

LYME-OLD LYME SCHOOLS

Regional School District #18

A Private School Experience



in a Public School Setting

PK-8 Building Committee Meeting

September 18, 2023

Committee Members Present: Steve Wilson, Chair; Mary Powell St. Louis, Vice-Chair; Ken Biega; Richard Conniff; John Hartman; Thomas Kelo (via Zoom); Andy Russell; Alan Sheiness; Cara Zimmerman

Administration Present: Ian Neviaser, Superintendent of Schools; Ronald Turner, Director of Facilities & Technology; Brian Howe, Assistant Director of Facilities; Mark Ambruso, Principal of Lyme-Old Lyme Middle School; Kelly Enoch, Principal of Mile Creek School; Allison Hine, Principal of Lyme Consolidated School; Noah Ventola, Assistant Principal of Lyme-Old Middle School

The meeting was called to order by Vice Chairwoman Mary Powell St. Louis at 6:01 p.m.

Approval of Minutes of August 21, 2023 Meeting

MOTION: Mr. Hartman made a motion, which was seconded by Mr. Sheiness, to approve the minutes of the August 21, 2023 meeting.

VOTE: the committee voted unanimously in favor of the motion.

Architect and Construction Manager Updates

David Stein and Dean Petrucelli of Silver Petrucelli and Associates; Waseem Khoury of CES Engineering; and Jeff Anderson of Downes Construction gave a presentation to the building committee with the following agenda items:

- Mile Creek Addition Design Updates
- Security Vestibule Updates
- HVAC Life Cycle Operational Systems Comparison
- Updated Project Budget and Schedules

The presentation is attached to these minutes for informational purposes.

Areas of discussion included concerns raised over the glass area for the connector addition at Mile Creek School. There was consensus that the architects should design for less glass for security reasons with the glass line moved up. To make up for lack of sunlight this will cause, more glass will be used for the interior corridor overlooking the courtyard. Mr. Petrucelli will send the changes to the committee by the end of the week.

The committee discussed the pros and cons of moving to propane vs. oil heating and whether the cost associated with propane would be worth the changeover in systems. Noting that the majority of the current boilers are at end of life, the committee requested that Mr. Khoury provide additional comparison information (life cycle cost analysis) on propane vs. oil systems.

The committee discussed the revised conceptual estimate provided during the budget presentation which reflected an overage of \$459,203 as of September 5 with \$4.6 million in contingency. Before further discussion on reducing the scope can take place, the project must move into the schematic design phase to reach more defined costs.

The committee discussed Mile Creek School and Lyme Consolidated School being exempt from installation of fire sprinkler systems because of the way they are structured (not age of building). Mr. Petrucelli advised that it is usually more cost effective to sprinkler a building vs. other accommodations for safeguarding the buildings; in addition, there are secondary savings such as property insurance.

Review of Pending Project Invoices

Mr. Turner advised the committee on project invoices totally approximately \$192,368 paid to Silver Petrucelli and Associates.

Committee Discussion

Mr. Conniff made a request that Mr. Khoury also consider the carbon footprint in his HVAC analysis.

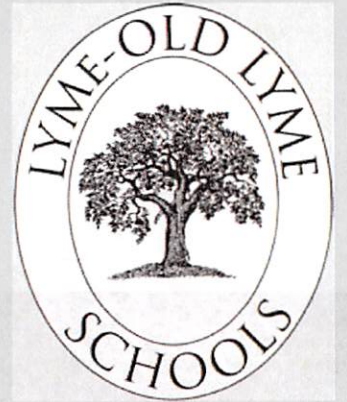
It was noted that these meetings will be scheduled the third Monday of the month.

The meeting was adjourned at 7:29 p.m. upon a motion by Mr. Conniff and a second by Mr. Russell.



REGION 18 SCHOOL RENOVATION PROJECTS

Building Committee Meeting 2
September 18, 2023



AGENDA

Mile Creek Addition Design Updates

Security Vestibule Updates

- Center School
- Lyme/Old Lyme Middle School
- Lyme Consolidated School
- Mile Creek School

HVAC Life Cycle Operational Systems Comparison

- Center School
- Lyme/Old Lyme Middle School
- Lyme Consolidated School
- Mile Creek School

Updated Project Budget & Schedules



REGION 18 SCHOOL RENOVATION PROJECTS

- **Center School**

37,000 sf

HVAC Upgrades

Security/Code Upgrades



- **Lyme/Old Lyme Middle School**

88,000 sf

HVAC Upgrades

Security/Code Upgrades



- **Lyme Consolidated School**

35,000 sf

HVAC & FP Upgrades

Security/Code Upgrades



- **Mile Creek School**

53,000 sf

8,600 sf addition

HVAC & FP Upgrades

Security/Code Upgrades



PROJECT TEAM

■ SP+A

Architecture
MEP Engineering



David Stein, AIA
Principal in Charge



Dean Petrucelli, AIA
Design Principal
Project Director



Tanya Cutolo, AIA, LEED AP
Project Manager



Mat Begin
MEP Project Manager

■ Benesch

Civil Engineering



Will Walter, PE, LEED AP
Senior Associate

■ CES

MEP Engineering



Matt Couceiro
Project Manager



Waseem Khoury, PE
Senior Mechanical Engineer



Derek Bride, PE
Principal in Charge

■ Downes

Construction Manager



Tom Romagnoli
Project Executive



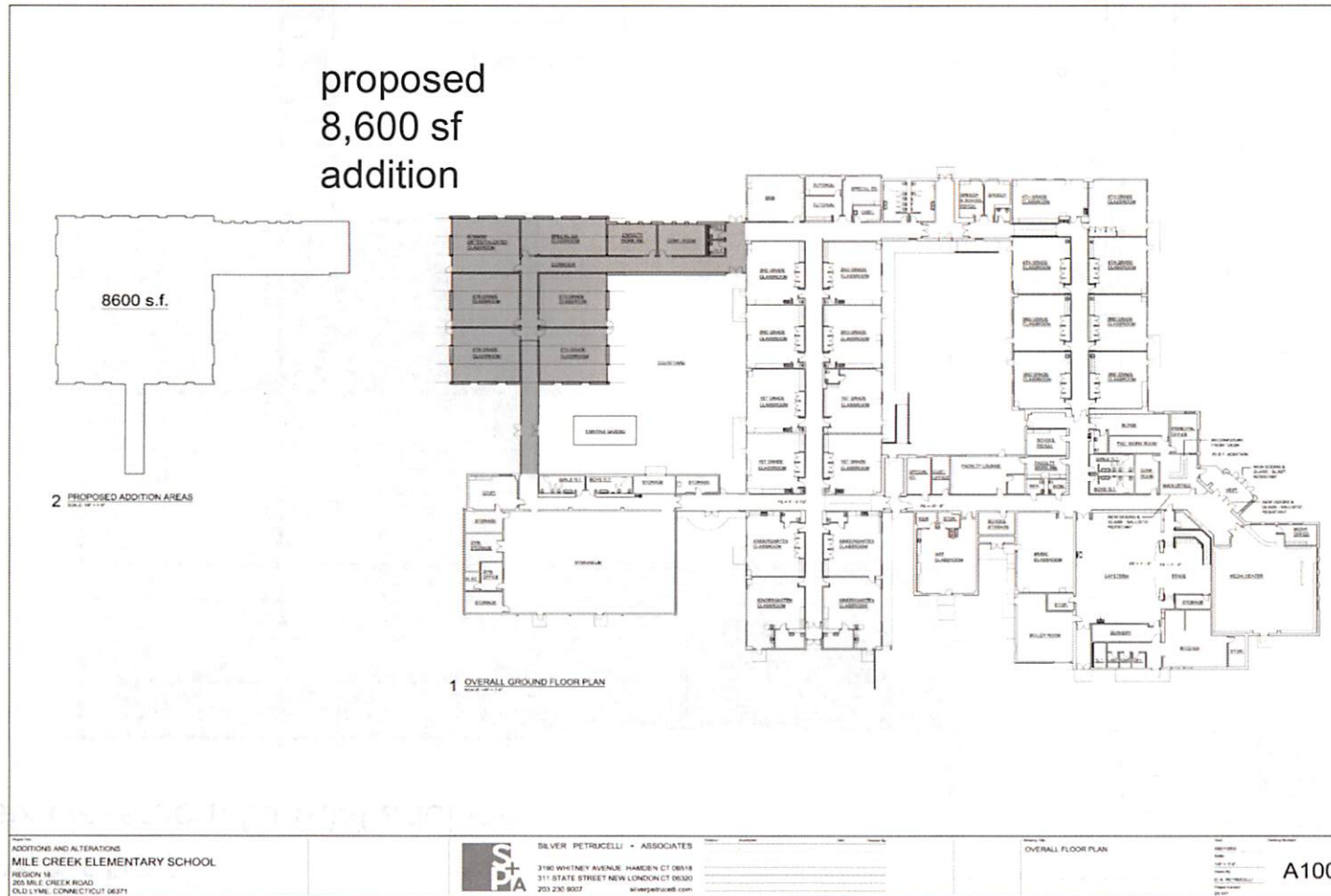
Jeff Anderson
Preconstruction Manager



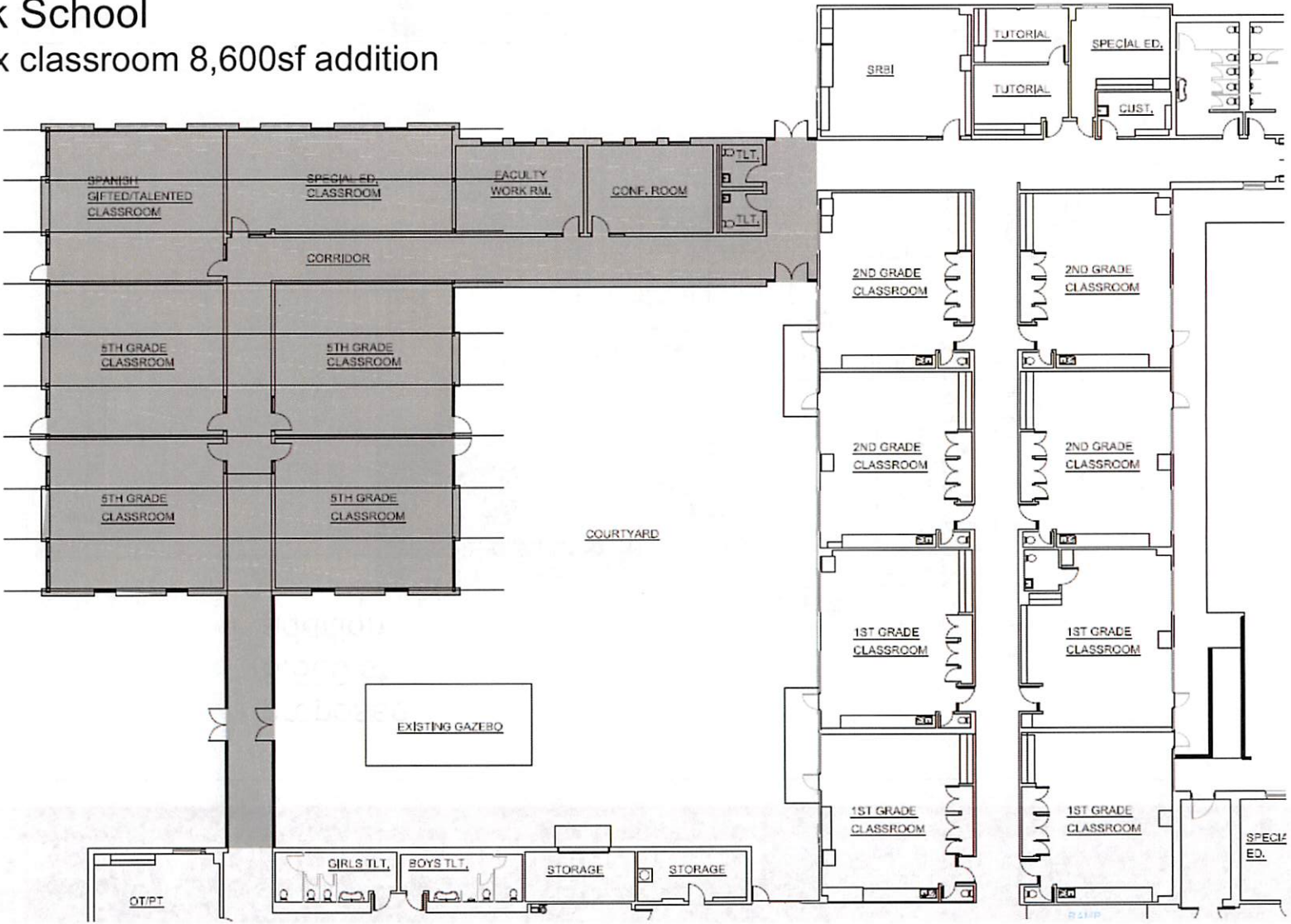
Ryan Patrick
Senior Estimator



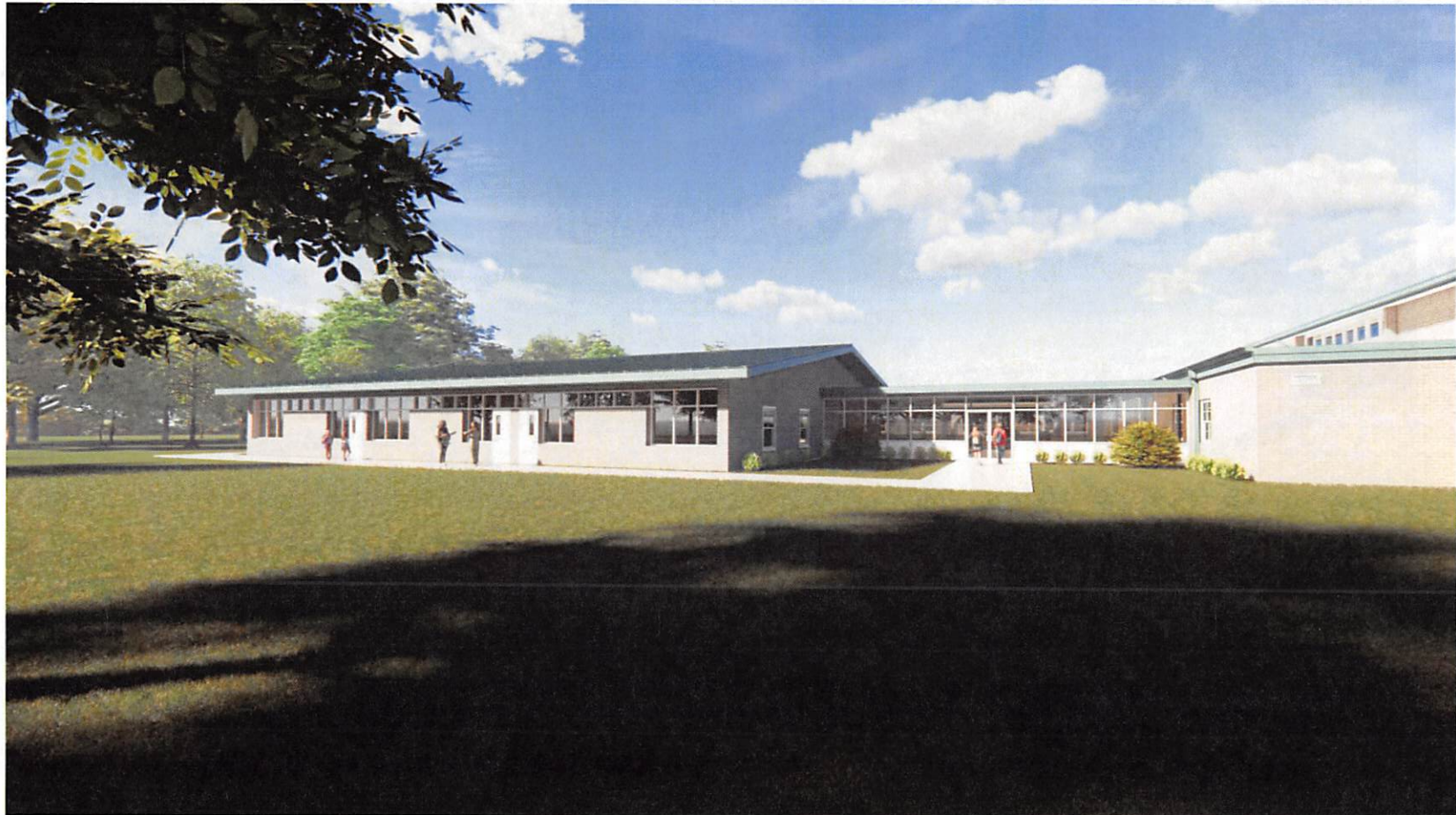
MILE CREEK ADDITION DESIGN UPDATES



Mile Creek School
Proposed six classroom 8,600sf addition



Mile Creek School Addition Updates



Mile Creek School Addition Updates



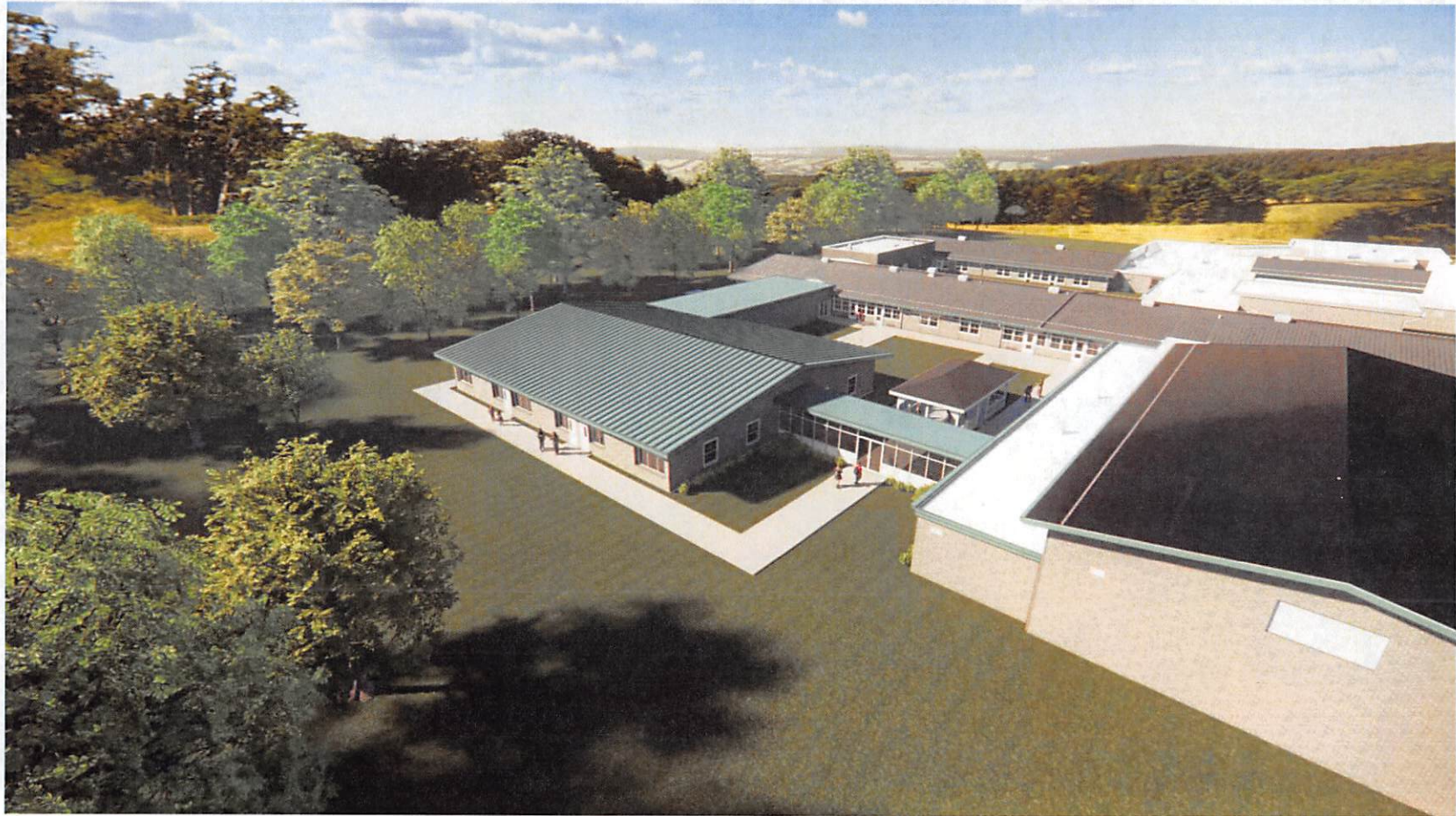
Mile Creek School Addition Updates



Mile Creek School Addition Updates



Mile Creek School Addition Updates



Mile Creek School Addition Updates



Mile Creek School Addition Updates



SECURITY VESTIBULE UPDATES

- Center School
- Lyme/Old Lyme Middle School
- Lyme Consolidated School
- Mile Creek School



HVAC LIFE CYCLE OPERATIONAL SYSTEMS COMPARISON

- Lyme/Old Lyme Middle School
- Center School
- Lyme Consolidated School
- Mile Creek School



Benefits to the HVAC Upgrades

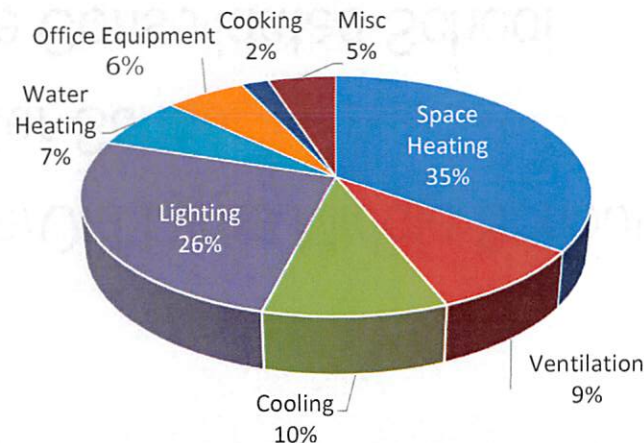


Environmental Responsibility: Less carbon footprint & cleaner air

Health: Improved indoor air quality and acoustics for students & staff

Teach by Example: Region 18 implementing the Town's commitment to decarbonization

Economic: Efficiency & simplified controls/maintenance



Building Energy Distribution

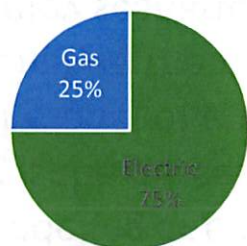


Proposed HVAC Upgrades for all schools

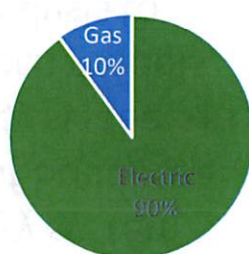


- ✓ Install a new advanced Building Management System (BMS)
- ✓ Replace the Boiler System with High-Efficiency System
- ✓ Perimeter Heating
- ✓ Heat Pump Rooftop/DOAS units

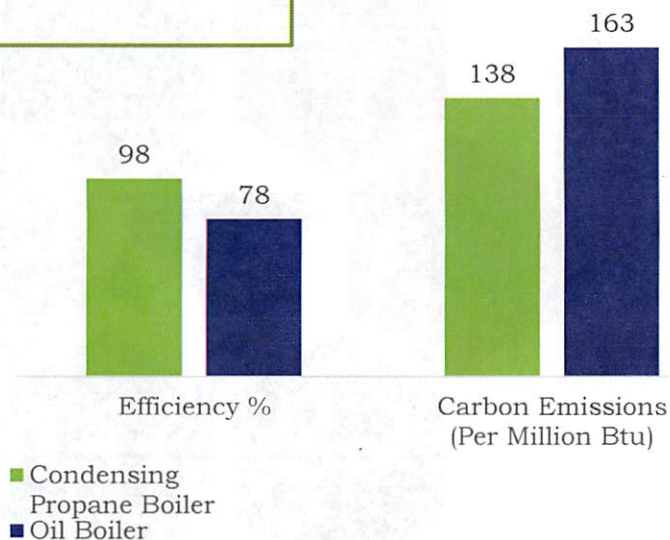
VAV System



VRF System



Proposed HVAC Systems
Gas vs Electric



Proposed Boiler Replacement
Oil vs Propane



Energy Modeling



Energy modeling or energy system modeling is the process of building a computer model of energy systems in order to analyze them. Such models often employ scenario analysis to investigate different assumptions about the technical and economic conditions at play.

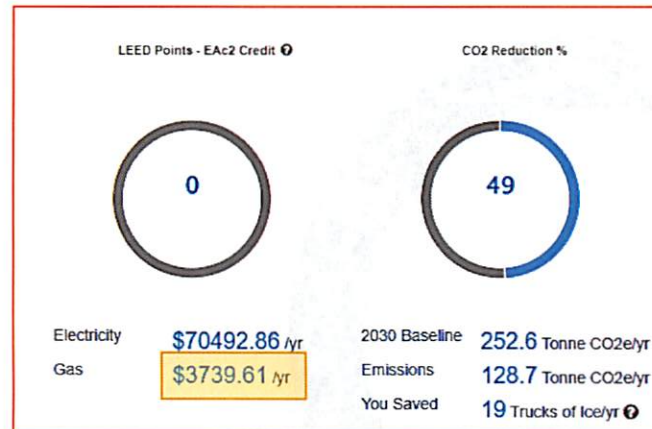


Factors Impacting Modeling Accuracy



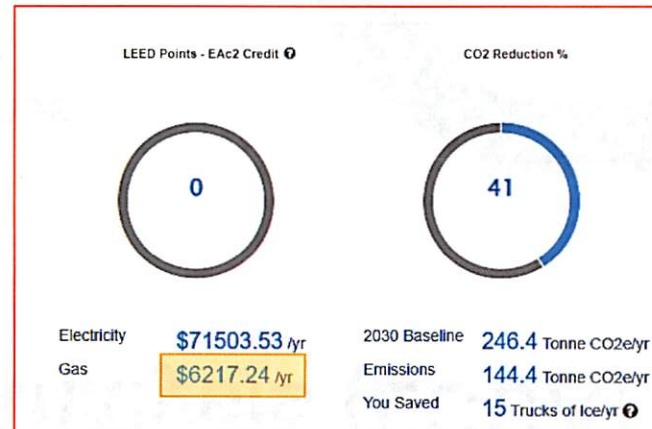
School building envelope A

Roof - 25 R-value
Window - 0.15 U-value



School building envelope B

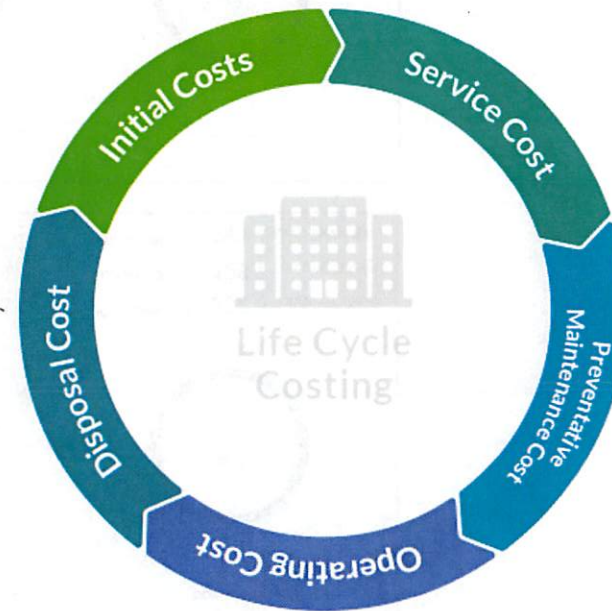
Roof - 15 R-value
Window - 0.5 U-value



Life Cycle Cost Analysis (LCCA)



An economic evaluation technique that determines the total cost of owning and operating a facility over a period of time.



Energy Modeling Software



The energy model is performed using Trace700 software. The program utilizes hourly energy analysis to determine annual energy consumption.

The software tool cannot include all system variations, but we mitigate this limitation using best practices.

We lack critical information such as occupancy schedules, lighting density, envelope characteristics, etc. which affect modeling accuracy.



Building Parameter Assumptions



Climatic Data

Heating – 99.6%	
Coldest Month	January
Dry Bulb Temperature	9°F
Cooling – 0.4%	
Hottest Month	July
Dry Bulb Temperature	84.4°F
Wet Bulb Temperature	75.7°F

Temperature Setpoints

Occupied Spaces and IT Rooms	
Summer	75°F
Winter	70°F
Utilities and Unoccupied Storage	
Winter	70°F
Vestibules	
Winter	55°F



Building Envelope (Assumptions)

Item	Description
Windows	U-value - 0.8 / SC - 0.46
Doors	U-value - 0.2
Wall	R-value - 15
Roof	R-value - 21

Utility Rate (Assumptions)

Utility	
Electrical	Rate 30 – “Small General Electric Service”
Propane Gas	4.4 \$/Gallon
Oil	3.79 \$/Gallon

Occupancy (Assumptions)

Occupancy Schedule	
Jan. to Jun.	8 AM to 4 PM
Jul.	8 AM to 1 PM
Aug.	OFF
Sep. to Dec.	8 AM to 4 PM
Sat. and Sun.	OFF

Ventilation

Outdoor Air
Based on ASHRAE 62.1



Lyme Old Lyme Middle School



Building Data

Overall Building U-Factor	0.088 Btu/h.SF.F
Total Building Wall Area	34,331 SF
Total Window Area	5,128 SF
Building Total Window %	14.9 %

Life Cycle Cost Analysis *

System	Rooms	Maintenance Cost \$/SF (\$)	Utility Cost \$/SF	20 years Operating Cost
Existing (88,000 sf)				
Heating only Rooftop Unit-VAV	Classrooms, Gym, Café, Auditor	\$0.4	\$3.03	\$ 2,055,072
Cooling/Heating Rooftop unit-VAV	Media Center	(\$35,200)		
Heating Only Unit Heater	Storage, Corridors, etc.			
Through-the-window AC units	Classrooms			
Proposed (88,000 sf)				
Packaged Single Zone Rooftop Unit	Gym, Café, Auditor, Media Ctr	\$0.3	\$2.77	\$ 1,878,938 - 8.5%
Packaged Rooftop unit VAV system	Classrooms, Corridors	(\$26,400)		
Heating Only	Storage, misc			



**The energy model described in the attached reports shall only be used for comparison purposes. The building performance does not predict the actual energy consumption or costs for the proposed design after construction. Actual experience will differ from these calculations due to variations such as occupancy, building operation, maintenance, weather, changes in the energy rates between the design of the building and occupancy, and the precision of the calculation tool.*



Center School



Building Data

Overall Building U-Factor	0.090 Btu/h.SF.F
Total Building Wall Area	22,541 SF
Total Window Area	6,340 SF
Building Total Window %	28.1 %

Life Cycle Cost Analysis *

System	Rooms	Maintenance Cost \$/SF (\$)	Utility Cost \$/SF	20 years Operating Cost
Existing (37,000 sf)				
Heating only Rooftop Unit-VAV	Gym, Café, Classroom.	\$0.4		
Cooling/Heating Rooftop Unit-VAV	Media Center	(\$14,800)	\$ 4.41	\$ 1,244,398
Heating Only Unit Heater	Storages, Corridors, etc.			
Through-the-window AC units	Classrooms			
Proposed (37,000 sf)				
Heat Recovery VRV / Packaged DOAS	Classrooms, Corridors.	\$0.5		
Packaged Single Zone Rooftop Unit	Media Center, Gym, Café,	(\$18,500)	\$ 3.45	\$ 1,030,341
Heating Only	Storage, misc.			- 17%

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Consolidated School



Building Data

Overall Building U-Factor	0.091 Btu/h.SF.F
Total Building Wall Area	21,425 SF
Total Window Area	2,490 SF
Building Total Window %	11.6 %

Life Cycle Cost Analysis *

System	Rooms	Maintenance Cost \$/SF (\$)	Utility Cost \$/SF	20 years Operating Cost
Existing (35,000 sf)				
Unit Ventilator– Heating Only	Classrooms	\$0.35		
Cooling/Heating Rooftop Unit-VAV	Offices, Gym, Media Center	(\$12,250)	\$ 2.60	\$ 1,084,357
Heating Only Unit Heater	Storage, Corridors			
Through-the-window AC units	Classrooms			
Proposed (35,000 sf)				
Heat Recovery VRV / Packaged DOAS	Classrooms, Offices, Corridors	\$0.50		
Packaged Single Zone Rooftop Unit	Gym, Media Center	(\$17,500)	\$ 2.24	\$ 1,005,284
Heating Only	Storage, misc.			- 7%

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Mile Creek School

Building Data

Overall Building U-Factor	0.091 Btu/h.SF.F
Total Building Wall Area	40,086 SF
Total Window Area	4,373 SF
Building Total Window %	11 %

Life Cycle Cost Analysis *

System	Rooms	Maintenance Cost \$/SF (\$)	Utility Cost \$/SF	20 years Operating Cost
Existing (53,000 sf) Single Zone Rooftop Unit / VAV System Heating Only Through the wall & window A/C units	Cafe, media center, offices, Gym, classrooms & corridors Classrooms	\$0.40 (\$21,200)	\$3.25	\$ 2,200,033
Proposed (61,675 sf w/additions) Packaged Single Zone Heat Pump Rooftop Unit / VAV system Heating & Cooling	All rooms with exception of storage spaces	\$0.35 (\$21,586)	\$2.80	\$2,205,653 +1%

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UPDATED PROJECT BUDGET & SCHEDULES

- Project Budget
- Project Schedules



Budget Update

REGION 18 SCHOOLS ADDITION AND ALTERATIONS PROJECT

LYME - OLD LYME

Drawings Dated: 08/21/2023

Estimate Date: 3/21/2022 Revised 9/05/2023



#	Item	8/21/2023	9/5/2023
1	Construction Cost Total	\$ 56,087,104	\$ 50,418,280
2	Soft Cost Total	\$ 4,718,233	\$ 4,718,233
3	Owner Contingency (5%)	\$ 2,877,750	\$ 2,877,690
4	Total Project Cost	\$ 63,683,087	\$ 58,014,203
5	Approved Budget	\$ 57,555,000	\$ 57,555,000
6	Over / Under	\$ 6,128,087	\$ 459,203



Budget Update

REGION 18 SCHOOLS ADDITION AND ALTERATIONS PROJECT

LYME - OLD LYME

Drawings Dated: 08/21/2023

Estimate Date: 3/21/2022 Revised 9/05/2023



Summary of Major Updates

03-21-2022 Conceptual Estimate:

- Included 6% escalation for 2022
- Assumed a construction start in 2023
- Mile Creek addition of 14,059 sf
- Consolidated gross area included the basement level for a total of 39,463
- All plumbing fixtures were to be replaced at Mile Creek
- A new security vestibule was only included for the Middle School
- VAV HVAC systems for all schools
- Mile Creek septic system to remain w/o alteration

08-21-2023 Conceptual Estimate Status Update Included:

- Updated budget included VRF system upgrades at Center & Consolidated
- Adjusted for actual escalation for 2022 at 9.4% (3.4% increase)
- Included escalation for 2024 at 6%
- Total Increase \$6M

09-05-2023 Conceptual Estimate Status Update Includes:


- Updated unit pricing for all schools to reflect today's market prices
- Revised the gross area of Mile Creek addition to 8,600 sf
- Revised the Mile Creek Addition scope of work to reflect the current design
- Removed the basement from Consolidated's gross area due to minimal amount of alterations.
- Added (3) Security Vestibules for Central, Consolidated and Mile Creek
- Reduced the amount of exterior doors to be replaced, (main entrance vestibules only)
- Reduced the Plumbing fixture scope at Mile Creek to the addition
- Added a septic system to Mile Creek to accommodate the added students.

D&E Contingency Potential Cost Impacts Requiring Vetting

- Fire Pump, Storage Tank and Generator at Mile Creek Estimated Cost:
- Fire Pump, Storage Tank and Generator at Consolidated Estimated Cost:



LYME/OLD LYME REGION 18 PUBLIC SCHOOLS 9/18/2023		<div><div></div><div>DOWNES</div><div>CONSTRUCTION COMPANY</div></div>		PRECONSTRUCTION PRECONSTRUCTIONN MACRO-SCHEDULE																																																
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Schedule Updates – Mile Creek

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QUESTIONS & DISCUSSION

- Next Steps

