

Energy Performance Contract (EPC) for the Somers CSD

Presented by: The ECG Group



Re-Introduction to The ECG Group

- Our job is to protect the District's interests – We perform all due diligence needed to ensure District receives optimal value for savings
- *Specialists* in Energy Performance Contract (EPC) Owner's Representative Services
- Comprehensive Service throughout the Project
- 125+ Successful EPC Projects – All meeting and exceeding guaranteed energy savings

"I can say without reservation that ECG's involvement in my EPC project has made it the smoothest process that I have experienced."

--Dr. Martin D. Handler

Superintendent, Pine Plains Central School District

Activity-To-Date & Initial Next Steps

Winter 2021

- Somers Board passed Resolution to appoint Johnson Controls to proceed with detailed Comprehensive Energy Audit (CEA)
 - ECG and District Administrators met with Johnson Controls to Kickoff the CEA process
-

April 2021

- EPC Voter Proposition and SEQRA Resolution passed at March 23rd Board Meeting
 - ECG and Johnson Controls to give an informational presentation, updating the Board on the progress of the Comprehensive Energy Audit
-

May 2021

- Johnson Controls to deliver CEA and Contract documents to ECG for final review
 - ECG and Johnson Controls to present finalized scope of work and financials
-

Somers Central School District

An Energy Conservation Plan





Project Overview

Energy Performance Contracting is:

An agreement that allows school districts to take budgeted utility and operational costs and reallocate them into energy saving capital Improvements without the need for Increased Taxes.

Energy Conservation
Measures (ECM) :
21

SED Payback:
17.9 years

Positive Cash Flow:
\$3.3M

Estimated Project
Cost: **\$8,900,000**

W / MBE
Participation:
31%

Energy Conservation Measures





Lighting – Interior & Exterior Retrofit

- LED Lighting throughout the District – **Over 6,900 Upgrades**
- New LED Fixture/Retrofit Kits with Adaptable Controls in Classrooms, Hallways, Cafés and Offices
- New LED High Bay with Adaptable Controls and wire guards in Gyms
- New LED Troffer Fixtures with Adaptive Controls at Middle School Library and Café
- Exterior: Existing Floods, Decorative, Wallpack to be converted to LED



Somers High School



Somers Middle School



Intermediate School



Lighting – Interior & Exterior Retrofit

- Wind Solar off-grid powered LED Light Pole with Somers CSD Banner – **At High School**

Exterior Upgrades	New Fixture	Re-Lamp	RLRB	NR	Totals
Primrose Elementary School	46	6		12	64
Somers High School	143	8	3	1	155
Somers Intermediate School	35	13		3	51
Somers Middle School	35	18		12	65
Totals	259	45	3	28	335



Interior Upgrades	New Fixture	Retrofit Kit	RLRB	Re-Lamp	RLDW	NR	Dis	Totals
Primrose Elementary School	39	511	530	150	2	18		1250
Somers High School	163	590	1290	354		91	1	2489
Somers Intermediate School	138	973	89	59				1259
Somers Middle School	125	638	666	311		17		1757
Totals	465	2712	2575	874	2	126	1	6755



Energy Management System

■ Temperature Setback

- Eliminate all the Pneumatics and covert to Full DDC at all Schools
- Single Platform Front-end at all Schools (JCI FX – 80)
- Pneumatic to DDC Conversion of Boilers, AHUs, RTUs, UVs, Heating and Cooling End Devices
- Boiler Room Automatic Temperature Control

Building	# of Boiler Rooms
High School	2
Middle School	2
Primrose School	1
Total	5

- Air Handling Unit DDC Refit

Building	AHU/RTU/HV
High School	18
Middle School	14
Intermediate School	12
Primrose School	3
Total	47



BMS Panel at High School



Exhaust Fans at Primrose School



Energy Management System

- End Devices DDC Conversion

Building	Pneumatic T-stat	UV (P)	Rad Controlled	Rad No Control	DDC Stat	UV- DDC	FCU	UH	Conv	ETS
High School	76	8	90	8	42	0	3	1	12	2
Middle School	40	20	87	4	53	4	6	0	4	12
Intermediate School	1	0	18	1	63	11	0	0	6	1
Primrose Elementary	73	21	66	6	3	0	8	0	3	9
Total	190	49	261	19	161	15	17	1	25	24

- DDC Reheat Zones at Intermediate School - 59



■ Demand Controlled Ventilation – 8 AHUs

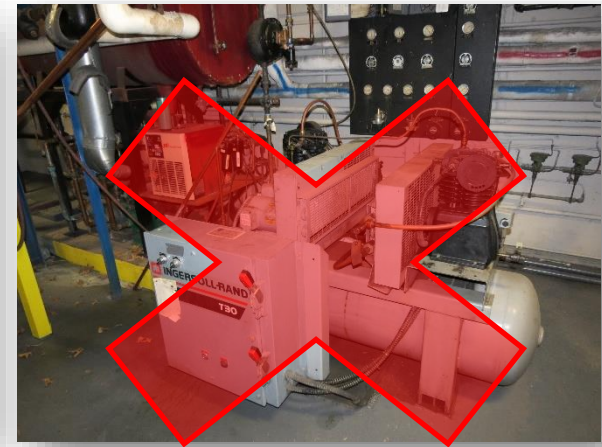
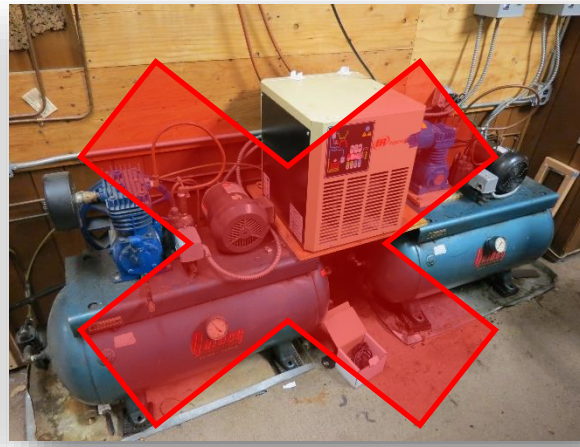
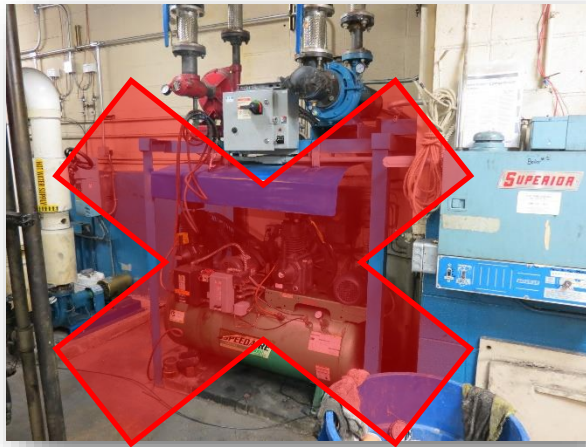
- High School : Auditorium (2)
- High School: New Gymnasium (2)
- Middle School: Auditorium (2)
- Middle School: Gymnasium (1)
- Intermediate School: Auditorium/Gym (1)



Energy Management System

- Exhaust Fans DDC Controls & BMS Integration
- Eliminates all the Pneumatic Compressors

Building	Exhaust Fan Count	Kitchen Hood Exhausts
High School	34	2
Middle School	21	1
Intermediate School	14	1
Primrose School	42	1

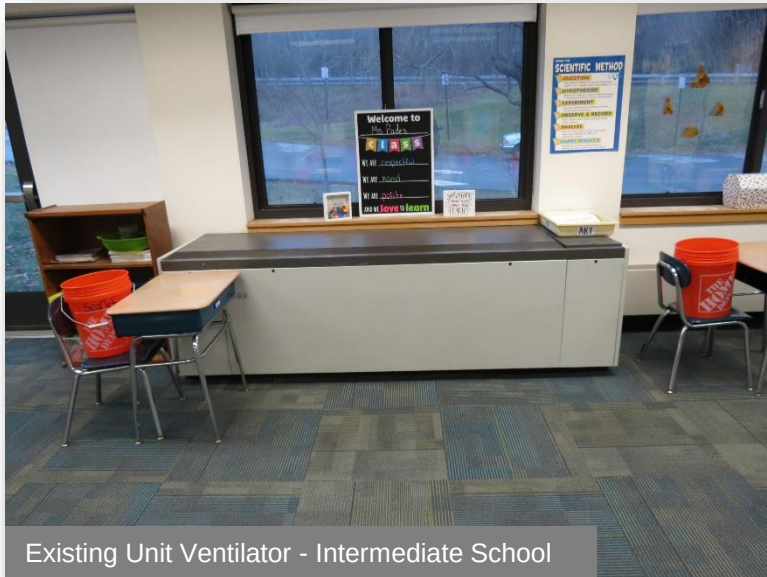


Existing Compressors at the School District

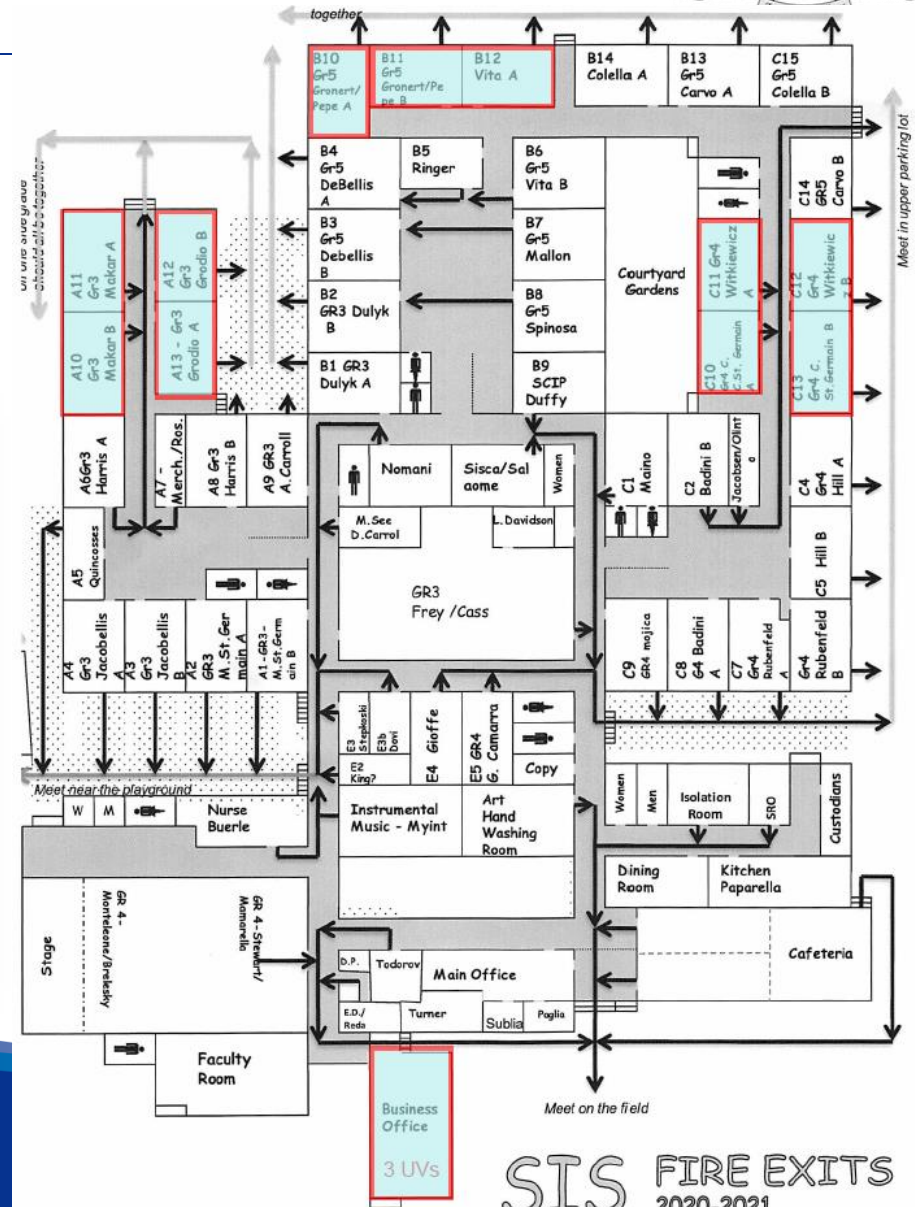
Unit Ventilators Replacement



- New Floor Mounted Air Source Heat Pump Unit Ventilator –**Fourteen (14)** at Intermediate School



Existing Unit Ventilator - Intermediate School



SIS FIRE EXITS
2020-2021



Air Handling Unit/RTU Replacement

- New High Efficiency RTUs – **Three (3) at Primrose School**
 - Carrier RTU-1: 3 Ton
 - Carrier RTU-2: 6 Ton
 - Carrier RTU-3: 7.5 Ton

- Single Zone VAV Fan Operation Capacity – IntelliSpeed Control with VFD

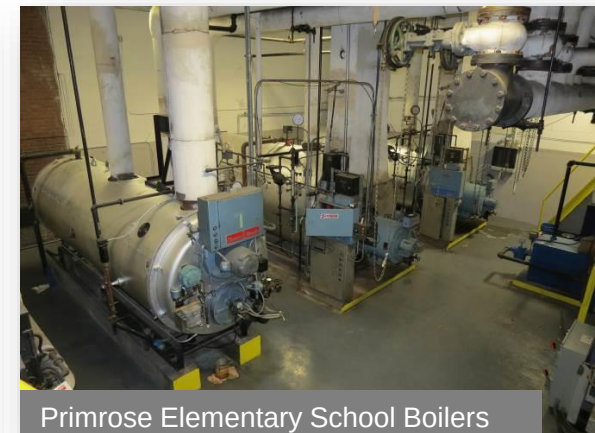




Boilers Replacement

- New Unilux oil-fired steam boilers at **High School, Middle School and Primrose Elementary School.**
- New Boiler Plants at three (3) buildings
- New Heat Exchanger at the Primrose Elementary School
- Linkageless Dual fuel burners with provision for combustion air

Building	Number of Boilers
Somers High School (Original Boiler Room)	2
Somers Middle School (1954 Boiler Room)	2
Primrose Elementary School	3
Total	7

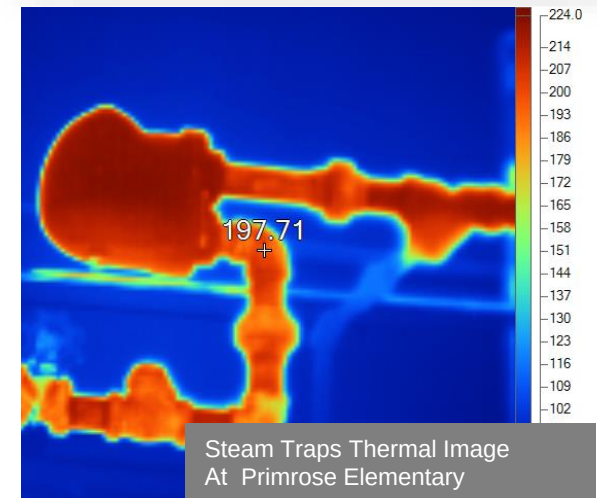
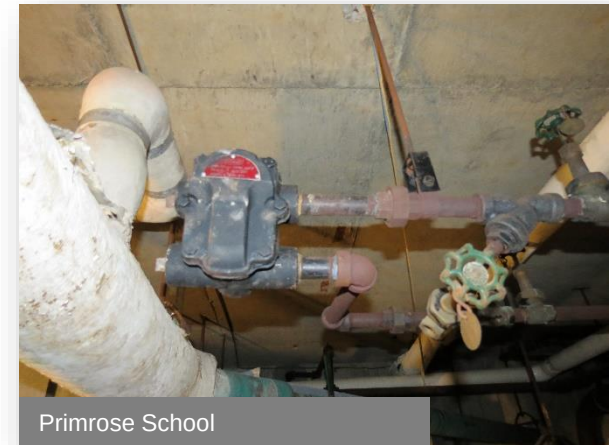




Steam Traps Replacement

- New Barnes & Jones Float & Thermostatic (F&T) and Thermostatic Steam Traps– **167 total**
- New Thermostatic Radiator Valves (TRV) – **48 total**
- Comprehensive Steam Traps Replacement with full Attic Stock

Building	Thermostatic Rebuilds (QTY)	F&T or Bucket (QTY)	Steam TRV (QTY)
Middle School	56	27	16
Primrose School	51	33	32
Totals	107	60	48





Domestic Hot Water System Replacement

- New AO Smith Heat Pump Domestic Hot Water Heater at **High School** and **Middle School**
- New 200-gallon storage tanks



High School



Middle School



Proposed New DHW Heater

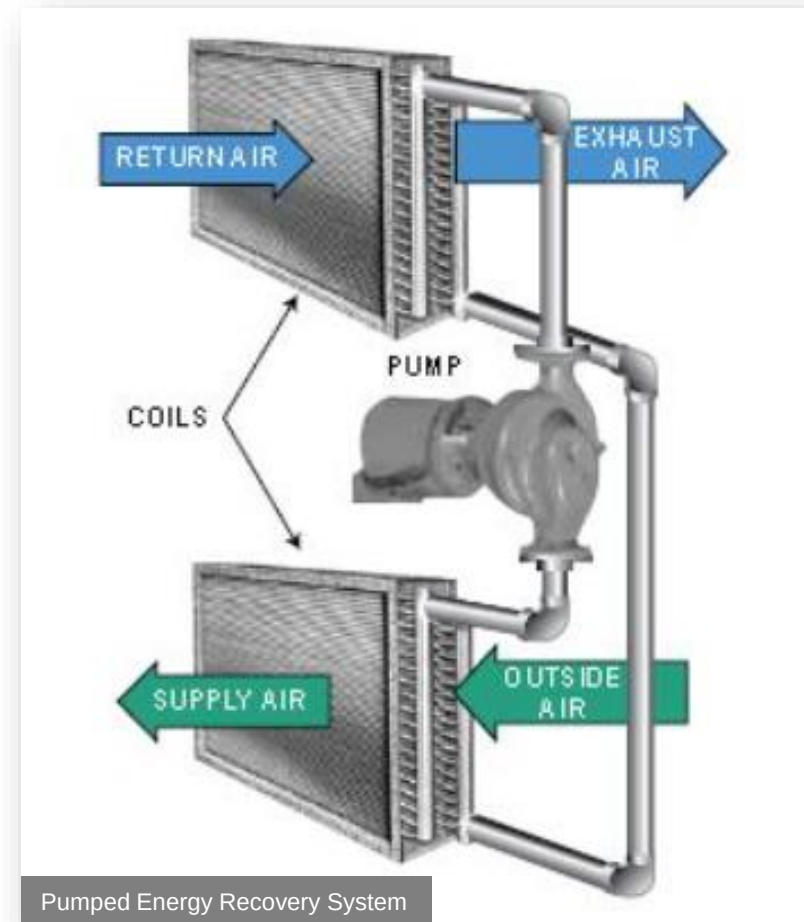


Heat Recovery System

- Coil Base Run-around loop Heat Recovery System for **Middle School** Classroom Ventilation System
- Transfers energy between the exhaust air duct and intake air duct of air handlers.



Existing AHU Exhaust



Pumped Energy Recovery System



Energy Conservation Measures – Other Measures

Building Envelope - Weatherization

Energy Efficient Motors Replacement

Heating System – Boiler/DHW Controllers

Heating System - Pipe and Valve Insulation

Refrigeration Compressor Replacement

Refrigeration Compressor Controllers

Water Conservation

Computer Power Management

Energy Efficient Transformers

Plug Load Controllers

Vending Machine Controllers

AC Compressor Controllers

Cost and Savings Summary





Positive Cash Flow!

Yr	A1 NYSED Building Aid	A2 Annual Energy Cost With Out Savings	A3 Annual Energy Cost with Improvements	A=A2-A3 Annual Energy Savings	B Annual O&M savings	C Estimated Rebate Program	D=A1+A+B+C Total Annual Savings	G=E+F Net Annual Costs	D+E Annual Cash Flow	Cumulative Cash Flow
1	\$249,214	\$979,955	\$569,955	\$410,000	\$71,662	\$210,000	\$940,876	(\$724,768)	\$216,108	\$216,108
2	\$249,214	\$999,554	\$581,354	\$418,200	\$73,095	\$0	\$740,509	(\$724,768)	\$15,741	\$231,849
3	\$249,214	\$1,019,546	\$592,982	\$426,564	\$74,557	\$0	\$750,335	(\$724,768)	\$25,567	\$257,417
4	\$249,214	\$1,039,936	\$604,841	\$435,095	\$76,048	\$0	\$760,358	(\$724,768)	\$35,590	\$293,006
5	\$249,214	\$1,060,735	\$616,938	\$443,797	\$77,569	\$0	\$770,580	(\$724,768)	\$45,812	\$338,819
6	\$249,214	\$1,081,950	\$629,277	\$452,673	\$79,121	\$0	\$781,008	(\$724,768)	\$56,240	\$395,058
7	\$249,214	\$1,103,589	\$641,862	\$461,727	\$80,703	\$0	\$791,644	(\$724,768)	\$66,876	\$461,934
8	\$249,214	\$1,125,661	\$654,700	\$470,961	\$82,317	\$0	\$802,492	(\$724,768)	\$77,724	\$539,658
9	\$249,214	\$1,148,174	\$667,793	\$480,380	\$83,963	\$0	\$813,558	(\$724,768)	\$88,790	\$628,448
10	\$249,214	\$1,171,137	\$681,149	\$489,988	\$85,643	\$0	\$824,845	(\$724,768)	\$100,077	\$728,525
11	\$249,214	\$1,194,560	\$694,772	\$499,788	\$87,356	\$0	\$836,357	(\$724,768)	\$111,589	\$840,114
12	\$249,214	\$1,218,451	\$708,668	\$509,783	\$89,103	\$0	\$848,100	(\$724,768)	\$123,332	\$963,446
13	\$249,214	\$1,242,820	\$722,841	\$519,979	\$90,885	\$0	\$860,078	(\$724,768)	\$135,310	\$1,098,756
14	\$249,214	\$1,267,677	\$737,298	\$530,379	\$92,702	\$0	\$872,295	(\$724,768)	\$147,527	\$1,246,284
15	\$249,214	\$1,293,030	\$752,044	\$540,986	\$94,556	\$0	\$884,757	(\$724,768)	\$159,989	\$1,406,272
16	\$0	\$1,318,891	\$767,085	\$551,806	\$96,448	\$0	\$648,254	\$0	\$648,254	\$2,054,526
17	\$0	\$1,345,269	\$782,427	\$562,842	\$98,377	\$0	\$661,219	\$0	\$661,219	\$2,715,745
18	\$0	\$1,372,174	\$798,075	\$574,099	\$100,344	\$0	\$674,443	\$0	\$674,443	\$3,390,188
Total	\$3,738,209	\$20,983,109	\$12,204,061	\$8,779,048	\$1,534,449	\$210,000	\$14,261,706	(\$10,871,519)	\$3,390,188	\$3,390,188

2.75% Interest Rate & 38.5% SED Aid



Draft Cash Flow

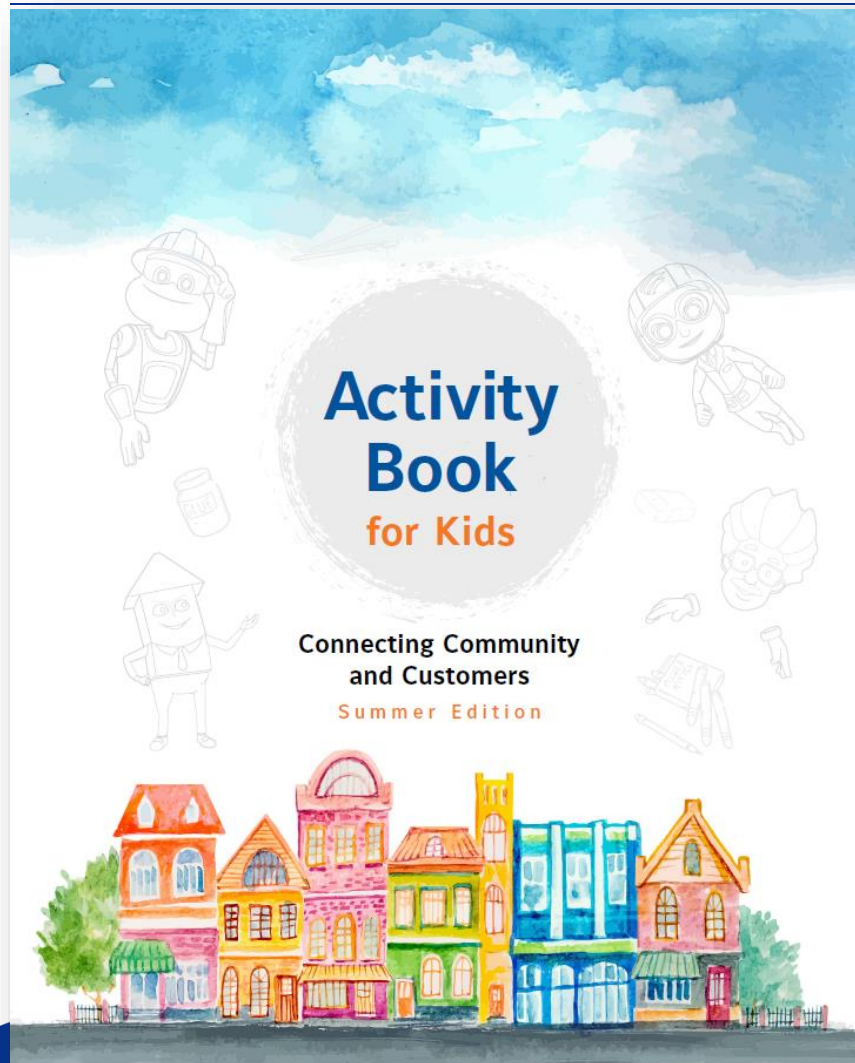
Proposed Project at 2.75% interest rate and 38.5% NYSED aid

	Year 1
Estimated Tax exempt lease payment	(\$724,768)
Estimated Annual Energy Savings	\$410,000
Estimated Annual O&M Savings	\$71,662
Estimated NYSED aid	\$249,214
Estimated Rebates	\$210,000
Net cash flow to District	\$216,108

M&V Services at No Additional Cost to the District: For three (3) years.



Johnson Controls Student Support



- Various Offerings through K-12 Programs
- Designed for Kindergarten to Senior Classes
- Johnson Controls Offers to Teach AP Science Class
- STEAM Students Field Trip to Carport Manufacturing Facility in Long Island

Brought to you by

The power behind your mission



Johnson Controls: Confidential





Project Timeline

JCI to Perform DEA with Input from ECG & District: Apr 2021

BOE to Authorize EPC: May 2021

JCI to provide design criteria to ECG: Jun 2021

ECG to prepare submission to SED: Aug 2021

SED Approval & Financing: Oct 2021

Construction Commences Nov 2021

Final Completion: Oct 2022

Questions?

