



HIGH PERFORMANCE GREEN BUILDING DESIGN CHARRETTE REPORT



Westhampton Free Library Westhampton Beach, NY

26 October 2006



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Project Summary

Westhampton Free Library

The Board of the Westhampton Free Library, a public library that serves numerous communities in the vicinity of Westhampton Beach, NY, has undertaken the design of a new facility in order to accommodate growth and expanded services to the community. Sandpebble Builders was hired to deliver this project as the Owner's Representative and constructor, with Ward Associates, P.C. serving as the project's Architect, and Aaron Cohen Associates providing library planning and design consulting services.



7group was subsequently contacted to discuss the potential for creating a high performance LEED® certified project. 7group recommended two “charrettes” with the project team in order to provide green building and LEED education, to set project goals in terms of LEED, and to collectively produce conceptual design solutions related to green design principles. 7group was hired to provide LEED consulting services, beginning with facilitation of these charrettes.

The first of these charrettes was held on 19 June 2006 to establish the project's LEED goals. An educational session about LEED and integrated design was lead by 7group, followed by a “Core Values” exercise that identified and prioritized the Owner's team's goals and aspirations for the project. The team then engaged a comprehensive review of the project as it relates to each credit of the USGBC's LEED Green Building Rating System. This charrette concluded that LEED Gold level certification was possible within the project's construction budget. The second charrette was held on 05 October 2006, when members of the Owner's team and design team gathered in Westhampton Beach to discuss and evaluate conceptual design solutions and green design strategies for the project.



This report documents the key findings and highlights from both of these charrettes.

Summary of the Charrette Process & Agenda

Westhampton Free Library

19 June & 05 October 2006

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 benefit from the connections and interdependencies of an integrated, or "whole systems", design approach. This is the fundamental challenge of high performance building design and LEED Certification.

High performance buildings are most effectively developed through a design process that invites the client, building 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 encourage the exchange of ideas and information, thereby allowing truly integrated solutions to take form. A forum and methodology is provided where every team member is encouraged to cross fertilize with all others in order to identify solutions to problems that may relate to, but are not typically addressed by any one team member's 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 can result.

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

Most buildings have great potential for incorporating the most advanced green building design techniques and systems. Part of the team's job is to find an acceptable balance between the economic, cultural, ecological components 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 targets common sense applications of thoughtful and integrated solutions. Market transformation in this area will occur only 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.

Charrette Objectives: LEED Goal-Setting Workshop – 19 June 2006

1. Gain an understanding of the process required to realize high performance LEED goals.
2. Establish preliminary LEED performance goals.
3. Familiarize participants with the importance of this approach.
4. Establish next steps.

Charrette Agenda: Monday, 19 June 2006

9:00am – 5:00pm

Welcome

- Introduction of participants
- Overview of the day

Integrated Design: The Key to Producing High Performance LEED Buildings within Budget

- What it is
- Examples of its effects
- How to do it
- Changes to the standard design process - LEED Overview

Project Overview: AE Design Team

- Opportunities and constraints, infrastructure issues, program concerns
- Overview of current design status

BREAK

High Performance Green Buildings: Credit-by-Credit Review of LEED

- Using the LEED rating system as a framework for discussion, we will review the many items that can compromise a high performance LEED building. Special emphasis will focus on the process and methodologies needed to achieve certain LEED credits. Specific project examples will demonstrate many of the concepts, techniques and technologies.

Sustainable Site Credits

Water Efficiency Credits

LUNCH: 12:30 – 1:15 pm

Energy & Atmosphere Credits

Materials & Resources Credits

Indoor Environmental Credits

Innovation & Design Credits

Next Steps

Charrette Objectives: LEED Design Charrette – 05 October 2006

1. Review preliminary LEED performance goals and verify potential achievement.
2. Develop design concepts and strategies.
3. Establish next steps.

Charrette Agenda: Thursday 05 October 2006

9:00 am – 5:00 pm

Welcome

- Introduction of participants
- Overview of the day
- Review Core Values

Project Overview: AE Design Team

- Review of opportunities and constraints, infrastructure issues, program concerns
- Overview of current design ideas and/or program

Site Issues

- Integration of Library with Village
- Sustainable site opportunities created by this project – Site Forces

Building Design

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

LUNCH: 12:00 – 1:00

Breakout Sessions

- Focused small groups to explore performance parameters and specific design solutions:
 1. Site/Water
 2. Energy (EQ 1, 2, 3, 5, 6, 7, 8)
 3. Materials (EQ 3, 4, 5, 6, 8)
- Report results from the small group sessions.

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.
- Verify specific performance goals for the project.

Next Steps

- Application of integrated, whole-system design process
- Schedule & Milestones

Charrette Participants

Westhampton Free Library LEED Goal-Setting Workshop

19 June 2006

Name	Title	Company	Phone	Email
Kerri Rosalia	Director	WFL	288-3335	krosalia@gmail.com
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Charrette Participants

Westhampton Free Library LEED Design Charrette
05 October 2006

Name	Title	Company	Phone	Email
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Core Values Exercise

Westhampton Free Library

LEED Goal-Setting Workshop – 19 June 2006

A brain-storming session was initiated to list the core values of the group. The values listed were identified as the most important design considerations for the project team. Once the list was generated each project team member was allowed to vote for their ten most important values. The results of the exercise are listed in the table below.

Design Elements/Issues	# of votes
1. User Friendly and Open Spaces for Targeted Populations and Functions	64
2. More Space and Functional Space	50
3. Energy Efficiency	44
4. Budget and Fundraising	38
5. Child Friendly	36
6. Satisfy 20-year Projected Future Needs	29
7. Community Oriented/Integrated	26
8. Daylighting/Quality Lighting	25
9. Aesthetics to Match Village Context	23
10. Reduced Operating Costs	21
11. Auxiliary Amenities and Activities that Generate Revenue and Augment Duration of Stay	18
12. Indoor Air Quality	17
13. Thermal Comfort	15
14. Connection to Outdoor Spaces	14
15. Resolve Parking	11
16. Ease of Maintenance	10
17. Flexibility	10
18. Inviting and Welcoming	10
19. Acoustics	9
20. Building to Serve as an Educational/Teaching Tool	6
21. Water Efficiency	4
22. Passive Survivability	2
23. Stormwater Management	1
24. Maintain Existing Trees and Site Elements	1

LEED Review

Westhampton Free Library

At the LEED Goal-Setting Workshop, the project team conducted a comprehensive review of the project as it relates to each credit of the LEED Green Building Rating System. Each credit was discussed and assigned a preliminary status according to the following criteria:

- Yes these credits will be implemented on this project
- Maybe . . . these credits will require further investigation
- No these credits are not feasible for this project.

Accordingly, the determination of each credit’s status was recorded on a summary preliminary LEED scorecard for the project, which is included in the Appendix, along with a complete scorecard that indicates comments and assigned tasks.

The results of this LEED review indicated a total of 47 “Yes” points targeted as feasible with 15 additional points listed as “Maybe”. As a result, the project team determined that LEED Gold level certification should be targeted, since this requires achievement of 39 points. Possibly, LEED Platinum level certification could be achieved, depending upon the number of “maybe” points pursued, since this requires that the project earns 52 points.

LEED® Targeted Credits

Westhampton Free Library

Yes	Maybe	Totals
47	15	7



Sense of Place and General Concerns

Westhampton Free Library

In addition to establishing the LEED goals, core values and priorities during the first charrette, participants were asked to portray the project's "sense of place" by describing what it is about this place that makes it special. Participants also were asked to express any general concerns they may have about the project. The following two lists summarize the responses given by the participants:

Sense of Place - What Makes this Place Special:

- Community Spirit
- Friendly and helpful library staff
- Serendipitous private spaces
- Facility serving as both a Community Center and "Culture House", not just a library
- A place where library services are active, but also can serve as a place of respite
- Gallery space for local artists
- Coziness
- Natural light
- Community connectivity – the feeling of a cogent small town
- Community destination that is warm and inviting
- Outdoor connectivity
- Innovative and creative spaces
- Strong desire to maintain a walkable community



General Concerns:

- Major concern that a 14,000 SF library may not meet 20-year future needs
- Library serving as a Community Center likely not possible in a 14,000 SF facility
- Should an alternate site be researched?
- Or should we do the best we can on the current site?
- Is the bowling alley site a possibility? Property cost could be \$6 million
- Likely costs less to build full capacity now than to outgrow and add space later
- Nobody is against a two-story building
- Only 2 of the more than 50 attendees believe that it could be possible to meet the project priorities (20-year needs and Community Center functions) by renovating the existing building.

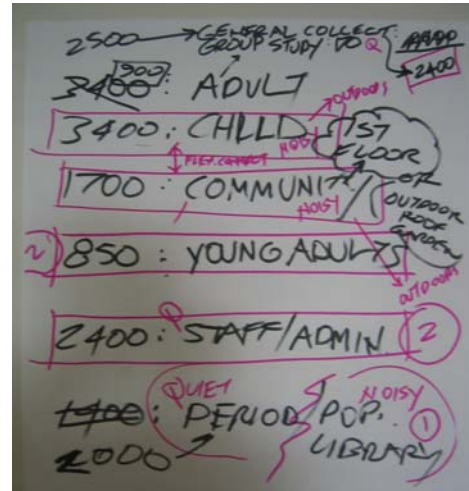


Building Program and Site Issues

Westhampton Free Library

The building's program was discussed. Following a lengthy discussion of various alternatives, the group reached consensus that the project's functional elements fall into 8 main "chunks of space" that are best organized on two floors to group relatively noisy and quiet functions as indicated below, and that these "blocks" of functional spaces require the following approximate areas:

First Floor:		
Children's Library	3,400 SF	noisy
Community Room	2,600 SF	noisy
Popular Library	800 SF	noisy
Second Floor:		
Staff/Admin	2,400 SF	quiet
Group Study	170 SF	quiet
Young Adults	850 SF	?
Either Floor:		
General Collection	2,400 SF	?
Periodicals	2,000 SF	quiet



Additionally, direct at-grade access to the outdoors was discussed as important, particularly the Community Room pre-functional space and the Children's Library. Outdoor access also could be accomplished by providing adjacent accessible roof gardens at the second floor level.

A site forces exercise was undertaken to determine design criteria and context. Solar access, prevailing winds, views, car and pedestrian traffic flows, utilities, user access, service access, parking and parking access, community connectivity, existing vegetation, noise sources, odor sources, open space, and other issues were discussed and mapped in the sketch at right.

Several conclusions about the site were reached:

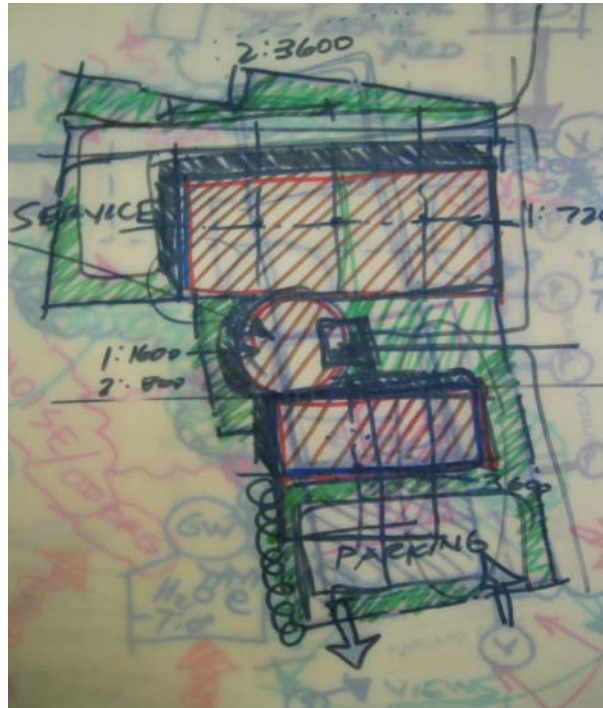
- On-site parking would best be located to the south.
- Service access would best be located in the northwest corner.
- Buffers should be reinforced along the north and west property lines to screen visual unsightliness and noise sources.



Breakout Sessions and Building Design

Westhampton Free Library

Before breaking into smaller work session groups, the entire team engaged in a discussion about building massing. The sketch to the right was generated by this discussion. It depicts the group's consensus about how best to begin locating and configuring building forms and major site components on the library's property. This sketch indicates that the building could be comprised of two-story north and south wings. Components of these wings could be limited to one-story in order to provide a vegetated green roof area accessible by second floor spaces. This sketch also indicates a primary entrance space linking the two wings as diagrammed conceptually by the circular shape.



The team broke into two separate breakout sessions to begin investigating design solutions, one focusing mainly on architectural and site design issues, the other primarily on energy issues. The energy group produced the sketch below. It also was noted by this group that the project should include operable windows that are controlled by staff and an HVAC system with underfloor supply air plenum distribution and automatic controls. This sketch depicts a central tower entry element that could serve as a natural light source with clerestory windows and as a "beacon" of light at nighttime, conceptually reminiscent perhaps of light houses.



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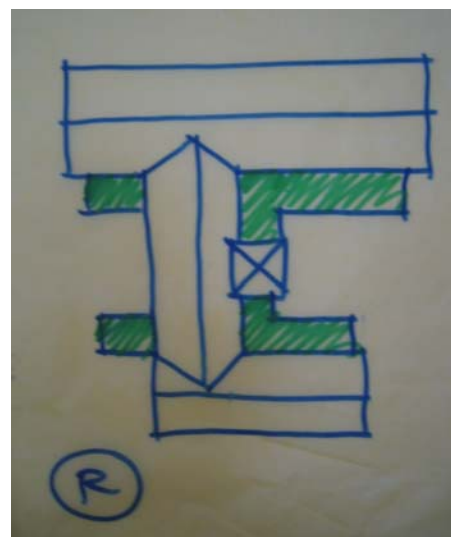
- Covered arcade entry paths both to the north and south of the entry garden that arrive at north and south entrances into a central tower element
- Arrival Lobby to serve as Popular Library with visual and physical access to an outdoor garden space to the west with Circulation desk adjacent to core spaces (toilets, etc.) at the south end
- Children's Library and Community Room in the first floor north wing with potential for a moveable partition between them for excess capacity
- Provide access to outdoor covered area and entry garden from Children's Library
- Entry into lobby/Popular Library from the northwest providing pedestrian access from adjacent parking.
- Entry into lobby/core area from south parking
- Periodicals in the first floor south wing w/ fireplace
- Admin and General Collection in 2nd floor north wing
- Reference Desk/help area in central 2nd floor lobby/arrival space overlooking first floor lobby
- Young Adult s in 2nd floor south wing
- Access to green roof areas around central arrival garden to the east
- Stair elements to the west located at the north and south ends of the Lobby/Popular Library space
- Gabled roof plan with interlocking central tower element at entry
- Potentially locate mechanical spaces in easily accessible attic spaces
- Potentially use south-facing sloped roofs for photovoltaic panels and/r solar hot water generation
- Collect water in cisterns (perhaps exposed for educational purposes) for toilets and perhaps to irrigate green roof areas



First Floor Plan



Second Floor Plan



Roof Plan

Results and Next Steps

The larger group then reconvened to review the conceptual schemes developed by the two breakout groups. After presentation and discussion, the group reached consensus on the following conclusions:

Components and ideas that should be kept and developed:

1. Two wings as configured on the prior page
2. Access to at-grade green space with visual access to green roof areas
3. "Light House" entry element
4. Young Adult space located remotely, but near the General Collection
5. Copious daylighting
6. Underfloor air supply plenum with operable windows managed by staff
7. Covered entry walks and central green garden space at arrival
8. A Basement space is desired
9. Separate Children's toilets near the Children's Library
10. Passive solar design configuration
11. Gas fireplace in Periodicals space
12. Views to south from second floor
13. Outdoor access from Children's Library to green garden space
14. Entry from parking
15. Glass cab for elevator extend terraces at patient rooms
16. Locate service and hearse pick-up beneath building

Things to study further or that need to be fixed:

1. Slide building to the south and locate parking to the north and create a garden space to the south.
2. Look for alternate location for toilet rooms so not on outside wall.
3. Analyze adjacency of Community Room and Children's Library, particularly feasibility of acoustical issues and related movable partition between these spaces.
4. Analyze traffic flow of patrons in entry space/Lobby/Popular Library area.
5. Analyze sight lines and communication needs between Reference Desk (currently shown on 2nd floor) and Circulation Desk.
6. Perhaps provide a "dumb waiter" for transferring books between floors and related functions.
7. Analyze security issues - perhaps consider cameras.
8. Examine expansion capability.
9. Look for the best location to add a café/coffee space to the scheme.
10. Use arrival courtyard for auxiliary functions identified at the Goal-setting Workshop.
11. Verify viability of scheme with Village authorities.

In conclusion, the charrettes resulted in the education of the design and owner team, as well as the creation of a preliminary LEED scorecard, a list of actions and responsibilities, recommendations for site placement and development, and creation of a conceptual floor plan and building configuration.

Next Steps:

Develop Schematic Design with budget.

Appendix