

**High Performance Opportunities**

The following list of systems represents High Performance Opportunities that can be included in the New Paltz Middle School Additions and Renovations Project. The project design is priced with a baseline cost that represents a facility that meets current State Education Department requirements and the NYS Building and Energy Codes as well as provides a high performance facility. The additional high performance systems described below represent additional opportunities that require Owner acceptance or additional cost to include in the project. Operational High Performance Activities are not included. Note that CHPS items are listed for simplicity. LEED items are similar.

Estimated Cost are Project Costs established by The Palumbo Group based on conceptual descriptions of the proposed systems that include Construction, Incidental Expenses, Contingencies, and Escalation.

Payback shown is based on general "Rule of Thumb" estimates for similar generic systems. Actual payback must be determined by system design and an analysis of future building operating costs.

Base Design are items that are included in the conceptual design and probable cost of the project that are anticipated to earn approximately 50 of the 65 points needed for CHPS Certification.

CHPS Compliance are items that are required in addition to the Base Design to attain the minimum 65 points for CHPS certification.

LEED/CHPS Certification are items necessary in addition to the Base Design and CHPS Compliance items in order to prepare and submit documentation and apply for certification under the LEED program.

Enhanced Green Construction are items that will enhance the sustainability of the project, but that may not be necessary to achieve a level of minimum certification under LEED or CHPS.

No.	Item	Description	Estimated Cost*	Payback**	Base Design 50 +/- CHPS points	CHPS Compliance >65 Points	LEED/CHPS Certification	Enhanced Green Construction
<b>1. Energy Efficiency</b>								
a.	Increase building insulation values at new construction:	Roof R=25, Exterior walls: Dow Thermax system: R=23	Included		✓	✓	✓	
b.	Insulate existing roofs	Increase insulation thickness in 1930 wing attic by 4"	Included		✓	✓	✓	
c.	Insulate existing walls	Fur out exterior walls in the 1930's wing, install 1" rigid insulation and new wall finishes.	\$126,000	5-10 years				\$126,000
d.	Glazing:	Use high performance glazing (PPG Solarban 60) at all exterior glazing	Included		✓	✓	✓	
e.	Shading	Provide 30" sunscreens at all south facing windows	\$10,000	5-10 years				\$10,000
f.	Windows	Replace all existing windows with new aluminum windows.	\$160,000	>10 years				\$160,000
g.	HVAC controls	Provide digital HVAC controls in existing and new spaces	included		✓	✓	✓	
h.	HVAC controls	Provide CO2 sensors for ventilation systems in large rooms such as cafeteria, library, gym and multi use rooms.	\$54,000	5-10 years		\$54,000		
i.	Light controls	Provide motion sensors in all rooms	included		✓	✓	✓	
<b>Total Energy Efficiency</b>			<b>\$350,000</b>		<b>\$0</b>	<b>\$54,000</b>	<b>\$0</b>	<b>\$296,000</b>

No.	Item	Description	Estimated Cost*	Payback**	Base Design 50 +/- CHPS points	CHPS Compliance >65 Points	LEED/CHPS Certification	Enhanced Green Construction
<b>2. Indoor Air quality</b>								
a.	Indoor air	Install new ventilation system in existing spaces consisting of new air handlers and ducted system as part of baseline construction	included	None	✓	✓	✓	✓
<b>Total Indoor Air quality</b>			\$0		\$0	\$0	\$0	\$0
<b>3. Renewable Energy</b>								
a.	Power	Install 40 kw solar voltaic panel system on roofs	\$310,000	10-15 years		\$310,000		
b.	Hot water	Install solar hot water panels on roof	\$160,000	5-8 years		\$160,000		
c.	HVAC	Install Geo-thermal system for heating and cooling. (Note that the estimate is preliminary and must be confirmed by testing existing underground conditions and by a specified design)	\$970,000	to be determined				\$970,000
<b>Total Renewable Energy</b>			\$1,440,000		\$0	\$470,000	\$0	\$970,000
<b>4. Water Conservation</b>								
a.	Plumbing fixtures	Install dual flush toilets at staff toilets	\$20,000	5-10 years				\$20,000
b.	Plumbing fixtures	Install waterless urinals at \$1,000 each	Not included		No			
c.	Plumbing fixtures	Install auto faucets	included		✓	✓	✓	
d.	Plumbing fixtures	Install auto flush toilets and urinals	included		✓	✓	✓	
<b>Total Water Efficiency</b>			\$20,000		\$0	\$0	\$0	\$20,000
<b>5. Low Volatile Organic Compounds</b>								
a.	Products	Use low or zero VOC paints, sealants, carpets and casework as part of baseline construction	included		✓	✓	✓	
<b>Total VOC</b>			\$0		\$0	\$0	\$0	\$0

No.	Item	Description	Estimated Cost*	Payback**	Base Design 50 +/- CHPS points	CHPS Compliance >65 Points	LEED/CHPS Certification	Enhanced Green Construction
<b>6. Day Lighting</b>								
a.	Windows	Use oversized windows, sunscreens and light shelves	\$100,000	None		\$100,000		
b.	Ceilings	Slope ceilings in classrooms to maximize daylight	\$0					
c.	Light control	Provide light sensors/controls to dim lights when day lighting is sufficient	\$185,000	2-5 years		\$185,000		
d.	Interiors	Provide lites in interior walls to bring daylight to interior spaces	\$20,000	None				\$20,000
e.	Interiors	Provide skylights at upper floors to bring daylight to interior spaces	\$25,000	None				\$25,000
<b>Total Daylighting</b>			<b>\$330,000</b>		<b>\$0</b>	<b>\$285,000</b>	<b>\$0</b>	<b>\$45,000</b>

<b>7. Acoustics</b>								
a.	Partitions	Partitions to run full height and be insulated as baseline	included	None	✓	✓	✓	
b.	Partitions: Music	Partitions to run full height and be insulated. Interior partitions to have additional acoustical furring and 1 layer of gypsum board.	Included	None	✓	✓	✓	
c.	HVAC	Isolate mechanical system from structural frame	included	None	✓	✓	✓	
d.	HVAC	Use oversize ducts to reduce air noise	\$190,000	None		\$190,000		
e.	Large rooms	Provide acoustical wall panels in gym, cafeteria and multi use rooms as part of baseline.	included	None	✓	✓	✓	
<b>Total Acoustics</b>			<b>\$190,000</b>		<b>\$0</b>	<b>\$190,000</b>	<b>\$0</b>	<b>\$0</b>

<b>8. Security</b>								
a.	Hardware	provide entrance video/intercom system with remote control	included	None	✓	✓	✓	
b.	hardware	Provide locksets with electronic security system for entrance doors	included	None	✓	✓	✓	
c.	Cameras	Install security cameras at interior corridors and exterior	Included	None	✓	✓	✓	
d.	Lighting	Install additional lighting at building and parking areas	included	None	✓	✓	✓	
<b>Total Security</b>			<b>\$0</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

No.	Item	Description	Estimated Cost*	Payback**	Base Design 50 +/- CHPS points	CHPS Compliance >65 Points	LEED/CHPS Certification	Enhanced Green Construction
<b>9.. LEED/CHPS</b>								
a.	LEED Certification	Cost for consulting fees, added administrative costs to pursue LEED certification: 0.8 to 1.8% of const. cost	\$300,000	to be determined			\$300,000	
b.	HVAC and Electrical	Arrange for 3rd party commissioning of MEP Systems	\$50,000	2-5 years			\$50,000	
c.	Energy Modeling	Prepare computer models of building systems to refine design	\$20,000	2-5 years			\$20,000	
<b>Total LEED/CHPS</b>			<b>\$370,000</b>		<b>\$0</b>	<b>\$0</b>	<b>\$370,000</b>	<b>\$0</b>

<b>10. Miscellaneous</b>								
a.	transportation	Install bike racks	included	None	✓	✓	✓	
b.	transportation	Provide preferred parking spaces for car poolers	\$0	None			\$0	
c.	lighting	Use indirect lighting fixtures in classrooms and offices	included	None	✓	✓	✓	
d.	entry mats	provide exterior mats and recessed interior mats at entrances.	included	None	✓	✓	✓	
e.	Mold resistance	Use cmu with masonry veneers for exterior walls	\$70,000	None		\$70,000		
f.	Mold resistance	Use cmu partitions for interiors	\$210,000	lower maintenance costs		\$210,000		
g.	HVAC	Use high capacity filters at air handlers						
h.	Floors	use polished concrete finishes for corridor floors in lieu of VCT	\$10,000	lower maintenance costs		\$10,000		
<b>Total Miscellaneous</b>			<b>\$290,000</b>		<b>\$0</b>	<b>\$290,000</b>	<b>\$0</b>	<b>\$0</b>

<b>Total 1-10:</b>			<b>\$2,990,000</b>		<b>\$0</b>	<b>\$1,289,000</b>	<b>\$370,000</b>	<b>\$1,331,000</b>
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High Performance items listed above that can be achieved as either stand alone or as part of another project

1e.	Shading	Provide 30" sunscreens at all south facing windows	\$10,000	5-10 years
1f.	Windows	Replace all existing windows with new aluminum windows	\$160,000	>10 years
3a.	Power	Install 40 kw solar voltaic panel system on roofs	\$310,000	10-15 years
3b.	Hot water	Install solar hot water panels on roof	\$160,000	5-8 years
<b>Total</b>			<b>\$640,000</b>	