HVAC OPTIONS FOR CASS SCHOOL DISTRICT 63 - INSTALLATION COSTS AND ENERGY COMPARISON 27-Apr-22

						ESTIMAT	ED CONSTR	UCTION AND E	NERGY COSTS							
Building		Existing System			Replacement System Option											
	Option	Model of Existing Systems (Uncalibrated, for comparison			Option 1			Option 2						Option 3		
					Direct Replacement			<u>Concord Only</u> :			Cass Jr. High Only:			Geothermal		
								New Packaged VAV Rooftop Units			New 4-pipe Hot Water/			(Vertical Heat Pump Unit Ventilators and		
								with new Hot Water Boiler System			Chilled Water System			Heat Pump Rooftop Units)		
	System Notes	 Existing Systems modeled with constant outdoor air. Existing Systems modeled with assumed efficiencies typical to 20 year old equipment. Building envelope and occupancy schedules estimated. 			Multizone Roottop Units. - New systems modeled with demand control ventilation. - New systems modeled with "standard" equipment efficiencies			boilers. - New systems modeled with demand control ventilation. - New systems modeled with "standard"			 New systems modeled with 4-pipe HW/CHW unit ventilators. New systems modeled with demand control ventilation. New chiller modeled with "high" equipment efficiencies. 			 New systems modeled with demand control ventilation. New systems modeled with "high" equipment efficiencies. 		
	Area	Estimated	Annual	% Annual	Estimated	Annual	% Annual	Estimated	Annual	% Annual	Estimated	Annual	% Annual	Estimated	Annual Energy	% Annual
		Install Cost	Energy Cost	Savings	Install Cost	Energy Cost	Savings	Install Cost	Energy Cost	Savings	Install Cost	Energy Cost	Savings	Install Cost	Cost	Savings
Concord Elementary	60460.3	-	\$ 92,000	-	\$ 4,758,960	\$ 68,357	26%	\$ 4,919,120	\$ 58,162	37%	N/A	N/A	N/A	\$ 5,408,240	\$ 49,961	46%
Cass Junior High	80485.2	_	\$ 77,000	-	\$ 5,732,320	\$ 63,866	17%	N/A	N/A	N/A	\$ 6,895,400	\$ 66,000	14%	\$ 6,444,360	\$ 59,486	23%

HVAC REPLACEMENT OPTIONS - CONCORD ELEMENTARY SCHOOL

27-Apr-22

ESTIMATED CONSTRUCTION COSTS: A/C OF ENTIRE BUILDING										
		Option 1	Option 2			Option 3				
Trade	Area	Direc	t Replacement	VAV RTUs			Geothermal (Vertical UV HP)			
		\$/sf	Estimate	\$/sf	Estimate		\$/sf	Estimate		
Mechanical	60460.3	\$ 39	\$3,395,520	\$ 35	\$3,047,040	\$	35	\$3,047,040		
Electrical	60460.3	\$2	\$174,240	\$5	\$434,880	\$	10	\$871,200		
General Construction	60460.3	\$ 1.5	\$91,000	\$5	\$302,000	\$	4	\$242,000		
		\$3,660,760		\$3,783,920			\$4,160,240			
30% Contingency		\$1,098,200		\$1,135,200			\$1,248,000			
		\$4,758,960		\$4,919,120			\$5,408,240			
SYSTEM GRADES										
Educational Environment		А	А			В				
Indoor Air Quality		А	А			Α				
Energy Efficiency		В	В			Α				
Maintenance		В	В			Α				
Life Cycle Cost (Mechanica	\$	8,950,000	\$6,700,000			\$5,150,000				
Note : Construction cost estimates are current pricing - escalation required for future years.										

HVAC REPLACEMENT OPTIONS - CASS JR. HIGH SCHOOL

27-Apr-22

ESTIMATED CONSTRUCTION COSTS: A/C OF ENTIRE BUILDING										
	(Option 1	C	Option 2	Option 3					
Trade	Area	Direct	Replacement	Chille	r/Boiler Uvs	Geothermal (Vertical UV HP)				
		\$/sf	Estimate	\$/sf	Estimate	\$/sf	Estimate			
Mechanical	80485.2	\$ 35	\$4,056,480	\$38	\$4,403,520	\$ 35	\$4,056,480			
Electrical	80485.2	\$2	\$231,840	\$ 5	\$578 <i>,</i> 880	\$ 5	\$578,880			
General Construction	80485.2	\$ 1.5	\$121,000	\$ 4	\$322,000	\$ 4	\$322,000			
		\$4,409,320		\$5,304,400		\$4,957,360				
30% Contingence		\$1,323,000		\$1,591,000		\$1,487,000				
		\$5,732,320		\$6,895,400		\$6,444,360				
SYSTEM GRADES										
Educational Environment		С		С	В					
Indoor Air Quality		В		В	Α					
Energy Efficiency		С		В	Α					
Maintenance		С		С	Α					
Life Cycle Cost (Mechanica	l Only)	\$1	0,500,000	\$7	,550,000	\$6,700,000				
Note: Construction cost estimates are current pricing - escalation required for future years.										