HIGH PERFORMANCE GREEN BUILDING DESIGN CHARRETTE REPORT

Lancaster Family YMCA

May 21 and 30, 2007

Prepared by Marcus Sheffer
June 30, 2007

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SUMMARY

Lancaster Family YMCA

The Lancaster Family YMCA has begun the process of designing and constructing a new facility along Harrisburg Avenue. Board members and other involved with the project have identified a desire for a green building project. The design team was in place and some preliminary design work had begun. Wohlson Construction contacted 7group to discuss a possible charrette exercise to develop the design concepts in an integrated process, gain a better understanding on green buildings and LEED, and present these concepts to the public. The project has expressed an interest in LEED Certification. The focus of LEED is to produce high performance, green building projects which reduce operating costs, provide building amenities which have a positive effect on the performance of the occupants, and are constructed with little or no additional first cost.

An initial meeting was held to discuss the charrette process and a two day charrette was scheduled for May 21 and 30, 2007.

The initial session was primarily an educational and goal setting meeting which included lecture, a core values exercise and a review of the project in the context of the LEED Green Building Rating System. A public presentation was also held in the evening to provide interested parties with an overview of the day's activities.

The second day consisted of a design charrette which focused on building siting, massing, design and energy performance.

This report outlines the results of these charrettes The charrette result concluded that LEED Silver Certification was possible within the project's construction budget.

AGENDA

Lancaster Family YMCA
High Performance Green Building Design Meeting
May 21 and 30, 2007

A Summary of the Charrette Process

A successful high performance building is a solution that is greater than the sum of its parts. It is a system of integrated processes and products that increases the efficiency of the building systems and helps to reduce overall costs. A building that conserves energy alone does not constitute a high performance building. In the same respect, adding or overlaying environmental systems will not truly help the building to benefit from the connections and interdependencies of an integrated, or whole systems, design approach. This is the fundamental challenge of high performance building design.

High performance buildings are most effectively developed through a design process that invites the client, appropriate designers and consultants, a consulting general contractor/cost estimator and other appropriate stakeholders to participate from the very beginning of the project. This is done in a focused and collaborative design effort, or brainstorming session(s), known collectively as a design charrette process. The purpose of this composite design team and design process is to provide for an exchange of ideas and information that allows for truly integrated solutions to take form. A forum and methodology is provided where every team member is encouraged to cross fertilize one another with solutions to problems that may relate to, but are not typically addressed by, their specialty. The objective is to have every member of this composite design team understand the issues that the other members need to address. Thus more thorough and integrated solutions are the result.

The charrette method is very important when the client is not one person but consists of a number of interested people. This is a successful way to educate all the participants: architects, engineers, and the client team. There are many advantages in this. The client's staff members are invited to participate throughout the process. Participants are educated about the issues and "buy in" to the solutions. The education process is accelerated, decisions are verified, adversity is diminished, the nuances of organizational issues are learned and the design process is expedited. A final solution isn't necessarily produced in the charrette but most of the issues are explored with all the involved parties being present.

Most buildings have great potential for incorporating the most advanced green building design techniques and systems. Part of the job is to help find an acceptable balance between the economic, cultural, ecological areas of sustainability that will meet the Client's objectives and yet allow for future adaptation of new technologies and interactions with the community.

7group's approach is one of common sense application of thoughtful and integrated solutions. Market transformation in this area can only occur if environmentally responsible buildings can be built at conventional construction cost. The integrated design process is the key to producing high performance green buildings within budget.

Objectives for this charrette:
1. Gain an understanding of high performance green buildings.
2. Gain an understanding of the process required to realize high performance green goals.
3. Establish preliminary performance goals.
4. Familiarize participants with the importance of this approach.
5. Develop design concepts.
6. Review charrette results with project partners.
7. Establish next steps.

Day 1: 7:30 am - 4:00pm and 7:00 pm - 8:00 pm

7:30 Welcome
- Introduction of participants - Overview of the day
- What is a high performance green building? - LEED overview - Why are we concerned?

8:00 Project Overview
- Program and site
- Opportunities and constraints, infrastructure issues, program concerns
- Overview of current design
- Community input

8:30 Core Values Exercise

9:00 Break

9:30 Integrated Design: Key to Producing High Performance Green Buildings within Budget
- What it is - Examples of its effects - How to do it
- Changes to the standard design process

10:00 High Performance Green Buildings: Credit-by-Credit Review of LEED
-The LEED rating system will be used as a framework for discussion. Special emphasis will focus on the design process and the methodologies needed to achieve LEED credits. Specific project examples will demonstrate the concepts, strategies, techniques and technologies.

Sustainable Site Credits - Water Efficiency Credits

11:30 LUNCH

12:30 Energy & Atmosphere Credits - Materials & Resources Credits

2:15 Break

2:30 Indoor Environmental Credits - Innovation & Design Credits

3:30 Building Performance Parameters

4:00 Adjourn

7:00 Review of the charrette results

Day 2: 7:30 am - 4:00 pm and 7:00 pm - 8:00 pm

7:30 Introductions and Review of Day 1

8:00 Site Issues
- Climatic Issues
- Regenerative/Restorative Design
- Integration of project into the community
- Sustainable site opportunities created by this project

8:30 Building Design
- Explore potential conceptual design solutions:
- Primary site components (storm water, utilities, circulation, parking, etc.)
- Orientation
- Functional relationships
- Massing
- Daylighting design

11:30 LUNCH

12:30 Breakout Sessions
- Focused small group sessions to explore and identify performance parameters and specific design solutions:
1. Energy
2. Design

Report results from the small group sessions.

2:00 Integration of Performance Parameters
- Review and integrate various performance metrics and design ideas from the breakout groups, targeting holistic solutions. Consider budget, environmental efficacy, achievability, core values and project mission.
- Establish specific performance goals for the project.

3:30 Next Steps
- Application of integrated, whole-system design process
- Specific services required
- Schedule & Milestones

4:00 Adjourn

7:00 Review of the charrette results

Lancaster Family YMCA Design Charrette Participants - May 21

	Name	Time & Hours Attended	
Board Members			
	Andre Renna	12:30pm - 1pm/ 7pm - 8pm	1.5 hrs
	Tim Roland	7:30am - 9:30am	2 hrs.
	Dr. Jon Walker	7:30am - 4pm	8.5 hrs.
	Ken Kreider	7:30am - 4pm/ 7pm-8pm	9.5 hrs.
	Keith Falco	7:30am- 8:30am/ 7pm-8pm	2 hrs.
	Charles Crystle	8:30am - 2pm	5.5 hrs.
	Richard Stauffer	7:30am - 2pm	5.5 hrs.
City Committee			
	Tom Despard	8am- 11:30am	3.5 hrs.
	Bill Forey	1:30pm - 3:00pm	1.5 hrs.
Foundation Board			
	William M. Hawman	7:30am - 12pm	4.5 hrs.
Professionals			
(Facilitator)	Marcus Sheffer- 7group	7:30am - 4pm	8.5 hrs.
(Facilitator)	John Boecker- 7group	7:30am - 4pm 7pm-8pm	9.5 hrs.
	Michael Funck - Wohlsen	7:30am - 4pm	8.5 hrs.
	Michael Lehr - Wohlsen	7:30am - 4pm	8.5 hrs.
	Bob Fundis - Wohlsen	7:30am - 4pm	8.5 hrs.
	Leon Martin - Clark, Inc.	7:30am-4pm	8.5 hrs.
	Brent Detter- ELA Group	7:30am-4pm	8.5 hrs.
	John Bray- Atlantic Aquatic Enginering	7:30am-4pm	8.5 hrs.
	Brian Sasselli - C.S. Davidson	7:30am-4pm	8.5 hrs.
	Nick Taylor	7:30am-4pm	8.5 hrs.
	Bill Forrey- Comerstone	7:30am - 4pm	8.5 hrs.
	Adam Kerr - Comerstone	7:30am - 4pm	8.5 hrs.
	Dale Yoder - Comerstone	7:30am - 4pm	8.5 hrs.
	Daniel Kirkley - Comerstone	7:30am - 4pm	8.5 hrs.
Stakeholders			
	Margaret Yu - CHE & Arts Hotel	7:30am - 4pm	8.5 hrs.
	Mary Gattis-Schell - Lancaster County Planning	7:30am - 4pm	8.5 hrs.
Members			
	Alan Hamers	7pm - 8pm	1 hrs.
Staff			
	Jeff Kenderdine	7:30am - 4pm / 7pm - 8pm	9.5 hrs.
	Janet Nelson	7:30am - 4pm	8.5 hrs.
	Dave Hendricks	7:30am - 12:30pm	5 hrs.
	Jessica Hockney	7:30am - 4pm / 7pm - 8pm	9.5 hrs
	Leslie Bentz	1:30pm - 2pm	.5 hrs

	Name	Time & Hours Attended	
Board Members			
	Charlie Cyrstal	7:30am - 10am	2.5hrs
	Ken Kreider	7:30am-5pm 7pm-8	10.5 hrs
City Committee			
	Tom Despard	7:30am- 10am	2.5hrs
	Bill Forey	2pm- 4 7pm-8	3 hrs
Foundation Board			
	Fred Kinsey	7:30am- 5pm	9.5 hrs
Professionals			
(Facilitator)	John B. Boecker - 7group	7:30am - 8pm	10.5 hrs
(Facilitator)	Marcus Sheffer - 7group	7:30am - 8pm	10.5 hrs
	Ann Williams - DFI	8:30am - 5pm	8.5 hrs
	Michael Funck - Wohlsen	9:50am - 5pm 7pm-8	8 hrs
	Mike Lehr - Wohlsen	7:30am -5pm	9.5 hrs
	Leon Martin-Clark, Inc.	7:30am - 5pm	9.5 hrs
	Brian Sasselli- C.S. Davidson	7:30am - 5pm	9.5 hrs
	John Bray- Atlantic Aquatic Enginering	7:30am - 5pm	9.5 hrs
	Adam Kerr - CornerStone	7:30am - 5pm 7pm - 8	10.5 hrs
	Dale Yoder- CornerStone	7:30am-5pm 7pm-8	10.5 hrs
	Danniel Kirkley - CornerStone	7:30am-5pm 7pm-8	10.5 hrs
	Brent Detter - ELA	7:30am-5pm	9.5 hrs
Stakeholders			
	Mary Gattis-Schell - Lancaster County Planning	7:30am - 5pm	9.5 hrs
City Officials			
	Paula Jackson (Chief Planner)	7:30am-5pm 7pm-8	10.5 hrs
Staff			
	Leslie Bentz	7:30am-10am 7pm-8	3.5 hrs
	Dave Ressler	7:30am- 12:30pm	5 hrs
	Tom Baughman	9:30am-5pm	7.5 hrs
	Janet Nelson	7:30am-5pm	9.5 hrs
	Jessica Hockney	7:30am -8pm	10.5 hrs
	Cindy Drob	7:30am-2pm	6.5 hrs
	Jeff Kenderdine	9:30am-5pm 7pm-8	8.5 hrs
Members			
	Allen Hammers	7:30am-5pm 7pm-8	10.5 hrs
	Tony Pesarchik	8:20am-5pm	8.5 hrs
	Phyllis A. Giberson	8:30am-1pm -7pm-8pm	5.5 hrs

CORE VALUES EXERCISE

Lancaster Family YMCA

A brain-storming session was initiated to list the core values of the group. The values listed are to be important design considerations for the project team. The intent of the exercise is to solicit the team's core values and then prioritize the results.

Design Elements/Issues	# of votes
1. Increased Membership	39
2. Energy Efficiency	21
3. Budget/Cost	15
4. Reduced Operating Costs	15
5. Daylighting & Lighting Quality	13
6. Durability	10
7. Positive Impact on Neighborhood/Context	10
8. Inspirational: Sense of Pride & Ownership by Users	9
9. Image/Identity/Visibility	8
10. Multifunctional across Multiple Users	7
11. Ease of Vehicular Access	6
12. Comforting/Welcoming Space	6
13. Indoor Air Quality	5
14. Thermal Comfort	5
15. Material/Construction Quality	4
16. Clear Circulation	3
17. Storm water Management	3
18. Parking Capacity	3
19. Building as a Teaching Tool RE: Environmental Issues	3
20. Spatially/Visually Open	3
21. Functional Adjacencies & Proximities	3
22. Ease of Pedestrian Access	2
23 Supportive of Local Economy	2
24. Expandability	1
25. Entrance Canopy	1

Lancaster Family YMCA

The project team reviewed the LEED Green Building Rating System on a credit-by-credit basis in the context of the project. Each credit was determined to be a “Yes” - it will be implemented on this project; a “Maybe” - these credits will require further investigation; and a “No” - these credits are not feasible for this project. A summary preliminary scorecard for the project is included on the following pages. A complete score card with comments and tasks is contained in the Appendix.

In addition, each credit was assigned a cost implication value of “No”, “Low, “Medium” or “High” cost. The figures assigned to these values are summarized below along with a list of the quantity of credits by feasibility and cost implications.

Low - $0 - $10,000 Medium - $10,000 to $25,000 High - over $25,000

The results of the LEED review indicate a total of 42 points targeted as feasible with 16 additional points listed as maybe. The project team has determined that LEED Silver level certification should be targeted at a minimum.

LEED Targeted Credits by Cost Implications

	Yes	?	Total
No Cost	35	4	39
Low Cost	3	5	8
Mid Cost	1	3	4
High Cost	3	4	7
Totals	42	16	58

The table above demonstrates that a LEED Silver rating (33 points minimum) can be obtained at no additional cost beyond the costs identified for commissioning, energy modeling and LEED documentation.

A LEED Gold rating (39 points minimum) could be obtained through systems integration at little or no additional cost.

LEED-NC

LEED® V2.2 Checklist

Yes	?	No				Cost Implications: No	Low	Med	High
9	3	2	**Sustainable Sites**		14 Points	7	2		3
Y			Prereq 1	Construction Activity Pollution Prevention	Required	Y			
Y			Credit 1	Site Selection	1	N			
Y			Credit 2	Development Density & Community Connectivity	1	N			
Y			Credit 3	Brownfield Redevelopment	1	N			
Y			Credit 4.1	Alternative Transportation, Public Transportation Access	1	N			
Y			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1	N			
		N	Credit 4.3	Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles	1				
Y			Credit 4.4	Alternative Transportation, Parking Capacity	1		L		
	?		Credit 5.1	Site Development, Protect or Restore Habitat	1				H
	?		Credit 5.2	Site Development, Maximize Open Space	1	N			
	?		Credit 6.1	Stormwater Design, Quantity Control	1				H
Y			Credit 6.2	Stormwater Design, Quality Control	1	N			
		N	Credit 7.1	Heat Island Effect, Non-Roof	1				
Y			Credit 7.2	Heat Island Effect, Roof	1				H
Y			Credit 8	Light Pollution Reduction	1		L		

Yes	?	No				No	Low	Med	High
4	1		**Water Efficiency**		5 Points	4			1
Y			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1	N			
Y			Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1	N			
	?		Credit 2	Innovative Wastewater Technologies	1				H
Y			Credit 3.1	Water Use Reduction, 20% Reduction	1	N			
Y			Credit 3.2	Water Use Reduction, 30% Reduction	1	N			

Yes	?	No				No	Low	Med	High
10	4	3	**Energy & Atmosphere**		17 Points	9	2	1	2
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required	Y			
Y			Prereq 2	**Minimum Energy Performance**	Required	Y			
Y			Prereq 3	**Fundamental refrigerant Management**	Required	Y			
Y			Credit 1.1	**Optimize Energy Performance**, 14% New / 7% Existing	2	N			
Y			Credit 1.2	**Optimize Energy Performance**, 21% New / 10% Existing	2				H
Y			Credit 1.3	**Optimize Energy Performance**, 28% New / 21% Existing	2	N			
Y			Credit 1.4	**Optimize Energy Performance**, 35% New / 28% Existing	2	N			
Y			Credit 1.5	**Optimize Energy Performance**, 42% New / 35% Existing	2	N			
	?		Credit 2.1	**On-Site Renewable Energy**, 2.5%	1			M	
		N	Credit 2.2	**On-Site Renewable Energy**, 7.5%	1				
		N	Credit 2.3	**On-Site Renewable Energy**, 12.5%	1				
	?		Credit 3	**Enhanced Commissioning**	1		L		
	?		Credit 4	**Enhanced Refrigerant Management**	1		L		
		N	Credit 5	**Measurement & Verification**	1				
	?		Credit 6	**Green Power**	1	N			

Yes	?	No				No	Low	Med	High
6	2	5	**Materials & Resources**		13 Points	6		1	1
Y			Prereq 1	**Storage & Collection of Recyclables**	Required	Y			
		N	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1				
		N	Credit 1.2	**Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof	1				
		N	Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1				
Y			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1	N			
Y			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1	N			
	?		Credit 3.1	**Materials Reuse**, 5%	1				H
		N	Credit 3.2	**Materials Reuse**, 10%	1				
Y			Credit 4.1	**Recycled Content**, 10% (post-consumer + 1/2 pre-consumer)	1	N			
Y			Credit 4.2	**Recycled Content**, 20% (post-consumer + 1/2 pre-consumer)	1	N			
Y			Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regionally	1	N			
Y			Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regionally	1	N			
		N	Credit 6	**Rapidly Renewable Materials**	1				
	?		Credit 7	**Certified Wood**	1			M	

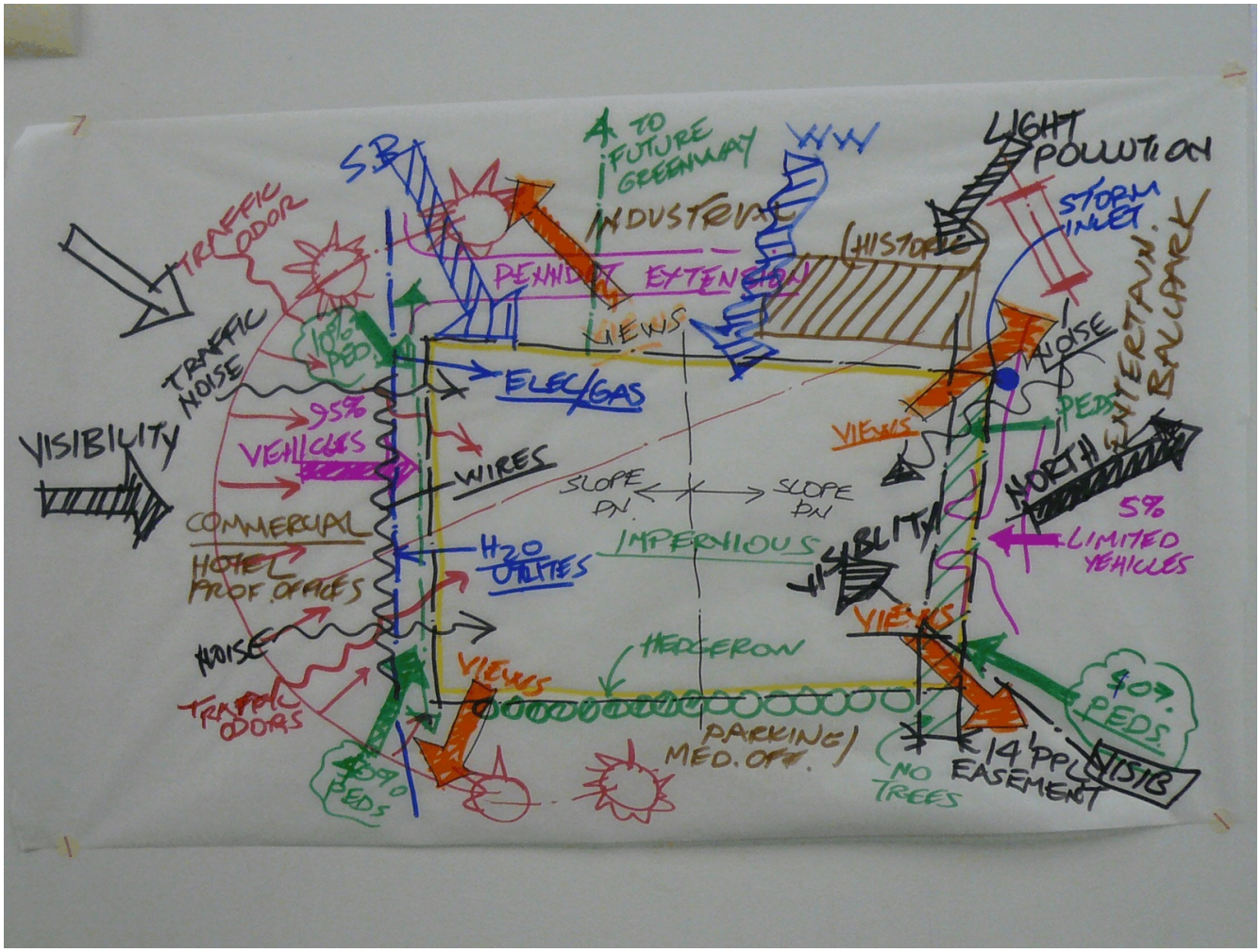
Yes	?	No				No	Low	Med	High
10	4	1	**Indoor Environmental Quality**		**15** Points	8	4	2	
Y			Prereq 1	**Minimum IAQ Performance**	Required	Y			
Y			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required	Y			
Y			Credit 1	**Outdoor Air Delivery Monitoring**	1		L		
	?		Credit 2	**Increase Ventilation**	1			M	
Y			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1	N			
		N	Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1				
Y			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1	N			
Y			Credit 4.2	**Low-Emitting Materials**, Paints	1	N			
Y			Credit 4.3	**Low-Emitting Materials**, Carpet	1	N			
	?		Credit 4.4	**Low-Emitting Materials**, Composite Wood	1		L		
	?		Credit 5	**Indoor Chemical & Pollutant Source Control**	1		L		
Y			Credit 6.1	**Controllability of Systems**, Lighting	1	N			
Y			Credit 6.2	**Controllability of Systems**, Thermal Comfort	1	N			
Y			Credit 7.1	**Thermal Comfort**, Design	1	N			
	?		Credit 7.2	**Thermal Comfort**, Verification	1		L		
Y			Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1			M	
Y			Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1	N			

Yes	?	No				No	Low	Med	High
3	2		**Innovation & Design Process**		**5** Points	5			
Y			Credit 1.1	**Innovation in Design**:	1	N			
Y			Credit 1.2	**Innovation in Design**:	1	N			
	?		Credit 1.3	**Innovation in Design**:	1	N			
	?		Credit 1.4	**Innovation in Design**:	1	N			
Y			Credit 2	**LEED Accredited Professional**	1	N			

Yes	?	No				No	Low	Med	High
42	16	11	**Project Totals**		**69** Points	39	8	4	7

Lancaster Family YMCA

A site diagram was used to illustrate the potential site forces and relationships. These included solar orientation for daylighting and energy efficiency, access to high quality views, orientation to prevailing winds, noise, and the building's relationship to the site.



Programmatic issues were discussed as the basis for further design discussions. Considerable discussion focused on the size of the pool, gym, and aerobics areas. The discussion was organized around a review of the current design. Participants were asked to list what they would like to keep about the current design and what they would like to avoid. The notes from this section are included on the next page.

KEEP

1. Define street edge/ streetscape @ Harrisburg ave.
2. Pool size and visibility from inside (priority) & outside
3. Aerobics space size & 2nd space/ potential expandability into above space.
4. Many windows vs. walls – "inviting"
5. Open reception area
6. Steam/sauna/whirlpool
7. Inside walking track w/ views
8. Masonry facade
9. Flexibility/access to community room/kitchen
10. Entrance canopy
11. Single point of controlled access
12. Natural light into pool –try spectators on mezzanine
13. Dual visibility from Harrisburg st. and Prince st.
14. Improve access from locker room to both gym & pool
15. Maximize green space
16. Keep all 104 parking spaces
17. Child watch near front door
18. Family locker rooms
19. Wellness visibility as "marquee"
20. Storage adjacent to gym

AVOID

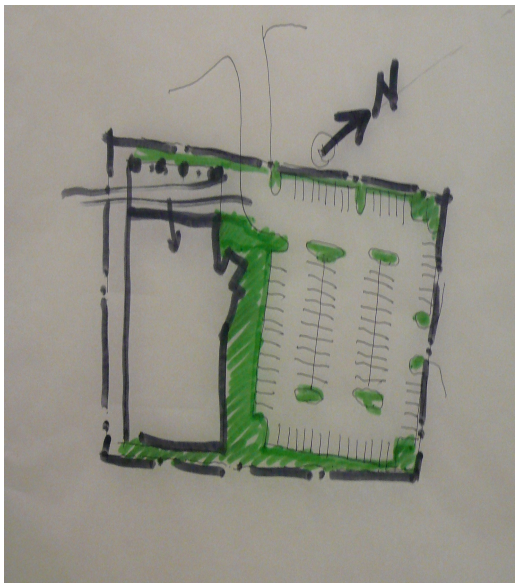
1. Glare on pool
2. Windowless rooms
3. Chlorine smell
4. Poor safety & security
5 Isolation of Steam Room/Sauna
6. Undersized Gym
   - current = 69 70x54
   - desired ? 70x90
7. Undersized pool
   - 6 lanes o.k. (8 lanes = $650 – 750k)
8. Oversized volumes
9. Undersized Aerobics & storage
10. Wellness on 2nd floor (no less than 12' ceiling)
11. Undersized Wellness
12. Weights in Wellness space

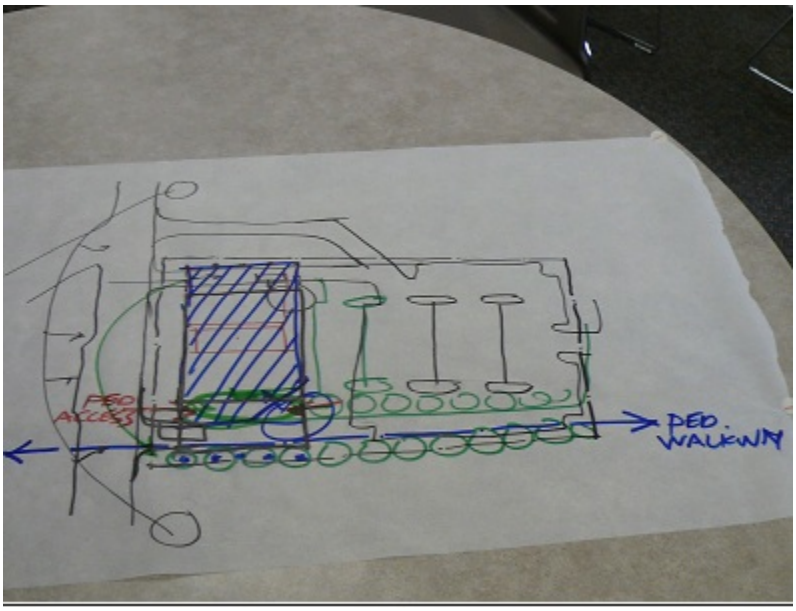
PRIORITIES:

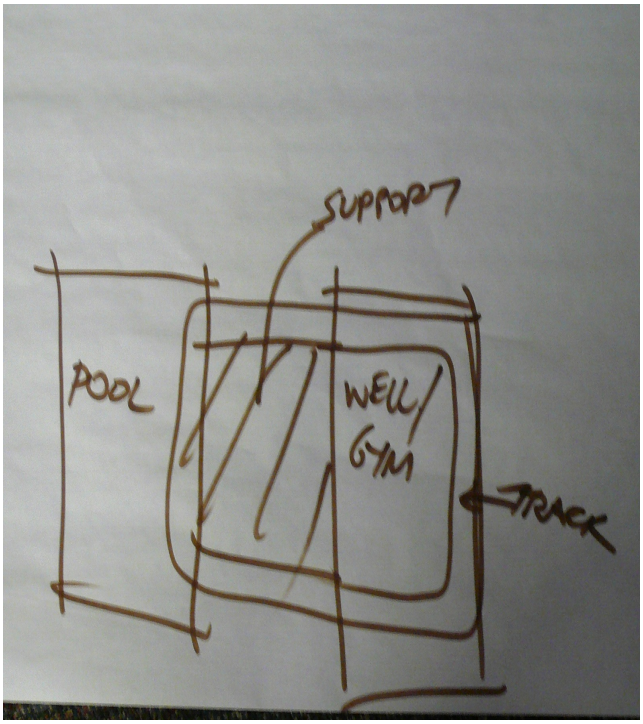
1. Wellness - app. 70 sq ft/person; currently 70, would like 90
2. Aerobics – 45 sq ft/person
3. Gym

Building design ideas were discussed to modify the building design to accommodate the LEED and green building parameters discussed during day one. Alternative design concepts were discussed in general to incorporate sustainable design elements into the project.

A north-south oriented building with properly shaded windows, will typically use 10% to 30% less energy than a building oriented east-west. In addition, daylighting goals will be significantly easier and less costly to attain. The idea of reorienting the building along Harrisburg Avenue was discussed and explored with the larger group. This seemed to present several benefits in addition to the building orientation. These include a greater degree of street presence favored by local officials, greater visibility for the wellness area, and no parking along the entry drive causing traffic issues.







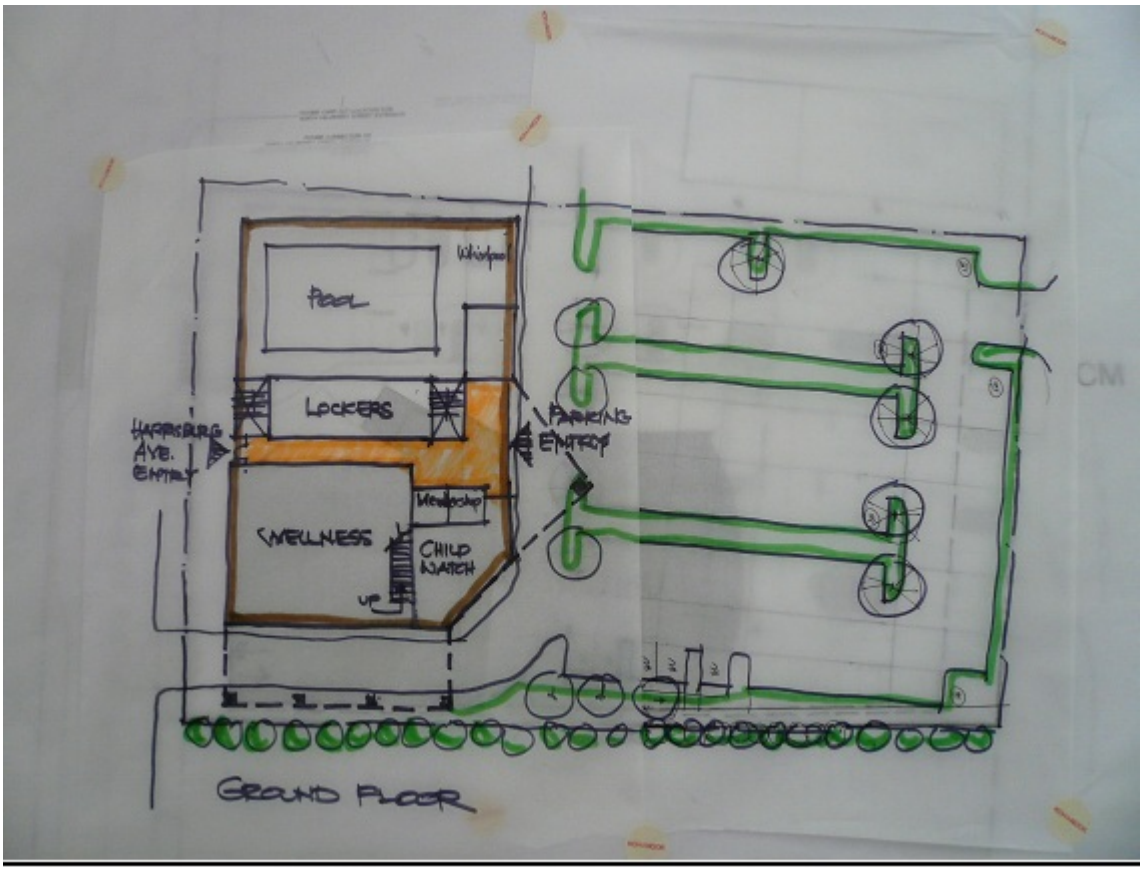
BREAKOUT SESSIONS

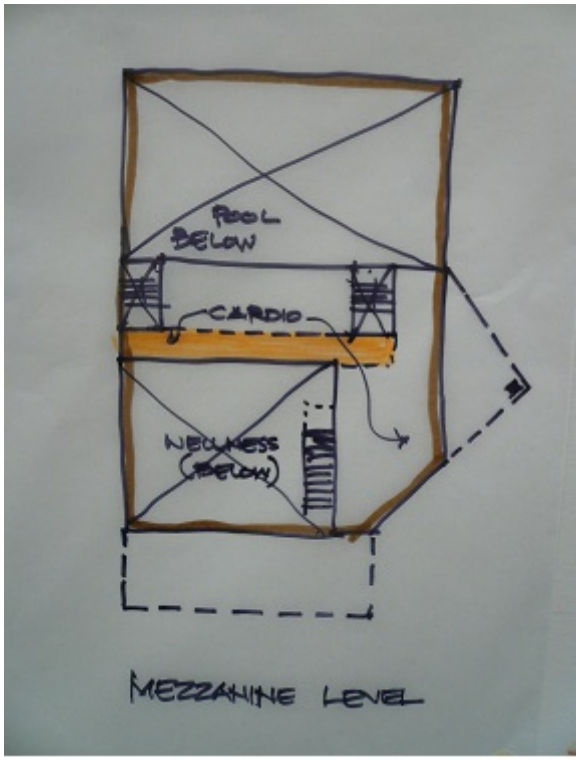
Lancaster Family YMCA

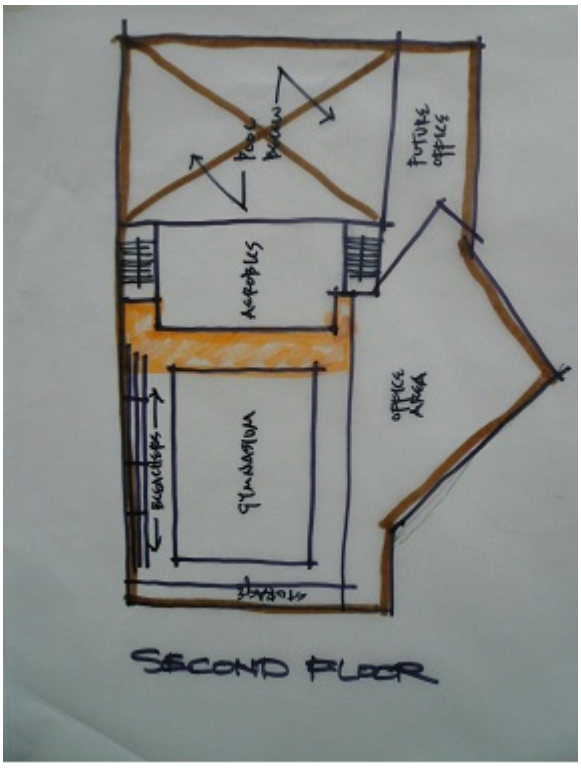
Breakout sessions were convened to focus discussion on issues related to the building design and energy issues. One group continued to develop the design concepts developed earlier in the day. The other group concentrated on energy related issues.

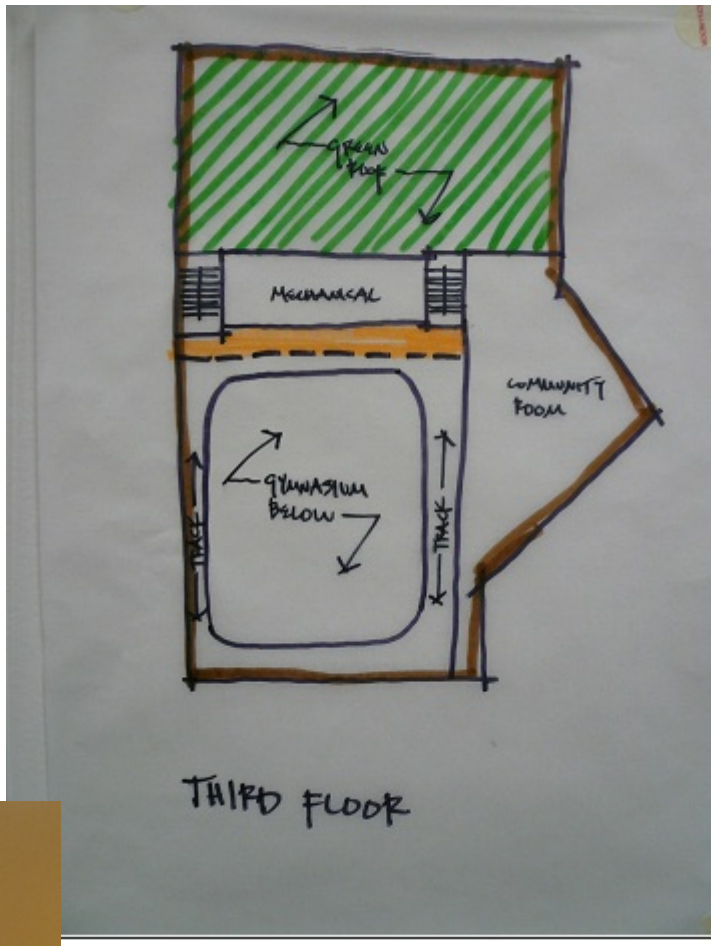
Building Design

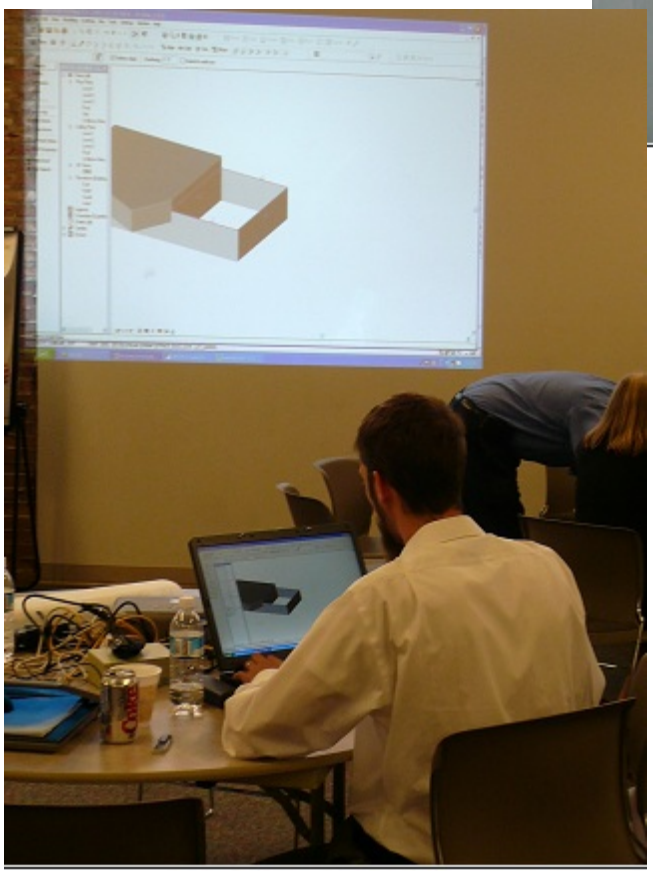
The results of this group's work are summarized in the drawings beginning on the next page. The wellness area was taken to the first floor along with the pool and locker rooms. A mezzanine level houses cardio overlooking the wellness area below and potentially a spectator area for the pool. A portion of the second floor extends over the building entry drive and also includes the gym office and aerobics. A third floor includes community space and the running track around the gym.


POOL
LOCKERS
WELLNESS
CHILD WATCH
GROUND FLOOR


POOL BELOW
CARDIO
WELLNESS (BELOW)
MEZZANINE LEVEL


FUTURE OFFICE
OFFICE AREA
SECOND FLOOR


GREEN ROOF
MECHANICAL
COMMUNITY ROOM
GYMNASIUM BELOW
TRACK
TRACK
THIRD FLOOR



Energy

Goals related to energy efficiency and HVAC system sizing were discussed. Performance goals were related to similar projects in York County.

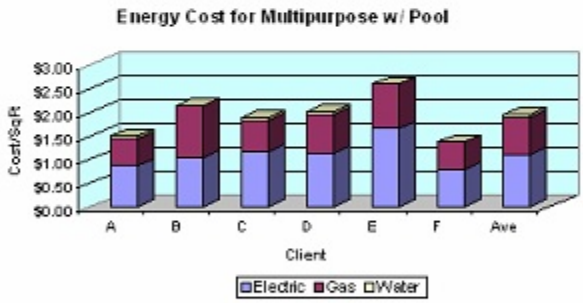
Building Energy Consumption Analysis
York County Community Foundation

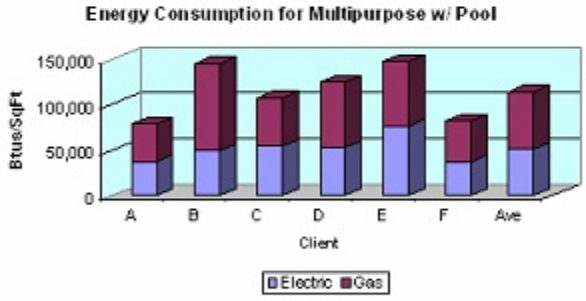
Client:
Building:

Client Comparison for 2005
How do you compare?

Building Type: Multipurpose w/ Pool

Client	Cost/SqFt				Btus/SqFt		
	Electric	Gas	Water	Totals	Electric	Gas	Totals
A	$0.87	$0.57	$0.05	$1.49	36,594	41,442	78,036
B	$1.04	$1.10	—	$2.14	49,104	95,741	144,845
C	$1.17	$0.65	$0.06	$1.88	54,024	53,341	107,365
D	$1.13	$0.82	$0.07	$2.02	52,639	71,545	124,184
E	$1.66	$0.94	—	$2.60	76,326	71,089	147,415
F	$0.80	$0.57	—	$1.37	36,985	45,136	82,121
Average	$1.11	$0.78	$0.06	$1.95	50,945	63,049	113,994





Client Comparison for 2005 6/3/2007

Energy cost and consumption per square foot are the measures which enable comparison of various buildings.

The team established the following design goals:

Performance Criteria	Standard Practice	Project Target
Cost/square foot	$2.00	Under $1.50
kBTU/Square foot	115	< 100
Lighting - Watts/square foot	1.5	< 1.0
Lights off	0%	75%
Windows	0.45 U, aluminum	0.3 U, fiberglass?
Walls	R9	R25, ICF/Pentstar
Pool walls	tilt up, block	
Roof	R20	R30
Slab	none	perimeter, pool sides
Shading	none	south side
HVAC	RTU	GSHP, boiler/chiller
Pool HVAC	PoolPak	Heat Recovery - pool cover
Pool water heating	back up	solar
Sauna/Steam	electric	gas
Domestic hot water	Gas condensing	gas condensing
Other		Microturbines

Subsequent to the charrettes the YMCA provided their current utility bills for analysis. The current cost for the facility with the pool is $4.08/sf and 250,868 BTU/sf. These values are significantly higher than similar facilities in York County. The results of this analysis are presented in the appendix.

The larger group then reconvened to hear presentations from each group. The day concluded with the creation of a list of design issues which need to be worked on the in the near future.

DESIGN ISSUES

1. Examine/resolve community rooms location
2. Service area/dumpster location
3. Resolve dual entry/2nd entrance from Harrisburg ave.
4. Steam/sauna locations - visible from pool area?
   (avoid isolation)
5. Basement under core for pool equipment?? - probably not
   - need approximately 120-150 sq. ft.
6. Aerobics w/ views to exterior over green roof
7. Lobby too small
8. Reduce Wellness/expand lockers/core
9. Open upper lobby to view cardio above on mezzanine
10. Locate elevator
11. Consider gabled roof over
12. Consider GSHP units
    - Analyze sq. ft. area + parking requirements
13. Exterior aesthetics

RESULTS AND NEXT STEPS

Lancaster Family YMCA

The charrette resulted in the education of the design and owner team as well as the creation of a preliminary LEED scorecard, recommendations for site placement, a preliminary design concept.

A discussion was facilitated to incorporate the possible performance criteria and sustainability concepts into the design.

Next Steps

1. Test the design scheme to ensure that it meets programmatic needs.
2. Determine scope of work needed to complete the design
3. Establish sequencing/ begin to schedule iterative I.D.P. meetings
4. Analysis - structural systems, energy modeling, daylighting analysis, rainwater harvesting
5. Investigation - local zoning, roofing materials, finish materials, underfloor air systems

Appendix