Switch
329	Teacher Road School	Classroom	4	2L F32TUFLUE	59	0.09	Switch	4	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	16	0.15	Switch
312	Teacher Road School	Classroom	15	2L F32TUFLUE	59	0.94	Switch	15	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	16	0.15	Switch
313	Teacher Road School	Classroom	3	LED	4	0.14	Breaker	3	NO UPGRADE	ENTL Light Fixtures Only, (1) LED	4	0.11	Breaker
314	Teacher Road School	Classroom	13	2L F32TUFLUE	59	0.88	Switch	13	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	14	0.22	Switch
315	Teacher Road School	Classroom	7	2L F32TUFLUE	59	0.18	Switch	7	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	16	0.05	Switch
316	Teacher Road School	Classroom	3	LED	4	0.12	Breaker	3	NO UPGRADE	ENTL Light Fixtures Only, (1) LED	4	0.11	Breaker
317	Teacher Road School	Classroom	2	12-18" CF Fluoro	40	0.08	Switch	2	NEW 17W 4' Fluorescent, 16w Retrofit Kit (1) 17W Energy LED	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	17	0.03	Switch
318	Teacher Road School	Classroom	3	2L F32TUFLUE	71	0.14	Switch	3	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	42	0.12	Switch
319	Teacher Road School	Classroom	1	2L F32TUFLUE	56	0.06	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	13	0.20	Switch
320	Teacher Road School	Classroom	7	2L F32TUFLUE	59	0.41	Switch	7	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	16	0.18	Overhead/Cover Ceiling W/ Mount Sensor
321	Teacher Road School	Classroom	15	2L F32TUFLUE	59	1.47	Switch	15	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	65	0.27	Overhead/Cover Ceiling W/ Mount Sensor
322	Teacher Road School	Classroom	1	2L F32TUFLUE	55	0.20	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	42	0.54	Switch
323	Teacher Road School	Classroom	3	2L F32TUFLUE	59	0.18	Switch	3	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	42	0.12	Switch
324	Teacher Road School	Classroom	16	2L F32TUFLUE	79	1.24	Switch	16	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	42	0.84	Switch
325	Teacher Road School	Classroom	15	2L F32TUFLUE	79	1.16	Switch	15	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	64	1.04	Overhead/Cover Ceiling W/ Mount Sensor
326	Teacher Road School	Classroom	3	2L F32TUFLUE	59	0.18	Switch	3	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	42	0.12	Switch
327	Teacher Road School	Classroom	3	2L F32TUFLUE	71	0.21	Switch	3	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	42	0.12	Switch
328	Teacher Road School	Classroom	7	2L F32TUFLUE	59	0.41	Switch	7	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	24	0.18	Switch
329	Teacher Road School	Classroom	1	LED	4	0.06	Breaker	1	NO UPGRADE	ENTL Light Fixtures Only, (1) LED	4	0.11	Breaker
330	Teacher Road School	Classroom	1	2L F32TUFLUE	56	0.06	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	23	0.02	Switch
331	Teacher Road School	Classroom	1	2L F32TUFLUE	56	0.06	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	23	0.02	Switch
332	Teacher Road School	Classroom	12	2L F32TUFLUE	59	1.17	Switch	12	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	65	0.28	Overhead/Cover Ceiling W/ Mount Sensor
333	Teacher Road School	Classroom	1	2L F32TUFLUE	59	0.06	Switch	1	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	64	0.43	Overhead/Cover Ceiling W/ Mount Sensor
334	Teacher Road School	Classroom	12	2L F32TUFLUE	168	1.93	Switch	12	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	155	2.23	Overhead/Cover Ceiling W/ Mount Sensor
335	Teacher Road School	Classroom	12	2L F32TUFLUE	168	1.92	Switch	12	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	155	2.22	Overhead/Cover Ceiling W/ Mount Sensor
336	Teacher Road School	Classroom	8	2L F32TUFLUE	168	1.28	Breaker	8	REMOVE	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	8	0.21	Breaker
337	Teacher Road School	Classroom	3	LED	4	0.03	Breaker	3	NO UPGRADE	ENTL Light Fixtures Only, (1) LED	4	0.11	Breaker
338	Teacher Road School	Classroom	2	2L F32TUFLUE	59	0.11	Switch	2	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.28	Switch
339	Teacher Road School	Classroom	4	2L F32TUFLUE	59	0.23	Switch	4	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.10	Switch
340	Teacher Road School	Classroom	2	2L F32TUFLUE	59	0.12	Switch	2	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.28	Switch
341	Teacher Road School	Classroom	1	2L F32TUFLUE	71	0.07	Switch	1	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.57	Switch
342	Teacher Road School	Classroom	2	2L F32TUFLUE	59	0.12	Switch	2	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.28	Switch
343	Teacher Road School	Classroom	9	2L F32TUFLUE	59	0.98	Switch	9	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.28	Overhead/Cover Ceiling W/ Mount Sensor
344	Teacher Road School	Classroom	1	2L F32TUFLUE	59	0.02	Switch	1	2L F32TUFLUE NORMAL/EFFI	Fluorescent, (1)2' x 4 lamp, 11W Energy Star, Instant Start, Ballast, E10, E27, E85	16	0.02	Switch
345	Teacher Road School	Classroom	3	LED	4	0.01	Breaker	3	NO UPGRADE	ENTL Light Fixtures Only, (1) LED	4	0.11	Breaker
346	Teacher Road School	Classroom	1	60W INCANDESCENT	48	0.06	Switch	1	11W LED/11W	11W LED/11W	11	0.11	Switch
347	Teacher Road School	Classroom	5	2L F32TUFLUE	59	0.26	Switch	5	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.21	Switch
348	Teacher Road School	Classroom	3	2L F32TUFLUE	59	0.16	Switch	3	2L F32TUFLUE LOW	Fluorescent, (1)2' x 4 lamp, Instant Start, Ballast, E10, E27, E85	43	0.12	Switch
349	Teacher Road School	Classroom	1	LED	4	0.04	Breaker	1	NO UPGRADE	ENTL Light Fixtures Only, (1) LED	4	0.04	Breaker
340	Teacher Road School	Classroom	11	40W CFL BALLAST	465	4.71	Breaker	11	NEW 30w Electronic Ball. Fls.	30W Electronic Ballast	216	1.21	Breaker

EXHIBIT A-1

Item	Item Description	Area Description - Building/Rm	Usage Group ID	PRE-INSTALLATION				POST-INSTALLATION					
				Pre-Fit No.	Pre-Fit Description	Pre Watts/Fit	Pre AW/Space	Measured Post-Carden	Exist. Cost	Post-Fit No.	Post-Fit Description	Post Technology Description	Post Watts/Fit
Item	Item	Usage Description of the location that matches the usage group	Usage Description of the location that matches the usage group	No. of fixtures before the retrofit	Pre-Fit Fixture Description	(Watts/Fit) (Pre Watts/100 sq ft) (Pre Watts/100 sq ft) (Pre Watts/100 sq ft)	(Pre Watts/100 sq ft) (Pre Watts/100 sq ft) (Pre Watts/100 sq ft) (Pre Watts/100 sq ft)	Post-Fit No.	Post-Fit Description	Proposed Technology Description	Post Watts/Fit	Post AW/Space	Prop. Cost
350	Reacher Road School	PLST FL - 3	EVN	3	LED	4	0.23	Breaker	3	NO UPGRADE	4	0.23	Breaker
351	Reacher Road School	PLST FL - 5	Mechanical - Sprinkler Room	4	4.4 E2E32MAG	77	0.78	Switch	4	N.T. LED LOW	41	0.16	Switch
352	Reacher Road School	PLST FL - 5	SWITCH - O/P/L Locker	3	7.6 E13E10C	93	0.76	Switch	4	N.T. LED LOW	41	0.21	Switch
353	Reacher Road School	PLST FL - 5	Exit	1	LED	4	0.20	Breaker	1	NO UPGRADE	4	0.20	Breaker
354	Reacher Road School	PLST FL - 5	Recess	4	7.6 E13E10C	93	0.78	Switch	4	N.T. LED LOW	41	0.16	Switch
355	Reacher Road School	PLST FL - 5	Exit	1	LED	4	0.20	Breaker	1	NO UPGRADE	4	0.20	Breaker
356	Reacher Road School	PLST FL - 5	Locker Rm - O/Ls	7	7.6 E13E10C	93	0.64	Switch	7	N.T. LED LOW	42	0.24	Switch
357	Reacher Road School	PLST FL - 5	Exit	1	7.6 E13E10C	93	0.15	Switch	1	N.T. LED LOW	42	0.24	Switch
358	Reacher Road School	PLST FL - 5	SWITCH - LOCKER	6	7.6 E13E10C	93	0.31	Switch	6	N.T. LED LOW	42	0.20	Switch
359	Reacher Road School	PLST FL - 5	SWITCH - LOCKER	1	N.P2-T8 U/TUBE	59	0.55	Switch	1	N.T. LED FLTR LOW	13	0.25	Switch
360	Reacher Road School	PLST FL - 5	Exit	2	LED	4	0.20	Breaker	2	NO UPGRADE	4	0.20	Breaker
361	Reacher Road School	PLST FL - 5	Recess	2	7.6 E13E10C	93	0.15	Switch	2	N.T. LED LOW	43	0.24	Switch
362	Reacher Road School	PLST FL - 5	Recess	3	7.6 E13E10C	93	0.18	Switch	3	N.T. LED LOW	43	0.25	Switch
363	Reacher Road School	PLST FL - 5	Office - Food	2	7.6 E13E10C	93	0.15	Switch	2	N.T. LED LOW	43	0.24	Switch
364	Reacher Road School	PLST FL - 5	Recess	1	7.6 E13E10C	93	0.55	Switch	1	N.T. LED LOW	43	0.25	Switch
365	Reacher Road School	PLST FL - 5	SWITCH	1	100W INCANDESCENT	100	0.13	Switch	1	11W LED A19	11	0.21	Switch
366	Reacher Road School	PLST FL - 5	SWITCH - LOCKER	1	7.6 E13E10C	93	0.25	Switch	1	N.T. LED LOW	43	0.24	Switch
367	Reacher Road School	PLST FL - 5	Exit - Food	3	7.6 E13E10C	93	0.25	Switch	3	N.T. LED LOW	43	0.25	Switch
368	Reacher Road School	PLST FL - 5	Recess	5	7.6 E13E10C	93	0.58	Switch	5	N.T. LED LOW	43	0.21	Switch
369	Reacher Road School	PLST FL - 5	SWITCH - RECESS	13	4.4 E2E32MAG	77	1.24	Switch	13	N.T. LED NORMAL IN A/E/FI	49	0.24	Switch
370	Reacher Road School	PLST FL - 5	Exit	4	LED	4	0.20	Breaker	4	NO UPGRADE	4	0.20	Breaker
371	Reacher Road School	PLST FL - 5	Office - O/L	3	6.6 E13E10C	93	0.25	Switch	3	N.T. LED NORMAL IN A/E/FI	45	0.14	Switch
372	Reacher Road School	PLST FL - 5	Office - Food/Trash	2	7.6 E13E10C	93	0.15	Switch	2	N.T. LED LOW	43	0.24	Switch
373	Reacher Road School	PLST FL - 5	SWITCH	3	4.4 E2E32MAG	77	0.25	Switch	3	N.T. LED LOW	43	0.12	Switch
374	Reacher Road School	PLST FL - 5	SWITCH - OPERATOR	14	4.4 E2E32MAG	77	0.65	Switch	14	N.T. LED NORMAL IN A/E/FI	45	0.17	Switch
375	Reacher Road School	PLST FL - 5	Exit	1	LED	4	0.20	Breaker	1	NO UPGRADE	4	0.20	Breaker
376	Reacher Road School	PLST FL - 5	Office	2	4.4 E2E32MAG	77	0.28	Switch	2	N.T. LED NORMAL IN A/E/FI	49	0.26	Switch
377	Reacher Road School	PLST FL - 5	SWITCH - RECESS	3	N.P2-T8 U/TUBE	59	0.17	Switch	3	N.T. LED FLTR NORMAL IN A/E/FI	14	0.23	Switch
378	Reacher Road School	PLST FL - 5	Exit	1	LED	4	0.20	Breaker	1	NO UPGRADE	4	0.20	Breaker
379	Reacher Road School	PLST FL - 5	SWITCH	4	7.6 E13E10C	93	0.28	Switch	4	N.T. LED LOW	43	0.16	Switch
380	Reacher Road School	PLST FL - 5	SWITCH	8	7.6 E13E10C	93	0.42	Switch	8	N.T. LED LOW	43	0.36	Switch
381	Reacher Road School	PLST FL - 5	SWITCH	1	4.4 E2E32MAG	77	0.14	Switch	1	N.T. LED NORMAL IN A/E/FI	45	0.28	Switch
382	Reacher Road School	PLST FL - 5	SWITCH - RECESS	1	4.4 E2E32MAG	77	0.14	Switch	1	N.T. LED LOW	43	0.24	Switch
383	Reacher Road School	PLST FL - 5	SWITCH - RECESS	1	4.4 E2E32MAG	77	0.14	Switch	1	N.T. LED NORMAL IN A/E/FI	45	0.24	Switch
384	Reacher Road School	PLST FL - 5	SWITCH - RECESS	1	4.4 E2E32MAG	77	0.14	Switch	1	N.T. LED NORMAL IN A/E/FI	45	0.24	Switch
385	Reacher Road School	PLST FL - 5	SWITCH - RECESS	11	7.6 E13E10C	93	0.37	Switch	11	N.T. LED LOW	43	0.47	Switch
386	Reacher Road School	PLST FL - 5	Exit	2	LED	4	0.20	Breaker	2	NO UPGRADE	4	0.20	Breaker
387	Reacher Road School	PLST FL - 5	SWITCH	7	7.6 E13E10C	93	0.18	Switch	7	N.T. LED LOW	43	0.24	Switch
388	Reacher Road School	PLST FL - 5	SWITCH	2	7.6 E13E10C	93	0.18	Switch	2	N.T. LED LOW	43	0.24	Switch
389	Reacher Road School	PLST FL - 5	SWITCH	1	4.4 E2E32MAG	77	0.08	Switch	1	N.T. LED NORMAL IN A/E/FI	45	0.28	Switch
390	Reacher Road School	PLST FL - 5	SWITCH - RECESS	20	4.4 E2E32MAG	77	1.66	Switch	20	N.T. LED NORMAL IN A/E/FI	65	1.31	Switch
391	Reacher Road School	PLST FL - 5	SWITCH - RECESS	20	4.4 E2E32MAG	77	1.66	Switch	20	N.T. LED NORMAL IN A/E/FI	65	1.31	Switch
392	Reacher Road School	PLST FL - 5	SWITCH - RECESS	30	100W INCANDESCENT	100	3.03	Switch	30	11W LED A19	12	0.33	Switch
393	Reacher Road School	PLST FL - 5	Exit	2	LED	4	0.20	Breaker	2	NO UPGRADE	4	0.20	Breaker
394	Reacher Road School	PLST FL - 5	Exit	8	4.4 E2E32MAG	77	0.81	Switch	8	N.T. LED NORMAL IN A/E/FI	45	0.31	Switch
395	Reacher Road School	PLST FL - 5	Exit	1	LED	4	0.20	Breaker	1	NO UPGRADE	4	0.20	Breaker
396	Reacher Road School	PLST FL - 5	SWITCH - RECESS	7	N.P2-T8 U/TUBE	59	0.41	Switch	7	N.T. LED FLTR NORMAL IN A/E/FI	14	0.15	Switch
397	Reacher Road School	PLST FL - 5	Exit	2	LED	4	0.20	Breaker	2	NO UPGRADE	4	0.20	Breaker
398	Reacher Road School	PLST FL - 5	Exit	16	N.P2-T8 U/TUBE	59	0.44	Switch	16	N.T. LED FLTR NORMAL IN A/E/FI	16	0.43	Switch
399	Reacher Road School	PLST FL - 5	Exit	4	LED	4	0.20	Breaker	4	NO UPGRADE	4	0.20	Breaker
399	Reacher Road School	PLST FL - 5	Exit	1	4.4 E2E32MAG	77	0.26	Switch	1	N.T. LED FLTR LOW	13	0.23	Switch

A-30

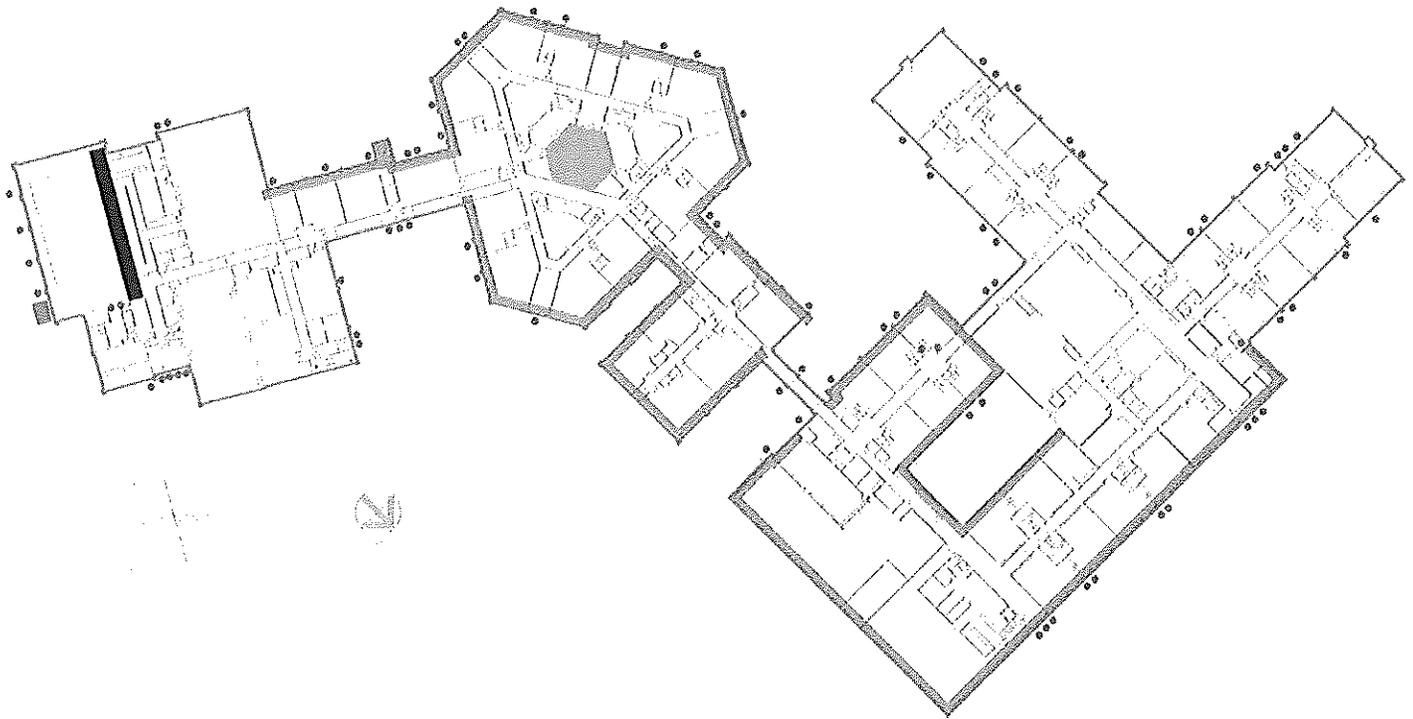
Jan 2014

Reacher Lighting Audit

EXHIBIT A-1

Line Item	Area Description - Building/Room	Usage Group ID	Pre-Inst. No.	Pre-Inst. Description	Pre-Inst. Qty	Pre-Inst. Unit Cost	Pre-Inst. Total Cost	Post-Inst. No.	Post-Inst. Description	Post-Inst. Qty	Post-Inst. Unit Cost	Post-Inst. Total Cost	Pre-Inst. Total Cost	Post-Inst. Total Cost
400	Teacher Road School	CLASS - LED	1	60W INCANDESCENT	44	0.56	24.64	1	11W LED A19	11	0.51	5.61	24.64	5.61
401	Teacher Road School	CLASS - LED	1	100W INCANDESCENT	100	0.10	10.00	1	11W LED A19	11	0.21	2.31	10.00	2.31
402	Teacher Road School	CLASS - LED	1	120W INCANDESCENT	56	0.56	31.36	1	21.5W LED PAR LOW	21	0.75	15.75	31.36	15.75
403	Teacher Road School	ATTIC - HVAC	1	21.5W LED PAR LOW	79	0.75	59.25	1	21.5W LED PAR LOW	42	0.54	22.68	59.25	22.68
404	Teacher Road School	ATTIC - HVAC	1	21.5W LED PAR LOW	33	0.54	17.82	1	11W LED A19	11	0.56	6.16	17.82	6.16
405	Teacher Road School	MECHANICAL	1	21.5W LED PAR LOW	49	0.75	36.75	1	21.5W LED PAR LOW	6	0.75	4.50	36.75	4.50
406	Teacher Road School	MECHANICAL	1	21.5W LED PAR LOW	33	0.54	17.82	1	11W LED A19	11	0.56	6.16	17.82	6.16
407	Teacher Road School	OFFICE - Open	6	4.0 18.5W LED	98	0.98	97.02	6	21.5W LED PAR LOW	48	0.75	36.00	97.02	36.00
408	Teacher Road School	OFFICE - Open	1	4.0 18.5W LED	98	0.98	97.02	1	21.5W LED PAR LOW	48	0.75	36.00	97.02	36.00
409	Teacher Road School	OFFICE - Open	1	4.0 18.5W LED	98	0.98	97.02	1	21.5W LED PAR LOW	48	0.75	36.00	97.02	36.00
410	Teacher Road School	OFFICE - Open	2	4.0 18.5W LED	98	0.98	194.04	2	21.5W LED PAR LOW	96	0.75	72.00	194.04	72.00
411	Teacher Road School	OFFICE - Open	8	4.0 18.5W LED	78	0.78	60.84	8	21.5W LED PAR LOW	48	0.75	36.00	60.84	36.00
412	Teacher Road School	CONFERENCE ROOM	4	4.0 18.5W LED	98	0.98	392.08	4	21.5W LED PAR LOW	48	0.75	36.00	392.08	36.00
413	Teacher Road School	OFFICE - Open	1	4.0 18.5W LED	98	0.98	97.02	1	21.5W LED PAR LOW	48	0.75	36.00	97.02	36.00
414	Teacher Road School	OFFICE - Open	2	4.0 18.5W LED	98	0.98	194.04	2	21.5W LED PAR LOW	96	0.75	72.00	194.04	72.00
415	Teacher Road School	OFFICE - Open	3	4.0 18.5W LED	98	0.98	291.06	3	21.5W LED PAR LOW	144	0.75	108.00	291.06	108.00
416	Teacher Road School	OFFICE - Open	6	21.5W LED PAR LOW	98	0.98	588.06	6	21.5W LED PAR LOW	48	0.75	36.00	588.06	36.00
417	Teacher Road School	DATA	3	LED	4	0.12	0.48	3	NO UPGRADE	4	0.12	0.48	0.48	0.48
418	Teacher Road School	PERIMETER	6	NO UPGRADE	34	0.20	6.80	6	NO UPGRADE	34	0.20	6.80	6.80	6.80
419	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED NEW 17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
420	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
421	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
422	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
423	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
424	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
425	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
426	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
427	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
428	Teacher Road School	PERIMETER	6	17W LED PAR W/ RATED PHOTOCELL	14	1.08	15.12	6	17W LED PAR W/ RATED PHOTOCELL	14	0.75	10.50	15.12	10.50
				TOTAL	2,150		178,809			2,140		166,866		166,866

Building Envelope



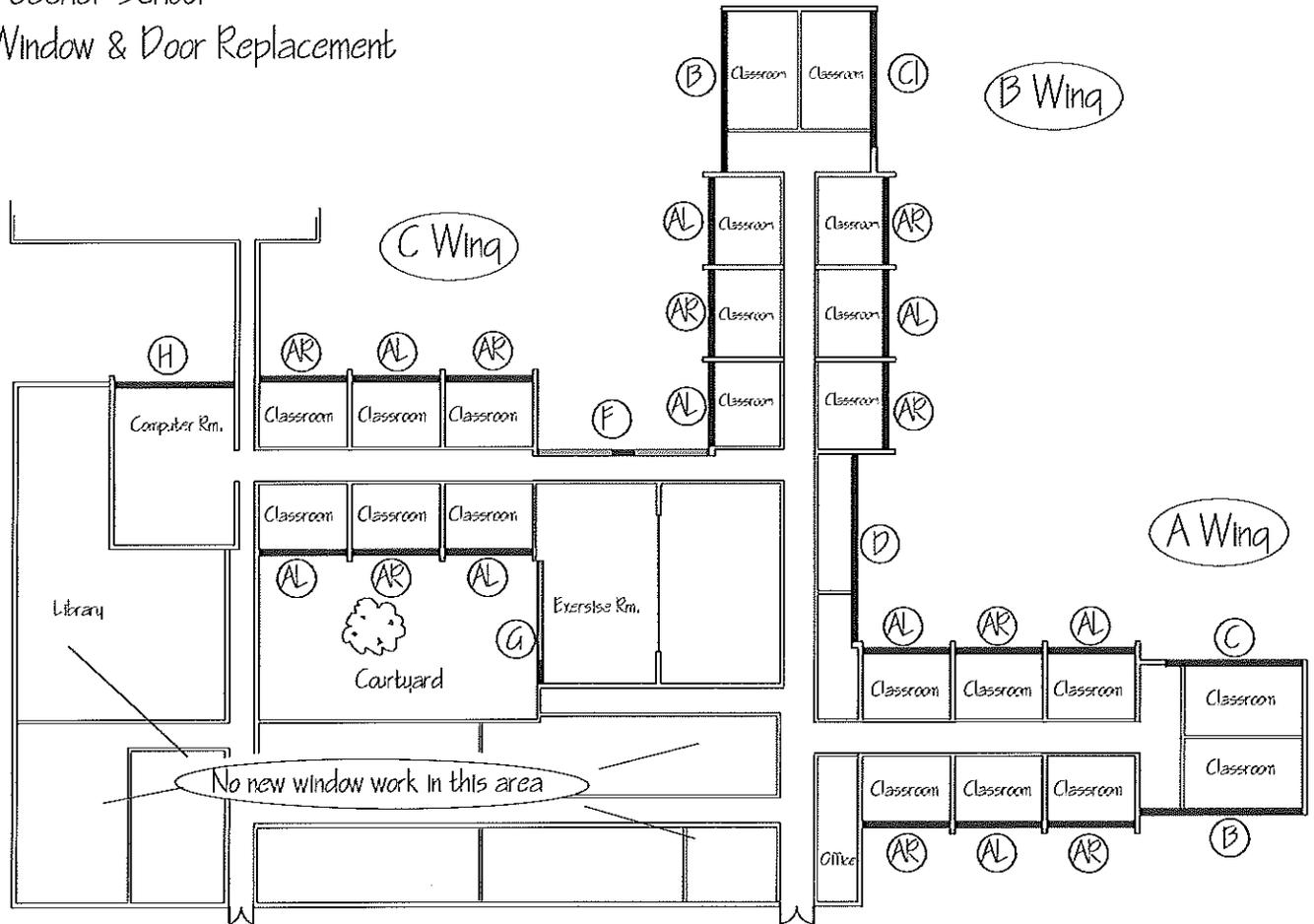
ESG ENERGY SYSTEMS GROUP

- | | | |
|--|--|---|
|  GARAGE DOOR |  THERMAX "I-BEAM" |  INSULATE & SEAL ROOF WALL BETWEEN POOL & RAMP |
|  SEAL ROOF WALL |  BLOWER DOOR DIRECTED AIR SEALING |  WEATHERSTRIP DOORS |

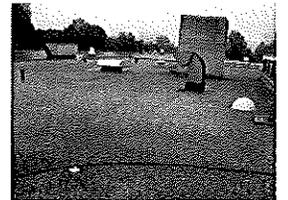
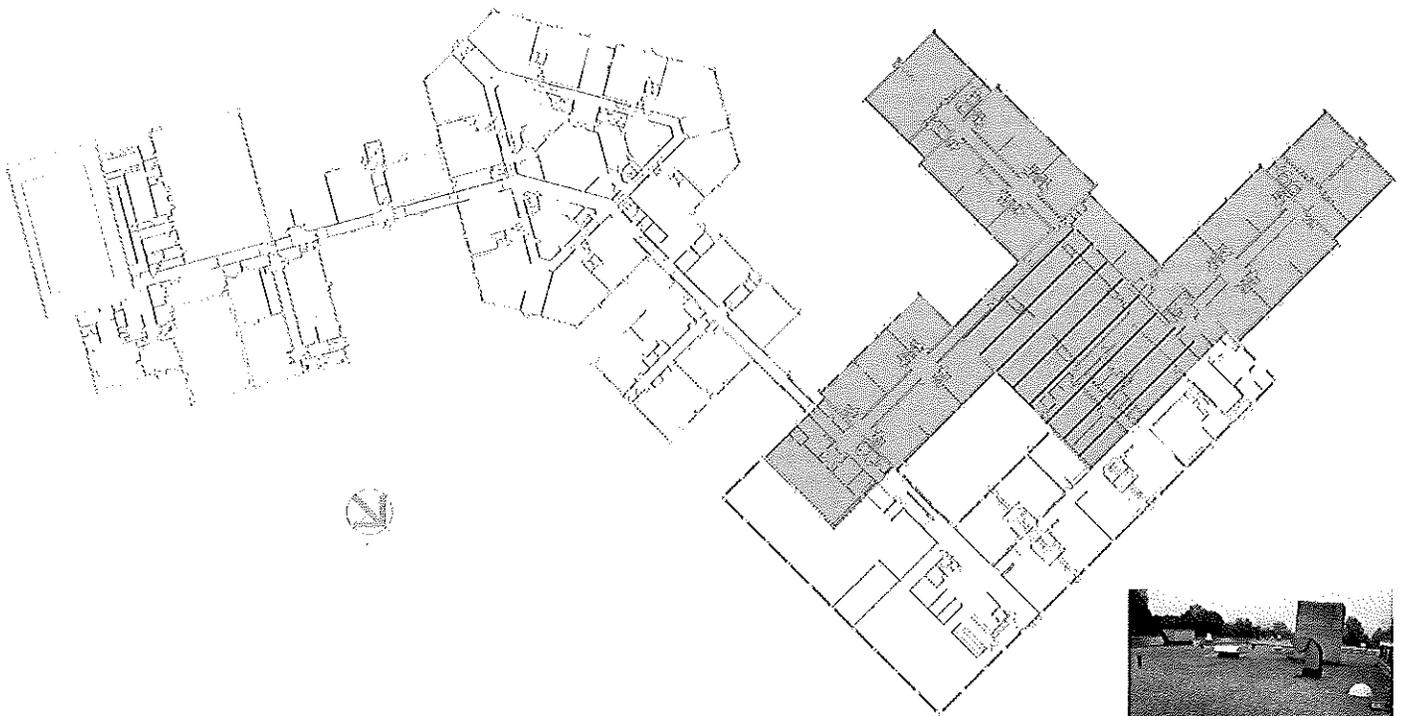
EXHIBIT A-2

A-32

A & A Window Products
Beecher School
Window & Door Replacement



Roof



ESG ENERGY SYSTEMS GROUP

ENERGY STAR ROOF SYSTEM - PVC
ADDITIONAL ROOF DRAIN
PHOTOVOLTIAIC

New Ceiling Works

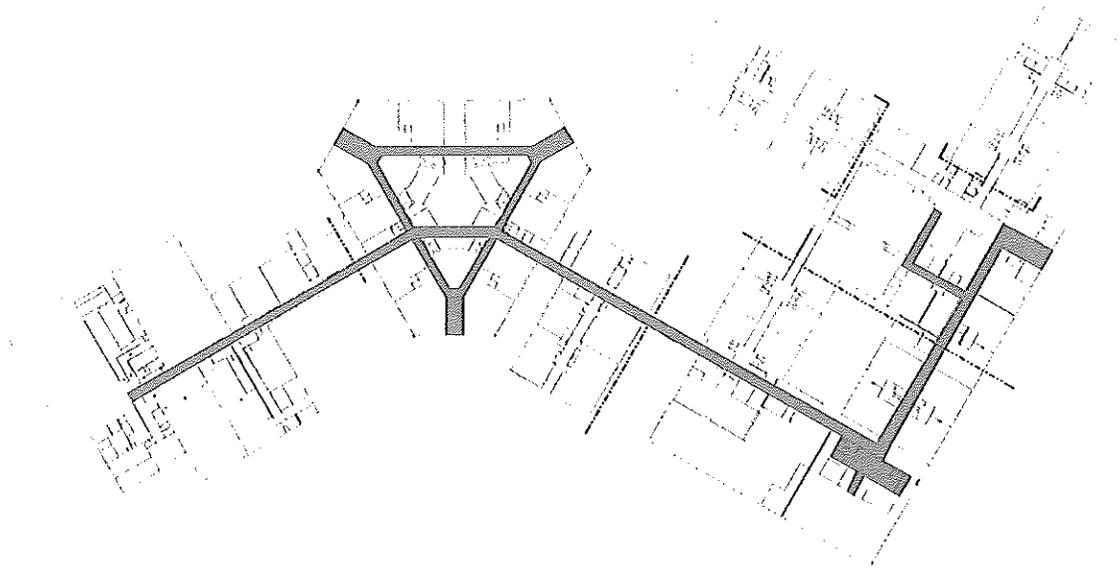
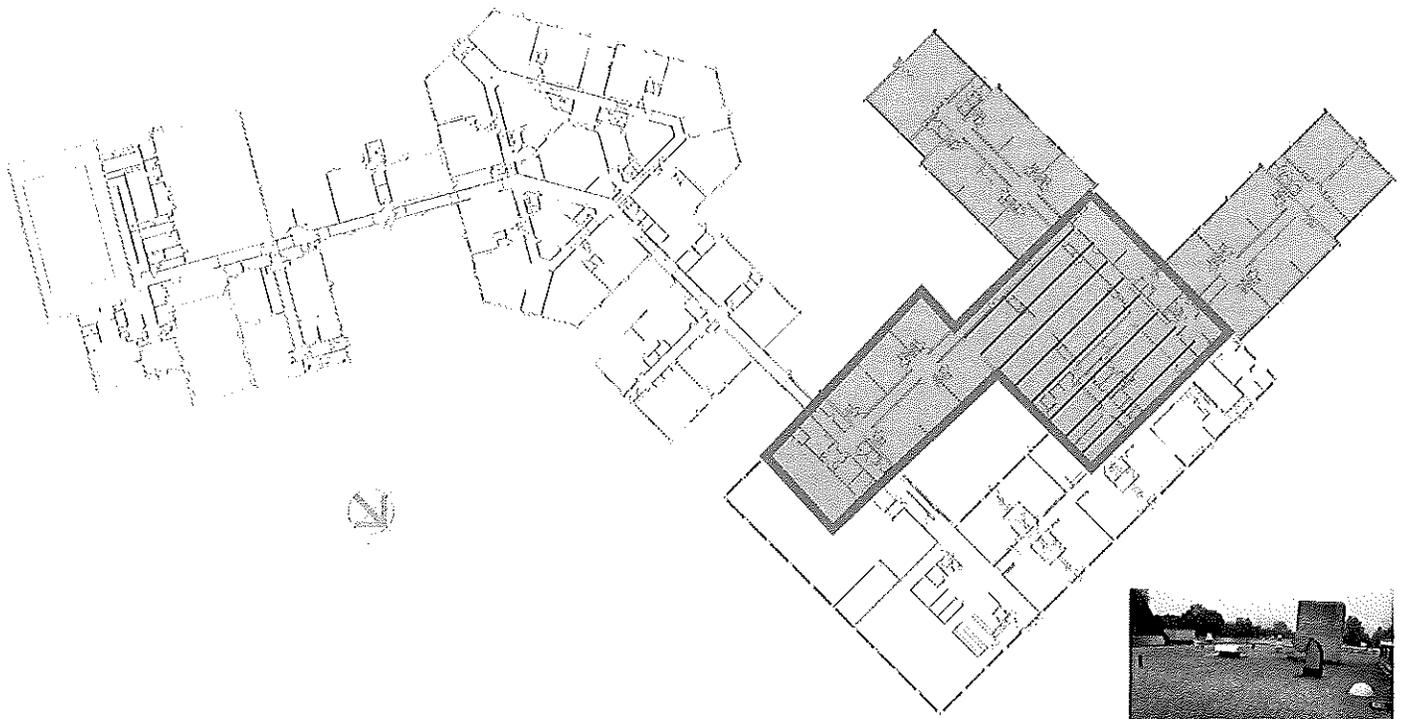


EXHIBIT A-5



■ NEW TILES ONLY

FV LOCATION



ESG ENERGY SYSTEMS GROUP

 PHOTOVOLTIAIC

Proposed Caseworks & Sinks

TO MATCH EXISTING CASEWORKS

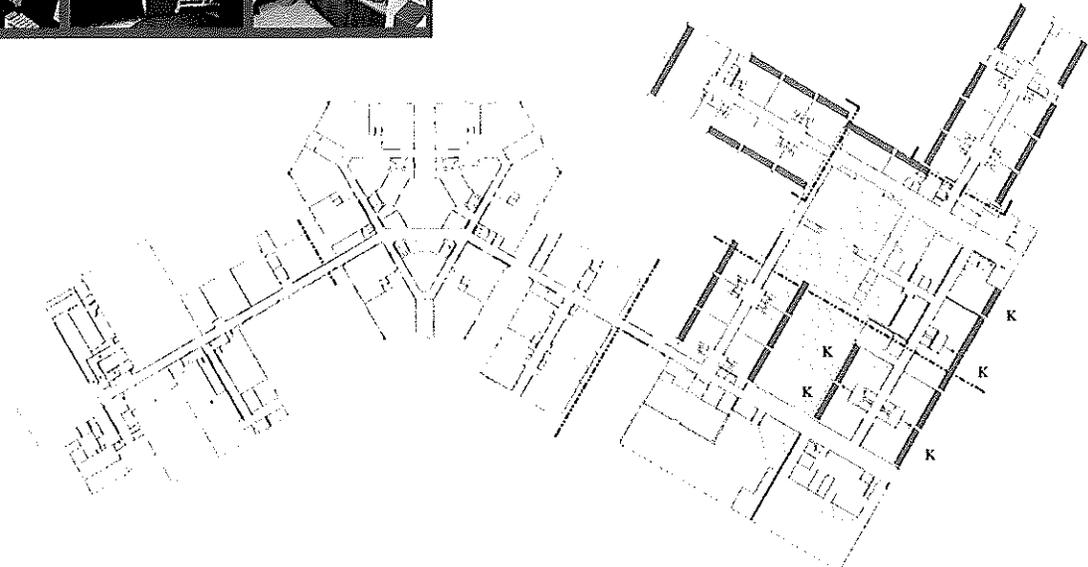
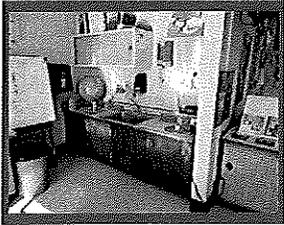
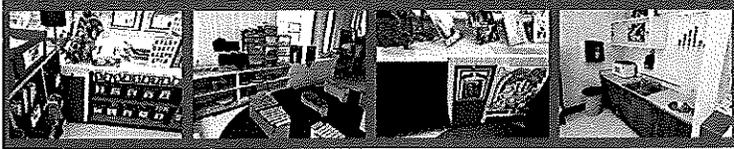


EXHIBIT A-7

Note: K wing mill work to replace 7-foot unit ventilators being removed

■ NEW CASEWORK & SINKS



Proposed Painting

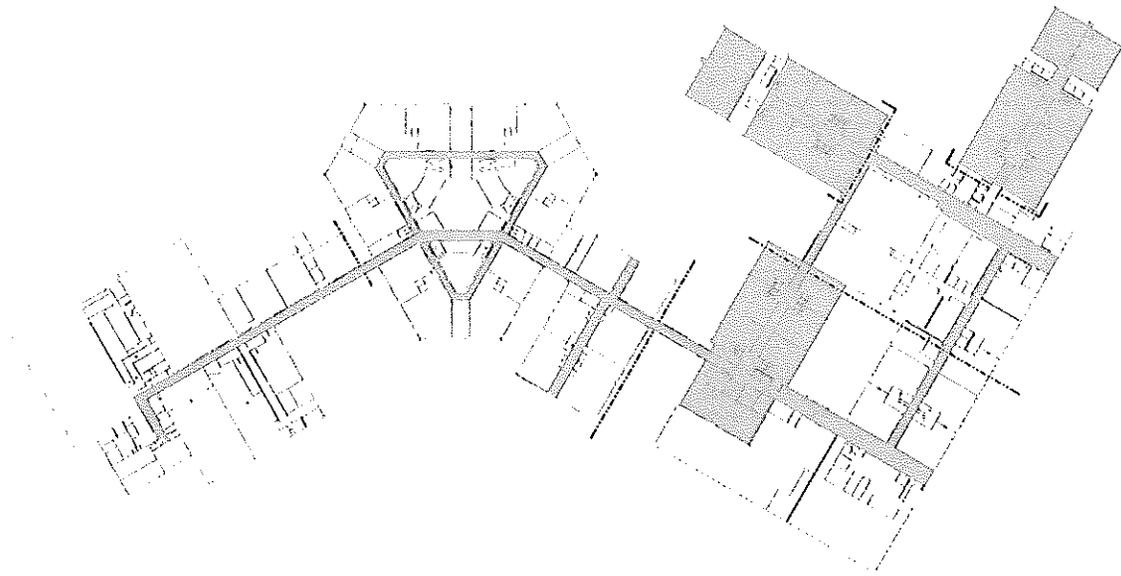
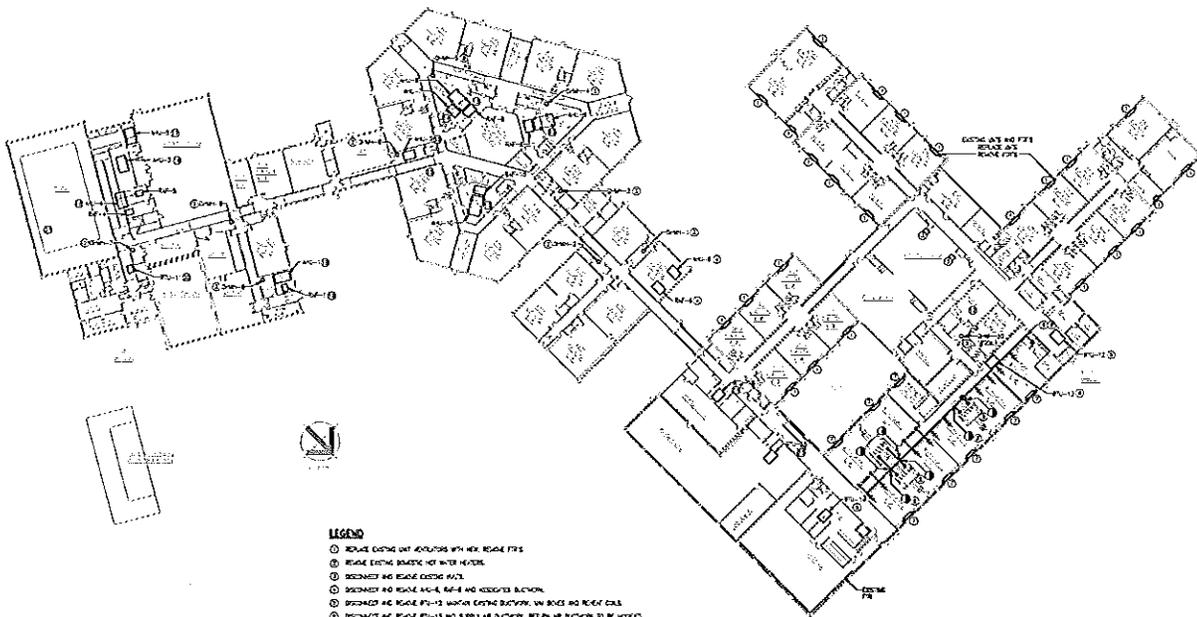


EXHIBIT A-8

ESG ENERGY SYSTEMS GROUP

■ NEW PAINT



LEGEND

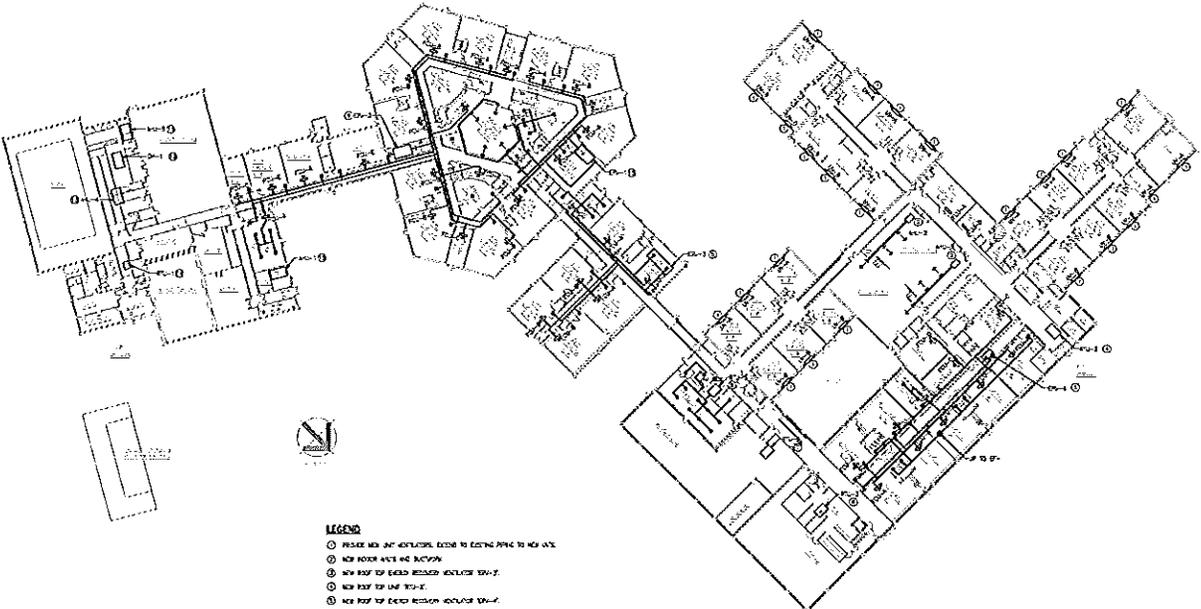
- ① REMOVE EXISTING UNIT AND INSTALL WITH NEW RETURN F11'S
- ② REMOVE EXISTING BRASSING HOT WATER HEATER
- ③ DISCONNECT AND REMOVE EXISTING PIPES
- ④ DISCONNECT AND REMOVE AHU-4, AHU-8 AND ASSOCIATED DUCTWORK
- ⑤ DISCONNECT AND REMOVE F11-12 WATER EXISTING RETURN, VAN BOXES AND REJECT COILS
- ⑥ DISCONNECT AND REMOVE F11-13 AND SUPPLY AIR DUCTWORK, RETURN AIR DUCTWORK TO BE REUSED
- ⑦ DISCONNECT AND REMOVE EXISTING AHU'S AND REMOVE EXISTING PIPES, DUCT PIPING
- ⑧ DISCONNECT TRUNK EXHAUST FROM BRASSING EXHAUST
- ⑨ DISCONNECT AND REMOVE EXISTING UNIT F10-14 EXISTING DUCTWORK TO REMAIN
- ⑩ DISCONNECT AND REMOVE EXISTING UNIT F11-15 EXISTING DUCTWORK TO REMAIN
- ⑪ DISCONNECT AND REMOVE EXISTING UNIT F11-16 EXISTING DUCTWORK TO REMAIN
- ⑫ REMOVE EXISTING BRASSING, PIPES AND OTHER APPURTENANCES
- ⑬ DISCONNECT AND REMOVE EXISTING UNIT AHU-4, AHU-8, AHU-12, F11-14, F11-15, F11-16 AND ASSOCIATED DUCTWORK
- ⑭ DISCONNECT AND REMOVE EXISTING UNIT AHU-7 AND ASSOCIATED DUCTWORK
- ⑮ DISCONNECT AND REMOVE EXISTING UNIT AHU-9 AND ASSOCIATED DUCTWORK
- ⑯ DISCONNECT AND REMOVE EXISTING UNIT AHU-10, ASSOCIATED DUCTWORK AND PIPING AS REQUIRED
- ⑰ DISCONNECT AND REMOVE EXISTING UNIT AHU-11, ASSOCIATED DUCTWORK AND PIPING AS REQUIRED. RETURN DUCTWORK FROM A LOAD ROOM SHALL BE DISCONNECTED FROM EXHAUST RETURN DUCTWORK
- ⑱ DISCONNECT AND REMOVE EXISTING UNIT AHU-14, ASSOCIATED DUCTWORK AND PIPING AS REQUIRED
- ⑲ DISCONNECT AND REMOVE EXISTING UNIT AHU-15, ASSOCIATED DUCTWORK AND PIPING AS REQUIRED. RETURN DUCTWORK FROM A LOAD ROOM SHALL BE DISCONNECTED FROM EXHAUST RETURN DUCTWORK
- ⑳ REMOVE EXISTING BRASSING, PIPES AND OTHER APPURTENANCES

No.	Date	Description

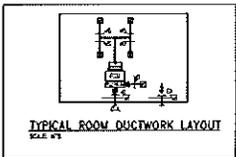
PROJECT
**Beecher Road School
 Woodbridge, CT**

DRAWING TITLE
MECHANICAL DEVOLUTION PLAN

Drawn By		Checked By	
Date	11/26/2013	Scale	1/8" = 1'-0"
Project No.	2013-001	Sheet No.	M-200



- LEGEND**
- ① FRESH AIR INT. AIRFLOW FROM TO EXISTING AIRING TO NEW AIR
 - ② NEW FRESH AIR INT. AIRFLOW
 - ③ NEW ROOF TOP EXHAUST RECYCLE EXHAUST TO ROOF
 - ④ NEW ROOF TOP EXHAUST
 - ⑤ NEW ROOF TOP EXHAUST RECYCLE EXHAUST TO ROOF
 - ⑥ NEW ROOF TOP EXHAUST, CONNECT TO EXISTING AIRFLOW, RECYCLE RECYCLE FROM MECH. SYSTEM
 - ⑦ NEW ROOF TOP EXHAUST, CONNECT TO EXISTING AIRFLOW
 - ⑧ NEW ROOF TOP EXHAUST, CONNECT TO EXISTING AIRFLOW, RECYCLE RECYCLE & PROVIDE AIR RECYCLE
 - ⑨ NEW ROOF TOP EXHAUST RECYCLE EXHAUST TO ROOF
 - ⑩ NEW AIR HANDLING UNIT (AHU), MECH. AIRFLOW AS REQUIRED
 - ⑪ NEW AIR HANDLING UNIT (AHU), MECH. AIRFLOW AS REQUIRED
 - ⑫ NEW AIR HANDLING UNIT (AHU), MECH. AIRFLOW AS REQUIRED
 - ⑬ NEW ROOF TOP EXHAUST, MECH. AIRFLOW AS REQUIRED
 - ⑭ NEW ROOF TOP EXHAUST RECYCLE EXHAUST TO ROOF



No.	DATE	DESCRIPTION

PROJECT
**Beecher Road School
 Woodbridge, CT**

DRAWING TITLE
MECHANICAL DUCTWORK PLAN

Drawn By	JK	Checked By	JK	Project No.	
Date	11/24/2013	Scale	1/8" = 1'-0"	M-300	
Project No.	13-004-004				

