



10-761A

KEYSTONE LOCAL SCHOOL DISTRICT
NEW MIDDLE SCHOOL
ECO-CHARRETTE
January 25, 2011

Attendees

Jay Arbaugh, Keystone Local School District
Phil Butto, KLSD
Mike Smith, KLSD
Dennis Walter, KLSD
Melanie Friedman, FMD Architects
Brandilyn Fry, FMD Architects
Michael DiMaio, FMD Architects

David Leach, The Cornice Company
Mike Caseday, Peters, Tschantz, & Associates
Brian Holloway, PTA
Matt Sejba, PTA
Chris Howard, Bramhall Engineering
Gene Constantine, STAN & Associates

General

1. The purpose of this meeting was to review the practices in sustainable (LEED) design, then complete a detailed review of each point available in the 2009 LEED for Schools Checklist to determine which points and strategies should be incorporated.

Geothermal

1. Geothermal was determined to not be a viable option for a mechanical system.
2. There is a long payback period and is not advantageous for the District's long term plan.
3. There is more maintenance required with a geothermal system: multiple filters must be changed once per year and the life span of compressors is generally about 15 years.
4. Comfort can be an issue with a geothermal system.
5. The system may not be as energy efficient over the life cycle of the system due to the inability to go to a night setback mode (geothermal requires a constant temperature) and the heat pumps will tend to continually cycle on and off during the spring and fall when outside temperatures are closer to the temperature of the occupied space.
6. Dehumidification can also be an issue.

Wind

1. School is located on Village property.
2. A meeting with the Village trustees will be very important and will need to happen soon. A site plan will be developed for this meeting when it occurs.
3. It was determined that the District is interested in moving on to the next step of meeting with Renivus to discuss the feasibility of installing a turbine (or two) on the District's property.
4. If the meeting with Village and Township Zoning authorities can happen quickly, a vote could be brought up at the next School Board meeting.

LEED Checklist

1. Refer to the attached LEED for Schools Project Checklist for a summary of credits that have been selected to be attempted.

The attached checklist shows which credits that will be most likely to be able to be achieved. 'Prereq' credits are prerequisites that must be completed in order to become LEED certified. All other credits are optional, although the OSFC requires a focus on the Energy and Atmosphere credits in order to save the district operating dollars in the future. The totals add up all possible credits corresponding to 'Y' for credits that can be achieved, 'N' for credits that cannot be achieved or have been decided to not attempt, or '?' for credits where further research will be required to determine if the project will qualify for that credit, but it will be attempted. The total number of credits will depend on how many of the credits in question are able to be achieved. As it stands right now, the project appears to be well within the range of the required Silver Certification even if not all of the questionable credits are achieved. As design progresses, this checklist will be refined and continually verified.

The following notes correspond to discussions about specific credits shown on the checklist and should be reviewed in combination with the attached checklist. Not every credit is listed, only those with items noted particular to that credit:

Sustainable Sites

- Credit 1 – Site Selection
 - Further investigation will need to occur to determine if the proposed site is deemed prime farmland or if it is located within the flood plain.
 - At this time there is could be an impact with the flood plain on the project with regard to finish floor elevation and the Phase Two footprint.
- Credit 2 – Development Connectivity
 - The current site is not close to enough different community uses (grocery, bank, restaurant, etc) or a neighborhood with enough density and therefore this credit cannot be achieved.
- Credit 3 – Brownfield Redevelopment
 - The site is a Greenfield site and doesn't qualify for this credit.
- Credit 4.1 – Alt. Transportation – Public Transportation Access
 - There is not a second bus line within ¼ mile of the project site.
- Credit 6.2 – Stormwater Design – Quality Control
 - This point also qualifies for a Regional Priority Credit
- Credit 7.1 – Heat Island Effect – Non-Roof
 - This credit can mostly likely be achieved and can easily be achieved if concrete is used in lieu of asphalt.
- Credit 7.2 – Heat Island Effect - Roof
 - This can be achieved typically with light colored roofing, but if we are to match the existing High School shingles exactly this credit may not be possible due to the fact that 90% of the roofs at the Middle School are planned to be shingled and the existing shingles may be too dark.
- Credit 9 – Master Plan
 - To achieve this credit, a site master plan for the school must be developed in collaboration with the school board.
- Credit 10 – Joint Use of Facilities

A board resolution will need to be passed stating the intent to allow community functions after hours if this doesn't already exist. The existing resolution may be adequate, but needs to be studied for verification.

Water Efficiency

- Credit 1 – Water Efficient Landscaping
 - There will be no irrigation. This includes no hose bibs on the exterior of the building.
- Credit 3 – Water Use Reduction
 - 30% reduction should be easily achieved and possibly 35%.

Energy and Atmosphere

- Credit 2 – On-Site Renewable Energy
 - Solar panels need to be planned for in the future per OSFC for roof loading and conduits as well as room in the electrical panels. The District is going to begin discussions with a company regarding installing wind turbine (possibly two) on the site. If this turbine is installed, it is likely that 5 points can be achieved through this credit. This point also qualifies for a Regional Priority Credit so an additional point can be gained on top of the 5 with the base credit.
- Credit 3 – Enhanced Commissioning

This credit is automatically achieved with the OSFC's commissioning process.
- Credit 6 – Green Power
 - This credit can be achieved for typically a few thousand dollars if we are in a position late in the process that it becomes necessary. It may also be possible to achieve this with the wind turbine.

Materials and Resources

- Credit 3 – Construction Waste Management
 - It is our experience that credit has been received by the contractors during bidding without resistance, but will need careful oversight during construction. There are companies now that sort the construction waste off site and report the content recycled in lieu of relying on contractors to self-sort their waste.
- Credit 4 – Recycled Content
 - 10% should be easily achieved and we will attempt to hit 20%
- Credit 7 – Certified Wood

With brick and block construction and the limited amount of wood in the project, this will be a fairly simple credit to achieve.

Indoor Environmental Quality

- Credit 2 – Increased Ventilation
 - It is probable that this credit can be achieved, but it will require further refinement in the design and modeling as the project progresses.
- Credit 3.2 – Construction IAQ Management Plan – Before Occupancy
 - Consider testing procedure rather than air flushing – time requirements tend to be much less and this will be important with the compressed construction schedule.
- Credit 4 – Low Emitting Materials
 - We need to keep in mind that roof adhesives count toward this credit as they are inside the watertight envelope
 - It is likely that credit 4.6 can be achieved, but it needs to be investigated a little further.
- Credit 5 – Indoor Chemical and Pollutant Source Control
 - Local health department requires 15' of walk-off.
- Credit 8.1 – Daylighting and Views - Daylight
 - This point will not likely be achieved due to the current site configuration and the relationship with the new building to the high school, but we will be incorporating daylighting as much as possible.

- Credit 10 – Mold Prevention
 - We cannot achieve this credit due to the decision to not attempt IEQ Credit 7.2: Thermal Comfort—Verification.

- **Innovation and Design Process**
- Credit 1.1 – Innovation in Design
 - The exact credits will be explored during the DD phase for this credit in conjunction with the District. It is anticipated that at least three credits can be achieved and possibly one more.
- Credit 3 – The School as a Teaching Tool

This is something that is partially in place within the District currently. FMD will send additional information to the District for what is required for this credit.

The above constitutes FMD Architects' understanding of what was discussed. Requests for modifications, additions, or clarifications to this conference record should be submitted in writing to this office within (5) business days. Submissions may be made via email to bfry@fmdarchitects.com. Please include references by item number when submitting such requests.

Prepared by:

FMD ARCHITECTS, INC.

Cc: All Present



LEED 2009 for Schools New Construction and Major Renovation

Project Checklist

Keystone Middle School

January 25, 2011

13	3	2	Sustainable Sites	Possible Points: 24
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Y	N	?		
Y			Prereq 1 Construction Activity Pollution Prevention	
Y			Prereq 1 Environmental Site Assessment	
		1	Credit 1 Site Selection	1
	1		Credit 2 Development Density and Community Connectivity	4
	1		Credit 3 Brownfield Redevelopment	1
	1		Credit 4.1 Alternative Transportation—Public Transportation Access	4
1			Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms	1
2			Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	2
2			Credit 4.4 Alternative Transportation—Parking Capacity	2
1			Credit 5.1 Site Development—Protect or Restore Habitat	1
1			Credit 5.2 Site Development—Maximize Open Space	1
1			Credit 6.1 Stormwater Design—Quantity Control	1
1			Credit 6.2 Stormwater Design—Quality Control	1
1			Credit 7.1 Heat Island Effect—Non-roof	1
		1	Credit 7.2 Heat Island Effect—Roof	1
1			Credit 8 Light Pollution Reduction	1
1			Credit 9 Site Master Plan	1
1			Credit 10 Joint Use of Facilities	1

6	2	2	Water Efficiency	Possible Points: 11
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Y	N	?		
Y			Prereq 1 Water Use Reduction—20% Reduction	
4			Credit 1 Water Efficient Landscaping	2 to 4
			<input type="checkbox"/> 50% Reduction	2
			<input checked="" type="checkbox"/> No Potable Water Use or Irrigation	4
	2		Credit 2 Innovative Wastewater Technologies	2
2		1	Credit 3 Water Use Reduction	2 to 4
			<input checked="" type="checkbox"/> 30% Reduction	2
			<input type="checkbox"/> 35% Reduction	3
			<input type="checkbox"/> 40% Reduction	4
		1	Credit 3 Process Water Use Reduction	1

Y	Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y	Prereq 2	Minimum Energy Performance	
Y	Prereq 3	Fundamental Refrigerant Management	
5	2	Credit 1	Optimize Energy Performance
			1 to 19
			1
			2
			3
			4
		X	5
		X	6
		X	7
			8
			9
			10
			11
			12
			13
			14
			15
			16
			17
			18
			19
			1
			2
			3
			4
		X	5
			6
			7
2		Credit 3	Enhanced Commissioning
			2
1		Credit 4	Enhanced Refrigerant Management
			1
		2	Credit 5
			Measurement and Verification
			2
		2	Credit 6
			Green Power
			2

5	6	3	Materials and Resources	Possible Points: 13
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Y			Prereq 1 Storage and Collection of Recyclables	
2			Credit 1.1 Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 2
			<input type="checkbox"/> Reuse 75%	1
			<input type="checkbox"/> Reuse 95%	2
2			Credit 1.2 Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
1		1	Credit 2 Construction Waste Management	1 to 2
			<input checked="" type="checkbox"/> 50% Recycled or Salvaged	1
			<input type="checkbox"/> 75% Recycled or Salvaged	2
2			Credit 3 Materials Reuse	1 to 2
			<input type="checkbox"/> 5% Reuse	1
			<input type="checkbox"/> 10% Reuse	2
1		1	Credit 4 Recycled Content	1 to 2
			<input checked="" type="checkbox"/> 10% of Content	1
			<input type="checkbox"/> 20% of Content	2
2			Credit 5 Regional Materials	1 to 2
			<input type="checkbox"/> 10% of Materials	1
			<input checked="" type="checkbox"/> 20% of Materials	2
		1	Credit 6 Rapidly Renewable Materials	1
1			Credit 7 Certified Wood	1

8	5	5	Indoor Environmental Quality	Possible Points: 19
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Y			Prereq 1 Minimum Indoor Air Quality Performance	
Y			Prereq 2 Environmental Tobacco Smoke (ETS) Control	
Y			Prereq 3 Minimum Acoustical Performance	
1			Credit 1 Outdoor Air Delivery Monitoring	1
		1	Credit 2 Increased Ventilation	1
1			Credit 3.1 Construction IAQ Management Plan—During Construction	1
1			Credit 3.2 Construction IAQ Management Plan—Before Occupancy	1
3		1	Credit 4 Low-Emitting Materials	1 to 4
			<input checked="" type="checkbox"/> 4.1 - Adhesives & Sealants	1
			<input checked="" type="checkbox"/> 4.2 - Paints & Coatings	1
			<input checked="" type="checkbox"/> 4.3 - Flooring Systems	1
			<input type="checkbox"/> 4.4 - Composite Wood & Agrifiber Products	1
			<input type="checkbox"/> 4.5 - Furniture & Furnishings	1
			<input type="checkbox"/> 4.6 - Ceiling & Wall Systems	1
1			Credit 5 Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1 Controllability of Systems—Lighting	1
		1	Credit 6.2 Controllability of Systems—Thermal Comfort	1
		1	Credit 7.1 Thermal Comfort—Design	1
	1		Credit 7.2 Thermal Comfort—Verification	1
	2		Credit 8.1 Daylight and Views—Daylight	1 to 3
			<input type="checkbox"/> 75% of classrooms	1
			<input type="checkbox"/> 90% of classrooms	2
			<input type="checkbox"/> 75% of other spaces	2 to 3
1			Credit 8.2 Daylight and Views—Views	1
		1	Credit 9 Enhanced Acoustical Performance	1
	1		Credit 10 Mold Prevention	1

5	0	1	Innovation and Design Process	Possible Points: 6
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1			Credit 1.1 Innovation in Design: Specific Title	1
1			Credit 1.2 Innovation in Design: Specific Title	1
1			Credit 1.3 Innovation in Design: Specific Title	1
		1	Credit 1.4 Innovation in Design: Specific Title	1
1			Credit 2 LEED Accredited Professional	1
1			Credit 3 The School as a Teaching Tool	1

1	0	3	Regional Priority Credits	Possible Points: 4
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1			Credit 1.1 Regional Priority: SSc6.2	1
		1	Credit 1.2 Regional Priority: EAc2 (3%)	1
		1	Credit 1.3 Regional Priority: MRc2 (75%)	1
		1	Credit 1.4 Regional Priority: MRc6	1

46	16	27	Total	Possible Points: 110
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Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110