

**LINCOLN HILLS SCHOOL HVAC STUDY
DEPARTMENT OF CORRECTIONS
MERRILL, WISCONSIN**

Division Project No. **10L2G**

April 29, 2011



By

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TABLE OF CONTENTS

- I. Summary
- II. Introduction
- III. Existing Conditions
- IV. Recommendations
- V. Opinion of Probable Construction Cost
- VI. Appendix

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I. SUMMARY

The purpose of this study was to evaluate the current condition of the HVAC equipment and controls at the Lincoln Hills School and recommend a sequence for equipment replacement and temperature controls upgrade or replacement to direct digital controls (DDC).

II. INTRODUCTION

Building plans from the original construction were reviewed. These drawings were used during a site visit to confirm actual installed conditions. During the site visit, equipment and controls were examined and the operating condition noted.

The facility is divided into seven general areas:

- Administration Building
- Food Service Building
- School
- Ten similar resident cottages
- Roosevelt cottage
- Krueger cottage
- Chapel

The recommended upgrades were ranked and a cost assigned to each.

Cost estimates were created through a combination of applying R.S. Means construction cost data and equipment budget quotes from equipment vendors.

III. EXISTING CONDITIONS

The HVAC equipment and pneumatic controls are original to the facility and due to their age and a lack of pneumatic controls expertise on staff the units are failing, not operating or operating inefficiently.

A majority of the HVAC equipment is in fair condition. One mechanical issue with the air handling equipment is the operation of the roll air filters. The filters do not advance and change media area as intended. Also, some fans require bearing replacement and some units need new steam coils.

The pneumatic controls are in need of maintenance and/or repair. Lubricating oil, water and particulate are in the air lines and are damaging the components and not allowing them operated properly. Pneumatic tubing has been disconnected from damper and valve actuators not allowing proper control of airflow quantities, air temperature and quantity of ventilation air.

There are 16 control air compressors. They run an excessive amount of time trying to supply the required pressure. There are air leaks in the pneumatic piping and components.

IV. **RECOMMENDATIONS**

See the attached table of items requiring attention. In addition to the items in the table, the following is recommended:

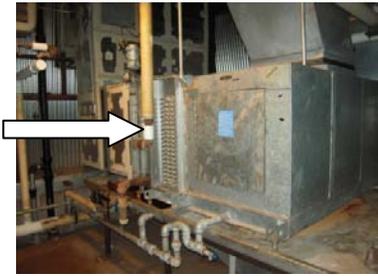
- The testing and balancing of each system to assure proper ventilation of each area served.
- Upgrade the space thermostats to DDC. The alternative is to clean and leak test the pneumatic tubing and replace/repair the air compressors and air driers (Total of 16).
- Consider converting some of the air handling systems from constant volume to variable air volume (VAV). Energy saving would occur due to reduced air flow and reheat requirements for each space.
- Check each piece of equipment for proper operation, including fan bearing lubrication, control damper and valve sequencing and function and structural integrity. Equipment was inspected in this report, but not all functions could be checked.
- Investigate availability of Focus on Energy funds.

V. **OPINION OF PROBABLE CONSTRUCTION COST**

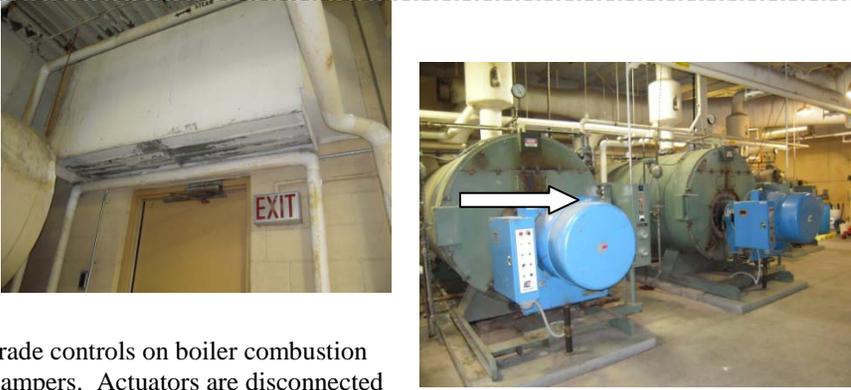
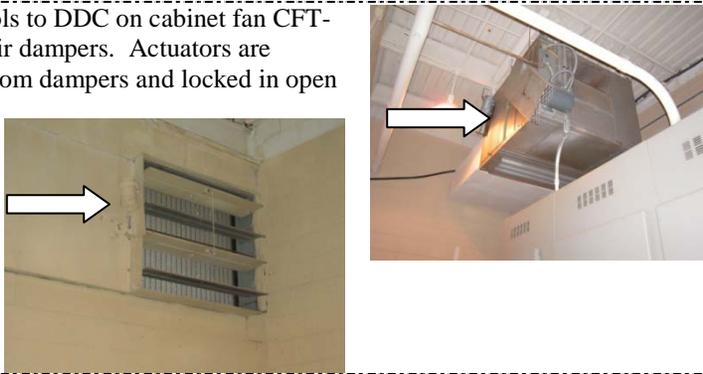
See the attached table of items requiring attention. This section provides opinions of probable construction costs associated with recommended work as described in the report.

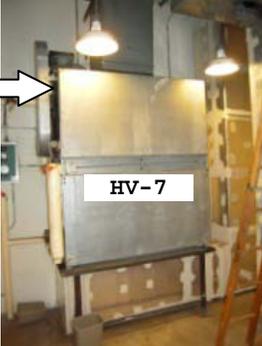
Each item lists a repair or upgrade cost, a replacement cost or both. A recommendation is made to repair, upgrade or replace the unit and its associated controls. The recommended costs are in bold and items not recommended are crossed out.

V. Opinion of Probable Construction Costs

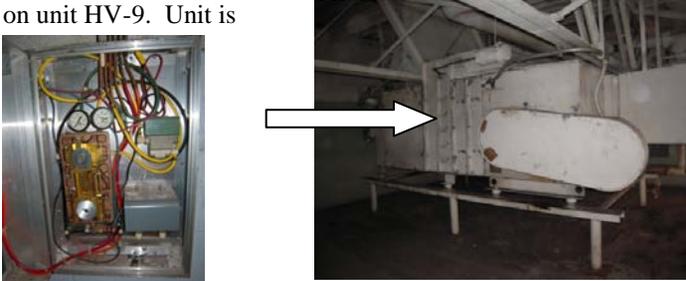
PROJECT: Lincoln Hills School HVAC Study Merrill, Wisconsin			PROJECT #: DSF No. 10L2G RAI #: 3343		
HVAC REPAIR/UPGRADE LIST			LOCATION: Irma, WI		
DATE: April 29, 2011			AUTHOR: Mike Bachmann		
<u>Representatives</u> DSF - Aaron Tervort DOC- Norman Haskins RAI - R.E. "Bear" Daniel, Mike Bachmann					
Item	Building	Room	Description Of Items Requiring Attention	Estimated Repair Cost	Estimated Replacement Cost with New Controls
1.A.	Food Service	301	<p>Replace steam coil in unit AC-4. Present coil is leaking.</p>  <p>Update controls on AC-4 to DDC. The systems is operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>	<p>\$7,300</p> <p>Unit is in poor shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls.</p> <p>\$10,700</p>	<p>DDC Controls = \$8,100</p> <p>New Unit = \$16,800</p> <p>Total = \$24,900</p>

1.B	Food Service	301	<p>Controls on HV-5 are inoperable. Components are original and pneumatic piping is disconnected from some components. Temperature in kitchen is maintained manually.</p> <p>Update controls on HV-5 to DDC.</p>	 	<p>\$14,800</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls=\$10,500 <u>New Unit = \$44,400</u> Total = <u>\$54,900</u></p>
1.C.	Food Service	129	<p>Upgrade controls to DDC on cabinet fan CFT-4 and relief damper. Systems are presently operated manually. Space overheats.</p>	 	<p>\$3,500</p> <p>Unit is in poor shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls.</p>	<p>DDC Controls = \$5,900 <u>New Unit = \$9,300</u> Total = \$15,200</p>

			 <p>Upgrade controls on boiler combustion air dampers. Actuators are disconnected from dampers and locked in open position. Replace pneumatic controls with DDC.</p>	<p>\$6,000 The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	
1.D	Food Service	133	<p>Upgrade controls to DDC on cabinet fan CFT-5 and outside air dampers. Actuators are disconnected from dampers and locked in open position.</p> 	<p>\$3,000 The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls= \$4,500 New Unit = \$4,300 Total = \$8,800</p>
1.E	Food Service	301	<p>Update controls on CFT-2, AC-5, CFT-3 and HV-4 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> 	<p>AC-5 = \$10,700 HV-4 = \$8,800 Total = \$19,500</p> <p>The units are in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>AC-5 DDC Controls = \$8,100 New Unit = \$10,700 HV-4 DDC Controls= \$6,600 New Unit = \$23,200 Total = \$48,600</p>

2.A.	School B	B202	<p>Replace fan bearing on unit HV-7. Unit is unable to run.</p> <p>Update controls on HV-7 to DDC. The systems is operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>		<p>\$1200</p> <p>Unit is in questionable shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls.</p> <p>Controls \$8,800</p>	<p>DDC Controls = \$6,600</p> <p><u>New Unit = \$8,300</u></p> <p>Total = \$14,900</p>
2.B.	School B	B202	<p>Update controls on HV-6, ILF-3 and ILF-4 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>	  	<p>\$8,800</p> <p>Unit is in questionable shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls.</p>	<p>DDC Controls = \$6,600</p> <p><u>New Unit = \$13,100</u></p> <p>Total = \$19,900</p> <p>Units are in poor shape and recommend replacement.</p>

2.C	School B	B218 and B219	<p>Update controls on HV-3 and CF-1 to DDC. Air system is out of balance and needs testing. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>     	<p>\$10,800</p> <p>Unit is in poor shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls. The return fan CF-1 would remain.</p>	<p>DDC Controls = \$7,600 <u>New Unit = \$42,600</u> Total = \$50,200</p>
2.D	School B	B114 and B212	<p>Update controls on CFT-1, reheat coils and RE-6 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>	<p>\$8,500</p>	<p>DDC Controls = \$7,200 <u>New Unit = \$4,300</u> Total = \$11,500</p>

3.A.	School C	C141	<p>Replace steam coil in unit HV-10. Present coil is leaking.</p>  <p>Update controls on HV-10 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>	<p>Controls = \$8,800 <u>Steam Coil = \$4,500</u> Total = \$13,300</p> <p>Unit is in questionable shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls</p>	<p>DDC Controls = \$6,600 <u>New Unit = \$13,100</u> Total = \$19,700</p>
3.B	School C	C128	<p>Replace fan bearing on unit HV-15. Unit is unable to run.</p>  <p>Update controls on HV-15 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>	<p>Fan Bearing = \$1,200 <u>Controls = \$8,800</u> Total = \$10,000</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = \$6,600 <u>New Unit = \$16,800</u> Total = \$23,400</p>
3.C	School C	Above C134	<p>Install freeze-stat on unit HV-9. Unit is unable to run.</p>  <p>Update controls on HV-09 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p>	<p>freeze-stat = \$500 <u>Controls = \$8,800</u> Total = \$9,300</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = \$6,600 <u>New Unit = \$13,100</u> Total = \$19,700</p>

3.D	School C	C161	Upgrade controls on cabinet fan CFT-6 and outside air dampers. Actuators are disconnected from dampers and locked in open position.		\$3,000	DDC Controls = \$4,500 New Unit = \$4,300 Total = \$8,800
3.E	School C	C118	Add ventilation to mechanical space. Room overheats.			New Ventilation \$14,000
3.F	School C	C160	Add ventilation to electrical room. Space overheats.			New Ventilation \$12,000
3.F	School C	C128	Update controls on HV-16 to DDC. Excessive air leaks in control components. Steam coil occupies both face and by-pass area of coil location. System cannot control properly. Replace coil.	 	\$13,300 Unit is in questionable shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls	DDC Controls = \$6,600 New Unit = \$13,200 Total = \$19,800

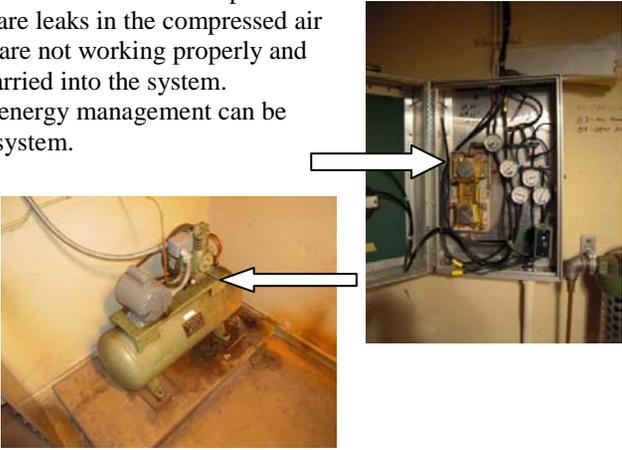
3.G	School C	C113	<p>Update controls on HV-17 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> 	<p>\$8,800</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = \$6,600 New Unit = <u>\$10,700</u> Total = \$17,300</p>
3.H	School C	C119	<p>Update controls on HV-08 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> 	<p>\$8,800</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = \$6,600 New Unit = <u>\$13,100</u> Total = \$19,700</p>
3.I	School C	C156	<p>Update controls on HV-11 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> 	<p>\$8,800</p> <p>Unit is in poor shape and repairs would not appreciably extend the usable life of this unit. We recommend replacing the unit and controls.</p>	<p>DDC Control = \$6,600 New Unit = <u>\$8,400</u> Total = \$15,000</p>

3.J	School C	C149	<p>Update controls on HV-12 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> 	<p>\$8,800</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = \$6,600 New Unit = \$10,700 Total = \$17,300</p>
3.K	School C	C129	<p>Update controls on HV-13 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> 	<p>\$8,800</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>Replacing unit along with new DDC controls equals \$14,900. \$6,600 for controls and \$8,300 for unit. DDC Controls = \$6,600 New Unit = \$8,300 Total = \$14,900</p>
3.L	School C	C129	<p>Update controls on HV-14 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> 	<p>\$8,800</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = \$6,600 New Unit = \$10,700 Total = \$17,300</p>

4.A	School A	A201	<p>HV-2 is not running. The isolation steam valve is closed. ILF-1 is running but is not interlocked to HV-2. Fix interlock issues. The flex connection on the inlet to HV-2 is torn and leaking air.</p>  <p>Update controls on HV-2 and ILF-1 to DDC. Improved control and energy management can be obtained with a DDC system.</p>	<p>Fix Interlock \$2,000 Controls \$13,800 Total = \$15,800</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>Replacing unit along with new DDC controls equals- DDC Controls = <u>\$6,600</u> New Unit = <u>\$42,600</u> Total = <u>\$49,200</u></p>
4.B	School A	A201	<p>Update controls on AC-1 and ILF-1 to DDC. AC-1 has a chilled water coil installed but no piping has been run to it. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain. Metering devices are disconnected from the pneumatic air system.</p> 	<p>\$10,700</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = <u>\$8,400</u> New Unit = <u>\$25,600</u> Total = <u>\$33,700</u></p>

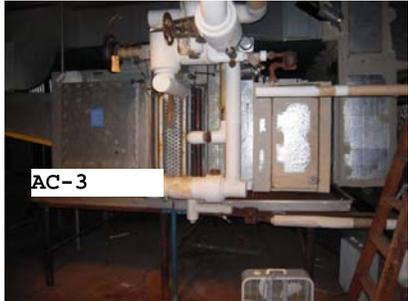
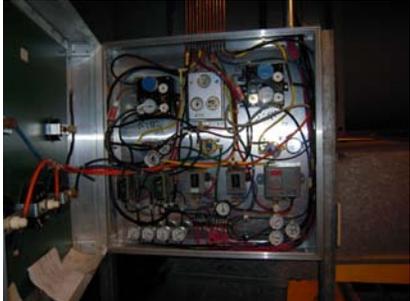
4.C	School A	A201	<p>Update controls on AC-1 and ILF-1 to DDC. AC-1 has a chilled water coil installed but no piping has been run to it. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain. Metering devices are disconnected from the pneumatic air system.</p> 	<p>\$10,700</p> <p>The unit is in good condition, repairs would allow the unit to remain serviceable with the controls update.</p>	<p>DDC Controls = \$8,100 New Unit = \$25,600 Total = \$33,700</p>
5.A	Cottages A-H, J, K		<p>Repair and adjust existing dampers on each HV-3x unit to insure proper operation and ventilation.</p> <p>Upgrade to DDC controls only on the HV units. Leave remaining equipment on pneumatic control.</p> <p>Replace roll filters with disposable pleated type. The roll filters are not operating properly and the filters and coils are overloaded with dirt. Clean coils.</p> 	<p>Cost Each Cottage</p> <p>Repair = \$1,500</p> <p>Controls = \$7,200</p> <p>Filters = \$2,400</p> <p>Total Each = \$11,100 Cottage</p>	<p>DDC Controls = \$6,600 New Unit = \$13,100 Total Each = \$19,700 Cottage</p>

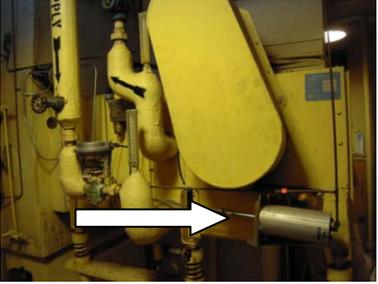
5.B	Cottages A-H, J, K		Replace utility exhaust fans. Test and balance each fan. There is an average of four fans per cottage.		\$4,000 each cottage	
5.C	Cottages A-H, J, K		Upgrade to DDC controls. Remove air compressors and air driers. There are leaks in the compressed air piping. The air driers are not working properly and oil and air are being carried into the system. Improved control and energy management can be obtained with a DDC system		\$9,800 each cottage	
5.D	Cottages A-H, J, K		Adjust boiler controls		\$400 each cottage	
5.E	Cottages A-H, J, K		Repair pumps and upgrade controls to DDC. Improved control and energy management can be obtained with a DDC system.		\$3,000 each cottage	
6.A	Roosevelt Cottage	13	Repair and adjust existing dampers on each HV-2x unit to insure proper operation and ventilation. Upgrade to DDC controls only on the HV units. Leave remaining equipment on pneumatic control.		Repair Damper = \$1,500 Controls = \$6,600 Total = \$8,100	Replacing unit along with new DDC controls equals- DDC Controls = \$6,600 New Unit = \$16,800 Total = \$23,400

6.B	Roosevelt Cottage	13	<p>Upgrade to DDC controls. Remove air compressors and air driers. There are leaks in the compressed air piping. The air driers are not working properly and oil and air are being carried into the system. Improved control and energy management can be obtained with a DDC system.</p>		Controls = \$9,800	
6.C	Roosevelt Cottage	13	<p>Replace utility exhaust fans. Test and balance each fan. There is an average of four fans per cottage.</p>		New Fan = \$4,000	
6.D	Roosevelt Cottage	13	<p>Adjust boiler controls</p>		Adjust = \$400	
6.E	Roosevelt Cottage	13	<p>Repair pumps and upgrade controls to DDC. Improved control and energy management can be obtained with a DDC system.</p>		Repair = \$3,000	

7.A	Krueger Cottage	02	<p>Connect outside air damper to actuator on unit AC-1x. Damper was closed during visit. Unit supplies 100% outside air and with damper closed, airflow is starved. Repair and adjust dampers proper operation and ventilation.</p> <p>Upgrade to DDC controls on AC-1x. Leave remaining equipment on pneumatic control.</p>		<p>Repair = \$1,500</p> <p><u>Controls = \$7,200</u></p> <p>Total = \$8,700</p>	<p>DDC Controls = \$6,600</p> <p><u>New Unit = \$8,300</u></p> <p>Total = \$14,900</p>
7.B	Krueger Cottage	02	<p>Upgrade the controls on the booster coils serving the north wing of the cottage to DDC. Present pneumatic controls are not operating properly. Main control panel is located in room 120.</p>		<p>Upgrade = \$3,000</p>	
7.C	Krueger Cottage	02	<p>Upgrade to DDC controls. Remove air compressor and air drier. There are leaks in the compressed air piping. The air driers are not working properly and oil and air are being carried into the system. Improved control and energy management can be obtained with a DDC system.</p>		<p>Upgrade = \$9,800</p>	
7.D	Krueger Cottage	02	<p>Replace utility exhaust fans. Test and balance each fan. There is an average of four fans per cottage.</p>		<p>New Fan = \$4,000</p>	
7.E	Krueger Cottage	02	<p>Adjust boiler controls</p>		<p>Adjust = \$400</p>	

7.F	Krueger Cottage	02	<p>Repair pumps and upgrade controls to DDC. Improved control and energy management can be obtained with a DDC system.</p>		<p>Repair = \$3,000</p>	
7.G	Krueger Cottage	02	<p><u>ATTIC UNIT</u></p> <p>Repair and adjust existing dampers on the HV-1x unit to insure proper operation and ventilation.</p> <p>Upgrade to DDC controls only on the HV-1x unit. Leave remaining equipment on pneumatic control.</p> <p>Replace roll filters with disposable pleated type. The roll filters are not operating properly and the filters and coils are overloaded with dirt. Clean coils.</p> <p>Chiller WC-1x is inoperable. No cost given to repair or replace in this report.</p>	 	<p>Repair = \$1,500</p> <p>Upgrade = \$7,200</p> <p>Replace = \$2,400</p> <p>Total = \$11,100</p>	<p>DDC Controls = \$6,600</p> <p>New Unit = \$13,100</p> <p>Total = \$19,700</p>

19.	Admin	228	<p>Update controls on AC-2, ILF-5, AC-3 and ILF-6 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; text-align: center;">  <p>AC-2</p> </div> <div style="width: 50%; text-align: center;">  <p>AC-3</p> </div> <div style="width: 50%; text-align: center;">  </div> <div style="width: 50%; text-align: center;">  </div> </div>	<p>AC-2 Controls = \$10,700</p> <p>AC-3 <u>Controls = \$10,700</u> Total = \$21,400</p>	<p>AC-2 DDC Controls = \$8,400 New Unit = \$36,200</p> <p>AC-3 DDC Controls = \$8,400 <u>New Unit = \$23,200</u> Total = \$75,600</p>
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32.	Chapel	02	<p>Update controls on HV-1 to DDC. The systems are operating, but better control and energy management is needed. The pneumatic system is in poor shape and is not functioning properly. Training and replacement parts are difficult to obtain.</p> <div style="display: flex; flex-wrap: wrap;">     </div>	<p>Controls = \$8,800</p>	<p>DDC Controls = \$6,600 New Unit = \$6,800 Total = \$13,400</p>
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Lincoln Hills School HVAC Unit Condition Analysis DSF #10L2G April 29, 2011

Unit Tag	Building	Room	Repair Unit		Replace Unit	Comments
			Minor	Major		
AC-1 & ILF-1	School A	A201		X		ILF-1 not running. Control components disconnected. Replace roll filters with pleated filters.
AC-1x	Krueger - M	02	X			Connect outside air damper. Adjust F&BP dampers. Clean coil. Replace roll filters with pleated filters.
AC-2 & ILF-5	Administration	228		X		ILF-5 not running. Control issues. Replace roll filters with pleated filters.
AC-3 & ILF-6	Administration	228	X			Control issues. Replace roll filters with pleated filters.
AC-4 & CFT-2	Food Service	301		X		Replace steam coil. Control issues. Clean coils. Replace roll filters with pleated filters.
AC-5 & CFT-3	Food Service	301		X		Control issues. Clean coils. Return fan belt drive needs replacement. Exhaust damper actuator missing. Replace roll filters with pleated filters.
CFT-1 & RE-6	School B	B114 & B212	X			Control issues. Clean coils.
CFT-4	Food Service	129			X	Damper actuator missing. Air piping missing. Unit rusted. Operated manually.
CFT-5	Food Service	133	X			Control issues. Actuators disconnected.
CFT-6	School C	C161	X			Control issues. Actuators disconnected.
HV-01	Chapel	02	X			Control issues. Actuators disconnected. Replace roll filters with pleated filters.
HV-01x	Krueger - M	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-02 & ILF-1	School A	A201		X		HV-02 not running. Interlock issues. Steam valve closed. Canvas connection torn. Control issues. Replace roll filters with pleated filters.
HV-02x	Roosevelt - R	13	X			F&BP dampers leaking. OA and RA dampers need adjustment. Clean coil. Control issues. Replace roll filters with pleated filters.
HV-03 & CF-1	School B	B218 & B219			X	Control issues. RA actuator missing. Unit casing in poor shape. Rusted and access doors leaking. Dampers need adjustment.
HV-03x	Addams - A	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-03x	Black Elk - B	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-03x	Curtis - C	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.

Unit Tag	Building	Room	Repair Unit		Replace Unit	Comments
			Minor	Major		
HV-03x	Douglass - D	Attic		X		Replace fan bearings. Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean Coil
HV-03x	Rogers - E	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-03x	Miller - F	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-03x	Dubois - G	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-03x	Hughes - H	Attic		X		Replace roll filters with pleated filters. Adjust dampers. Unit not running due to control issues. Clean coil.
HV-03x	Chief Joseph - J	Attic		X		Unit vibrates. Clean fan and balance. Control issues. Replace roll filters with pleated filters. Adjust dampers.
HV-03x	King - K	Attic	X			Control issues. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-04	Food Service	301		X		Control issues. Actuator disconnected. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-05	Food Service	301	X			Control issues. Original steam control set in place. Not working. Replace roll filters with pleated filters. Adjust dampers. Clean coil.
HV-06 & ILF-3	School B	B202	X			Control issues. Adjust dampers. Clean coil.
HV-07 & ILF-4	School B	B202		X		Replace fan bearings. Control issues. Return fan not operating. Adjust dampers.
HV-08	School C	C119	X			Control issues. Adjust dampers. Clean coil. Clean filters.
HV-09	School C	C134	X			Control issues. Adjust dampers. Clean coil. Clean filters. Install new freeze-stat.
HV-10	School C	C141		X		Replace steam coil. Control issues. Adjust dampers. Clean filters.
HV-11	School C	C156		X		Control issues. Install new fan bearings. Adjust dampers. Clean coil. Clean filters.
HV-12	School C	C149		X		Control issues. Install new fan bearings. Adjust dampers. Clean coil. Clean filters.
HV-13	School C	C129	X			Control issues. Adjust dampers. Clean coil. Clean filters.
HV-14	School C	C129	X			Control issues. Adjust dampers. Clean coil. Clean filters.

Unit Tag	Building	Room	Repair Unit		Replace Unit	Comments
			Minor	Major		
HV-15	School C	C128		X		Control issues. Install new fan bearings. Adjust dampers. Clean coil. Clean filters.
HV-16	School C	C128		X		Replace steam coil. Wrong size. Control issues. Adjust dampers. Clean filters.
HV-17	School C	C113	X			Control issues. Adjust dampers. Linkages bent. Clean coil. Clean filters.

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