



HIGH PERFORMANCE GREEN BUILDING DESIGN CHARRETTE REPORT



East End Hospice Quogue, NY

09 January 2006



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Project Summary

East End Hospice

The Board of East End Hospice, a New York State Certified Hospice that serves Eastern Suffolk County, has undertaken the design of a new facility in order to provide in-house care for their patients on an abandoned estate site along the Aspatuck Creek in Quogue. Sandpebble Builders was hired to deliver this project as the Owner's Representative and constructor, with Roger Ferris + Partners (RF+P) serving as the project's Architect, and Conservation Design Forum (CDF) providing site design and restoration 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 18 September 2005 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 09 January 2006, when members of the Owner's team and design team gathered in Quogue 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

East End Hospice

18 September 2005 & 09 January 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 – 18 September 2005

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: Sunday, 18 September 2005

10:00am – 5:30pm

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
- LEED Overview

Project Overview: AE Design Team

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

Core Values Exercise

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: 1:00 – 1:30 pm

Energy & Atmosphere Credits

Materials & Resources Credits

Indoor Environmental Credits

Innovation & Design Credits

Next Steps

Charrette Objectives: LEED Design Charrette – 09 January 2006

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

Charrette Agenda: Monday, 09 January 2006

Noon – 7:00pm

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

Site Issues

- Regenerative/Restorative Design
- Sustainable site opportunities created by this project

Building Design

- Explore and critique conceptual design solutions:
 - Primary site components (storm water, utilities, circulation, parking, etc.)
 - Functional relationships, orientation, and massing
 - Daylighting design

BREAK

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

East End Hospice LEED Goal-Setting Workshop
18 September 2005

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Charrette Participants

East End Hospice LEED Design Charrette

09 January 2006

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Core Values Exercise

East End Hospice

LEED Goal-Setting Workshop – 18 September 2005

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.

<u>Design Elements/Issues</u>	<u># of votes</u>
1. Patient care & thermal comfort	34
2. Welcoming, inviting, comfortable, calming	28
3. Privacy & dignity for occupants	18
4. Safe & healthy for occupants	15
5. Site regeneration & restoration of habitat	14
6. Aesthetically pleasing	14
7. Views to exterior	12
8. Model facility for sustainable hospice design	12
9. Site integration	10
10. Non-institutional (homey) w/out sacrificing functionality	9
11. Reduced operating costs	8
12. Functionally efficient	7
13. Quiet	7
14. Community impact – loved by community	6
15. Daylighting	4
16. Budget – first cost	4
17. Indoor Air Quality	3
18. Energy efficiency	3
19. Flexibility	3
20. Controllability of systems	2

LEED Review

East End Hospice

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.

In addition, each credit was evaluated relative to any cost implications associated with pursuing it and assessed a status as one of the following:

- Low \$0 - \$5,000
- Medium . . . \$5,000 to \$20,000
- High over \$20,000

The assigned cost implication for each credit was recorded on the LEED scorecard. These values are summarized below, along with a list of the quantity of credits by feasibility and cost implications.

LEED® Targeted Credits by Cost Implications	Yes	Maybe	Totals
No Cost	34	4	38
Low Cost	9	2	11
Medium Cost	2	1	3
High Cost	0	0	0
Totals	45	7	52

The results of this LEED review indicated a total of 45 “Yes” points targeted as feasible with 7 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.

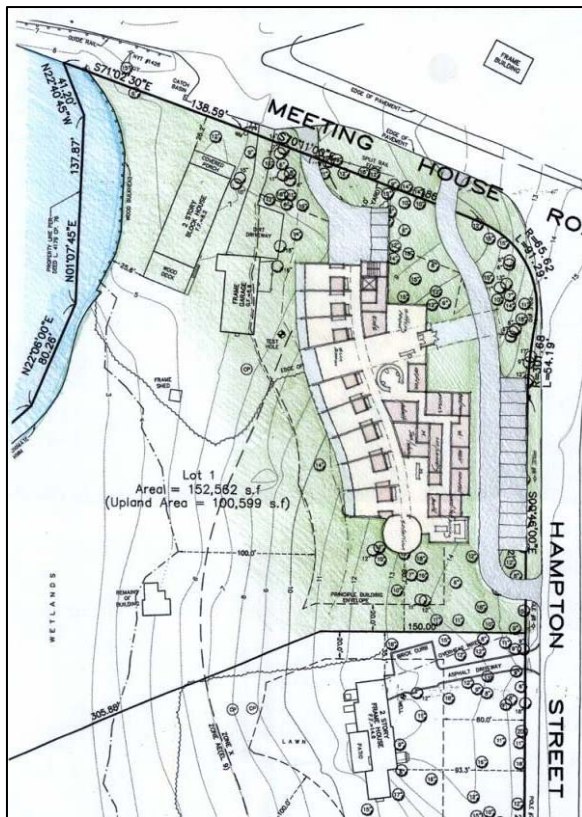
Site Issues and Building Design

East End Hospice

As a result of core values and priorities established at the first charrette, CDF formulated the following objectives for the site based upon the goals identified during that workshop:

1. Provide a setting that is respectful of the needs of hospice guests, family members, staff, and volunteers.
2. Enhance the neighborhood; preserve the soft, naturalistic character of the street frontage compatible with the residential setting.
3. Minimize paved surfaces; incorporate human-scale walking surfaces and spaces.
4. Capture, recycle, and reuse rainwater for function and beauty; slow, cleanse, and infiltrate surplus rainwater.
5. Restore healthy, lush, diverse landscapes to all places on the site.
6. Provide a strong visual and physical connection between indoor and outdoor spaces.
7. Provide opportunities for hospice guests, visitors, staff members, and volunteers to be outside- to gather, walk, and sit alone or in small groups. Provide a peaceful, honorable setting that is calming, free of visual and audible distractions- sounds of water wind, birds; plantings with a variety of colors and textures and that change with the seasons; plantings that spawn new life.

Accordingly, RF+P produced an initial conceptual site plan, followed by an additional site plan produced by CDF that suggests additional site refinements, as depicted below:



RF+P Conceptual Site Plan



CDF Conceptual Site Plan Refinements

The Design Charrette began with presentations of the above sketches, along with a presentation by CDF that focused upon existing site conditions such as:

- Existing edge of Aspatuck choked with non-native reed
- Consequences of water mismanagement currently on site
- Consequences of fire suppression
- Derelict roadway weedy verge overwhelmed by weeds - an opportunity
- Derelict estate with overgrown ornamental plantings and lawn
- High density of native trees (some remnant specimen trees) with absent undergrowth or weedy undergrowth shading out ground plane
- General derelict nature of structures in wooded area
- Existing swamp land

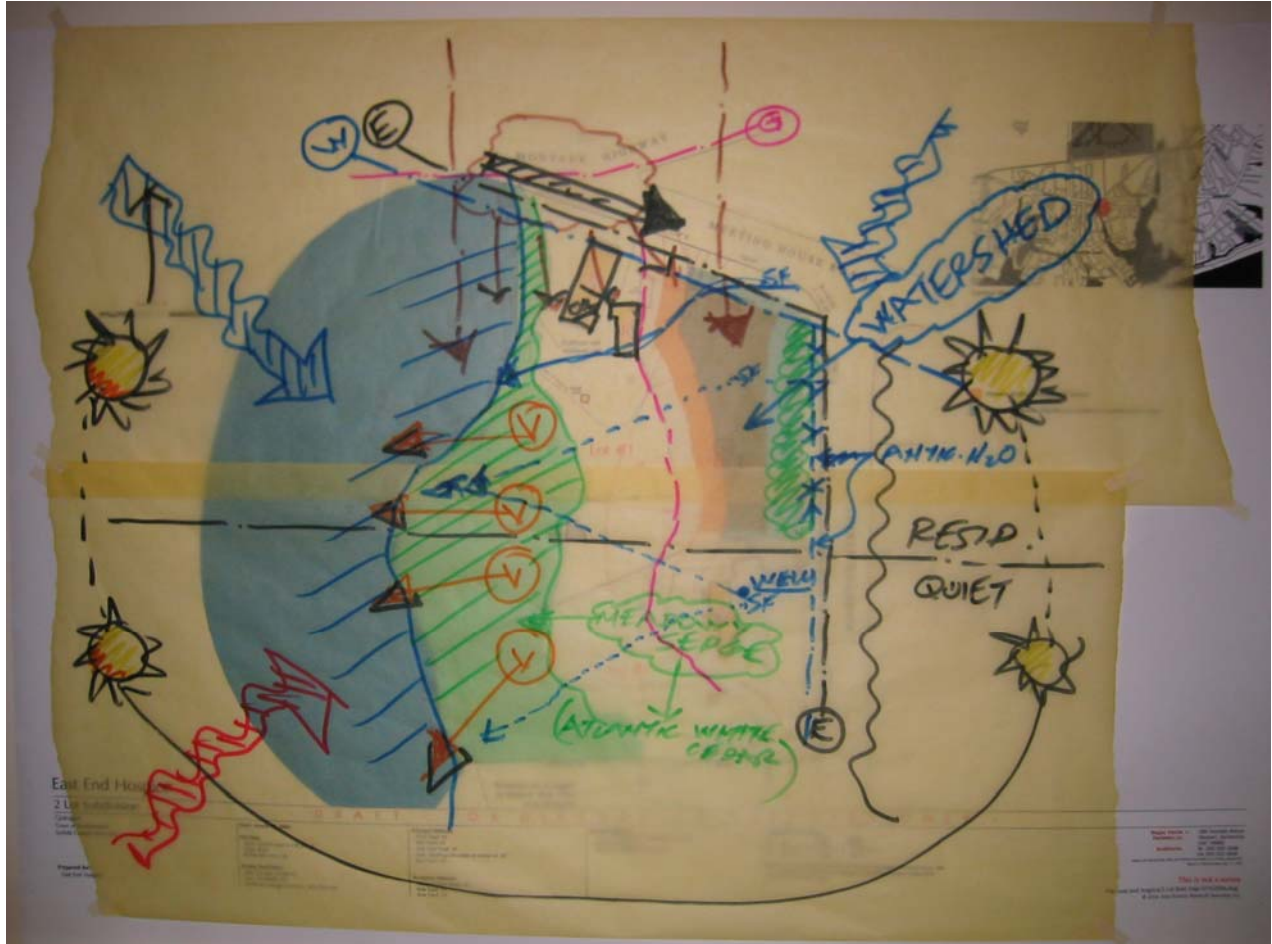


Montage of existing conditions

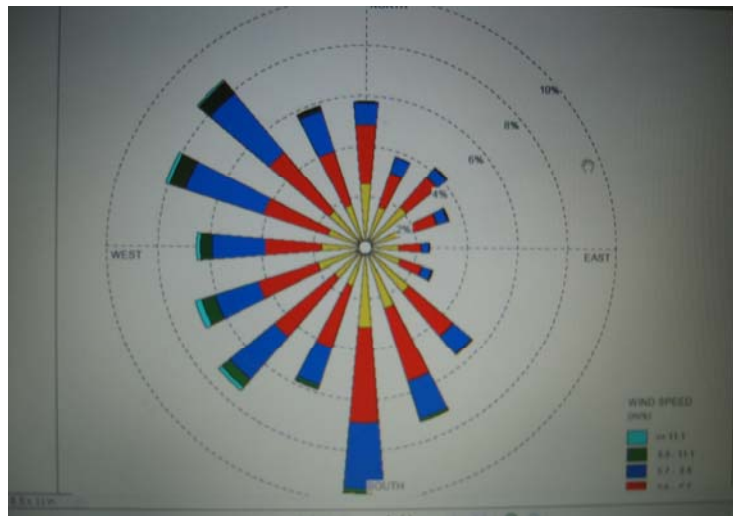
CDF also presented several ideas about restorative measures and strategies that could be pursued by this project, including:

- Decentralized integrated systems for rainwater management designed into the site and buildings, such as: green roofs, porous paving, bio-swales, level spreaders, rain gardens, rain harvesting, native landscape systems, and natural design for water filtration and aeration
- Incorporating water as a visible design element, such as bringing water from the roof to the garden to in a visible way
- Constructed wetlands for wastewater rehabilitation
- Constructed Wetlands for Wastewater Rehabilitation
- Woodland Restoration
- Controlled annual prescribed burning - essential to the health of native landscape systems
- Integration of people into restored native landscape and place
- Restore the vitality of the Aspatuck

A site forces exercise was undertaken to determine design criteria and context. Solar access, prevailing winds, views, car and pedestrian traffic flows, utilities, drainage patterns, user access, parking, community connectivity, existing vegetation, potential native species and habitat, noise sources, and other issues were discussed and mapped (see below).



Additionally, other climatic conditions were discussed, such as the direction and intensity of prevailing winds. The diagram to the right was presented; this “wind rose” indicates both summer and winter winds. Blue represents the direction and intensity of winter winds, while red indicates summer breezes.



Breakout Sessions

East End Hospice

Before breaking into smaller work session groups, the entire team engaged in a critique of the initial conceptual design brought to the meeting by RF+P. The first part of this discussion focused on identifying all of the positive aspects of the scheme worth keeping and developing, followed by a discussion that identified less positive aspects, as outlined below.

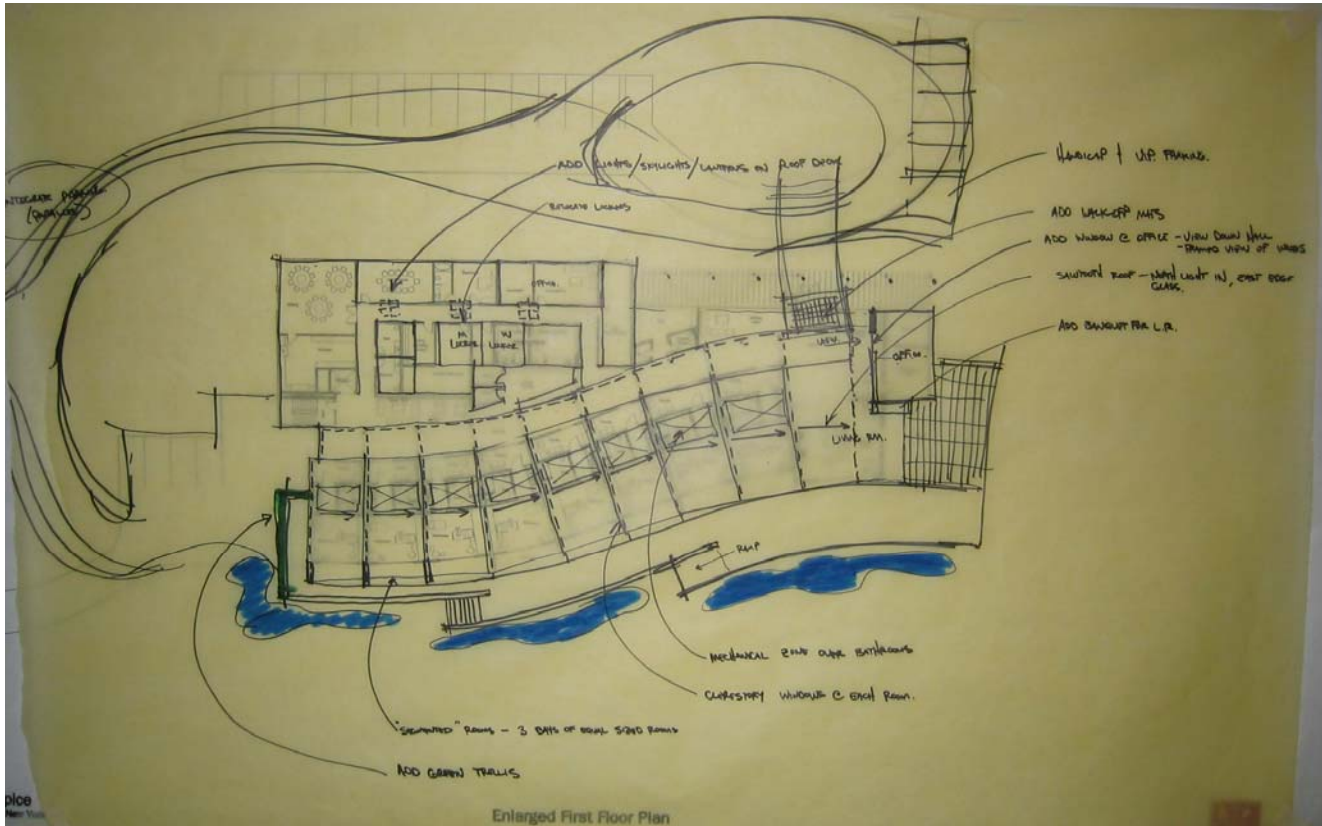
Positive Aspects/Components to Pursue in Conceptual Design:

1. Individual HVAC control
 - a. provide capability for equipment to allow individual control
 - b. make space available for equipment
 - c. efficient distribution system
2. Inviting gentle feel
 - a. integrated with site
 - b. flowing symbol of curve
 - c. maximize views
3. Separated building service area (toward Meeting House Road)
4. Landscape restoration - protection of habitat and natural environment
5. Parking at east not too close to building
6. Idea of reverence for land equating to reverence for patients
7. Functional separation and efficiency
8. Tranquility element (water wall)
9. Balconies at each room patient with easy access into the site
10. Indoor/outdoor spatial connection
11. Transition space/anteroom spatial zone at each patient room
12. Main street circulation space with daylighting
13. Green roof garden accessible from penthouse meeting room
14. Pedestrian walkway into wetlands
15. Public viewing of Aspatuck from NW corner of site

Negative Aspects - Issues to Avoid, Revise, or Resolve in Conceptual Design:

1. Mechanical equipment on roof
2. Parking configuration and vehicular access parameters:
 - a. No visitors parking at lower level
 - b. Staff parking only should be accessed from Meeting House Road:
 - c. Allow only one curb cut on each road
3. Safety of service access drive (no left turn onto Meeting House Road?)
4. Noise from northwest corner – primarily traffic noise
5. Need to remediate / restore at location of building demolition
6. Location of staff locker rooms (downstairs)
7. Need view from nurses station to exterior
8. Conflict between views and thermal comfort / solar orientation to west
9. Need family kitchenette
10. Water table level (ongoing monitoring ... not much below 6'-0" elevation at lower level – need to resolve conflict with upper level elevation)

The team broke into three separate breakout sessions to begin investigating design solutions, one focusing on site issues, one on energy issues, and one on developing further the building design. The building design group produced the sketches below.



Ideas that emerged from this scheme include:

- North-facing clerestory windows with sawtooth roof at each patient room configured as a module of three bays with east-facing clerestory glazing over Main Street
- Expand balcony space and allow stair/ramp access directly into site gardens
- Provide planting screen wall/trellis at northwest corner to help screen noise
- Relocate lockers to core area behind nurses station
- Add skylight “lanterns” that provide daylight in east wing corridor and light accessible garden roof space above
- Configure roof garden to appear as perimeter “planters”
- Add kitchenette at Living Room area
- Add viewing window of entrance and Main Street from office at southeast corner
- Add walkoff mats at entrance
- Locate mechanical spaces in zone above toilet room spaces
- Reconfigure parking to provide primary access from Meeting House Road and a loop drive/drop-off area at entrance with handicap and carpool preferred parking spaces at south end
- Create water elements just west of balcony areas fed visibly by roof water

The site break-out group produced the sketch below.



Additional ideas that emerged from this scheme include:

- Reconfigure parking to reduce on-site spaces and expand green space in front of building to the east for use in treating wastewater
- Provide vehicular circulation loop for visitors parking to the east with porte cochere and street parallel parking on both roads
- Collect rainwater to the west and infiltrate with dry wells and rain garden
- Collect water in rooftop cisterns as well to irrigate green roof areas
- Green roof over patient room wing – allow adequate structural capability
- Focused site restoration at demolished buildings
- Develop boardwalk path wetlands area with estuary restoration
- Create terrace roof garden at upper level conference room
- Perhaps develop cistern below building in cavity created by foundation structure

The energy break-out group focused on strategies for limiting solar exposure to west-facing glazing, identifying this issue as the largest energy issue. Other discussion focused on locating mechanical spaces at patient room wing in small closets at anterooms, with consolidated efficient distribution, individual control and zoning strategies, Indoor air quality components such as maintaining relative humidity comfort levels, natural ventilation, and solar hot water technology .

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. North-facing clerestory windows at saw teeth for daylight
2. Extend terraces at patient rooms
3. Solar hot water on south facing saw tooth roof
4. Buffer at NW corner of building
5. "Lanterns" at roof terrace for daylighting & night lighting at roof
6. Rain garden
7. Constructed wetlands
8. Grass-crete at driveways
9. Roof garden at terrace
10. West facing glazing strategies: optimize
11. Bulkhead / public overlook "cleanup" strategy and estuary restoration
12. Boardwalk paths into wetlands
13. Attention to thermal comfort (RH) and IAQ
14. Individual thermal comfort strategies
15. Relationship of interior spaces to site
16. Wood / warm materials
17. Minimize maintenance of patient room flooring
18. Locate service and hearse pick-up beneath building

Things to avoid:

1. No visitor parking under Building ... consider staff parking here?
2. Minimize vehicular access from Hampton Road – consider using existing driveway further south as part of vehicular circulation loop
3. Noise from Montauk Highway
4. Noise from HVAC equipment
5. Air flow directly on patients
6. Green roof over patient rooms

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 further refinement of a conceptual floor plan and building configuration.

Next Steps:

1. Complete Schematic Design with budget: **5/01/06**
2. Need to complete this Schematic Design effort in order to:
 - a. Develop budget
 - b. Go to the public
 - c. Begin Development / PR Campaign
 - d. Engage State approval process

Appendix