

St. Philips Episcopal Church



August 28, 2006

Purpose of memo: To describe sustainable aspects of addition/renovation design.

Below is a list identifying and quoting the intentions of the requirements in the checklist for High Performance Guidelines: Triangle Region Public Facilities. These are regional guidelines that have been developed and are similar to the national LEED building standards. By no means is it anticipated that any one building fulfill all of these requirements; it is a list of actions that can be taken to encourage sustainable practices during the construction. PBC+L has provided a description of actions that are being taken at Saint Philips under each category, where applicable.

QUALITY MANAGEMENT

- *Basic Quality Management: To establish and maintain a means to create clear communications, responsibilities, standards, and agreements to ensure the successful completion of a building project.*
- *Comprehensive Building Commissioning: Through qualified commissioning, verify and ensure that the entire building is designed, constructed, and calibrated to operate as intended, and actually operates during the acceptance phase as defined in the owner's program, design and construction documents, and contracts.*

Quality Management at Saint Philips:

1. CC Woods is providing quality management at the job site during construction.

SITE

- *Erosion and Sedimentation Control: Control erosion to reduce negative impacts on water and air quality.*
- *Site Selection: Reduce the environmental impact of locating a building on a site and coordinate with local and regional development plans that address environmental concerns.*
- *Redevelopment: Channel development to areas with existing infrastructure, protecting greenfields and preserving habitat and natural resources.*
- *Brownfield Redevelopment: Rehabilitate damaged sites where development is complicated by real or perceived environmental contamination, reducing pressure on undeveloped land.*
- *Alternative Transportation: Reduce pollution and land development impacts from automobile use.*
- *Site Disturbance: Conserve existing natural areas, restore damaged areas to provide habitat and promote biodiversity, and protect cultural landmarks.*
- *Stormwater Management: Limit disruption of natural water flows by minimizing stormwater runoff, increasing on-site infiltration, and reducing contaminants.*
- *Heat Islands: Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.*
- *Light Pollution: Eliminate light trespass from the building site due to artificial lighting at night or reflected light during the day, improve night sky access, and reduce development impact on nocturnal environments.*
- *Post-commissioning Monitoring: Learn whether the sustainable goals established during the design phase are actually achieved, thereby facilitating improvement over time in the performance of structures.*

Site at Saint Philips:

1. Standard practices for controlling erosion are being implemented. For example, roof drainage during rainstorms will no longer fall onto the lawn, but will be fed directly into the city's storm drains.
2. Utilization of the pre-existing site increases the density of the site and urban fabric.
3. The urban location also encourages pedestrian and bicycle access, with the hope that guests will not always need to drive, thereby reducing pollution caused by automobiles.
4. The design for the additional office and classroom area does not disturb the original stone sanctuary and thus preserves a culturally significant landmark.

WATER

- *Water Efficient Landscaping: Limit or eliminate the use of potable water for landscape irrigation.*
- *Innovative Wastewater Technologies: Reduce generation of wastewater and potable water demand, while increasing local aquifer recharge.*
- *Water Use Reduction: Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems. Reduce the burden on wells and aquifers by conserving potable water.*
- *Post-commissioning Monitoring: Learn whether the sustainable goals established during the design phase are actually achieved, thereby facilitating improvement over time in the performance of structures.*

Water at Saint Philips:

1. Older toilets and urinals are being replaced with new fixtures utilizing standard low flow requirements. A toilet installed in 1960 used 5.5 gallons per flush while new toilets use approximately 1.6 gallons.

ENERGY AND ATMOSPHERE

- *Minimum Energy Performance: Establish the minimum level of energy efficiency for the building and systems.*
- *CFC Reduction in HVAC&R Equipment: Reduce ozone depletion.*
- *Optimal Energy Performance: Achieve increasing levels of energy above the prerequisite standard to reduce environmental impacts associated with excessive energy use and to reduce the use of non-renewable energy.*
- *Renewable Energy: Encourage and recognize increasing levels of self-supply/grid supply through renewable technologies and use of renewable fuels to reduce environmental impacts associated with fossil fuel use.*
- *Elimination of HCFCs and Halons: Reduce ozone depletion and support early compliance with the Montreal Protocol, the international agreement regarding phasing out the production and consumption of compounds that deplete ozone in the stratosphere.*
- *Measurement and Verification: Provide for the ongoing accountability and optimization of building energy and water consumption performance over time.*
- *Green Power: Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.*

Energy and Atmosphere at Saint Philips:

1. Minimum level of energy efficiency meets the Energy code standards.
2. There will be zero use of CFC-base refrigerants in new building HVAC equipment.
3. Reduced design energy cost.
4. The staff will be trained regarding how to use the new heating and cooling equipment, thus allowing the occupant to use the equipment in the most energy conscious way.

MATERIALS AND RESOURCES

- Storage and Collection of Recyclables: Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills.
- Building Reuse: Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste, and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.
- Construction Waste Management: Divert construction, demolition, and land clearing debris from landfill disposal. Redirect recyclable material back to the manufacturing process and other uses. Consider design approaches to reduce the potential to generate construction waste.
- Resource Reuse: Reuse targeted building materials, reducing environmental impacts related to materials manufacturing and transport.
- Recycled Content: Increase demand for building and site development products that have incorporated recycled content material, reducing the impacts resulting from extraction of new material.
- Local/Regional Materials: Increase demand for building and site development products that are manufactured locally, reducing the environmental impacts resulting from transportation and supporting the local economy.
- Rapidly Renewable Materials: Reduce the use and depletion of finite raw and long cycle renewable materials by replacing them with rapidly renewable materials.
- Certified Wood: Encourage environmentally responsible forest management practices and reduce the use and depletion of forests.
- Durable Materials: Encourage the use of materials with a low embodied energy and low resource depletion throughout the life of the material, including manufacture, maintenance, and replacement over the lifespan of the building.

Materials and Resources at Saint Philips:

1. Over 75% of the existing parish house building structure and shell will remain, thereby reducing waste and conserving resources.
2. Construction waste management: Standard methods for separating construction debris for recycling are being implemented.
3. Resource reuse: Existing parish house windows that will no longer be needed due to the abutting addition are being re-used on the addition's exterior. While some modifications will be necessary due to the existing windows accommodation of window mounted air conditioning units, over 90% of the windows on the addition will be recycled from the existing parish house. Additionally, the existing robing cabinets are being re-used.
4. Acoustical ceiling tiles and vinyl floor tile utilize recycled content.
5. The carpet manufacturer is located within 500 miles of Durham. Location of manufacturers within 500 miles of the construction site is considered a good 'green' practice.

INDOOR ENVIRONMENT

- Minimum Indoor Air Quality Performance: Establish minimum Indoor Air Quality (IAQ) performance to prevent the development of indoor air quality problems in buildings, maintaining the health and well-being of the occupants.
- Environmental Tobacco Smoke Control: Prevent exposure of building occupants and systems to Environmental Tobacco Smoke (ETS).
- Carbon Dioxide Monitoring: Provide capacity for indoor air quality (IAQ) monitoring to sustain longterm occupant health and comfort and to conserve energy.
- Ventilation Effectiveness: Provide for the effective delivery and mixing of fresh air to building occupants to support their health, safety, and comfort.
- Construction IAQ Management Plan: Prevent indoor air quality problems resulting from the construction/renovation process in order to sustain long-term installer and occupant health and comfort.
- Low-emitting Materials: Reduce the quantity of indoor air contaminants that are odorous or potentially irritating to provide installer and occupant health and comfort.

- Indoor Chemical and Pollutant Source Control: Avoid exposure of building occupants to potentially hazardous chemicals generated within the building or from adjacent buildings or areas.
- Controllability of Systems: Provide a high level of individual occupant control of thermal, ventilation, and lighting systems to support optimum health, productivity, and comfort conditions.
- Thermal Comfort: Provide for a thermally comfortable environment that supports the productive and healthy performance of the building occupants.
- Daylighting and Views: Achieve a quality of light that is beneficial to building activities and occupants and provide a connection between indoor spaces and the outdoor environment through the introduction of sunlight and views into the occupied areas of the building.
- Contaminant Monitoring: Provide capacity for indoor air quality (IAQ) monitoring to sustain longterm occupant health and comfort.
- Acoustic Quality: Reduce the impact of building noise on building occupants and surrounding neighbors.

Indoor Environment at Saint Philips:

1. The existing windows in some locations are operable casements, allowing some individual control over indoor air quality and comfort.
2. Of the new and renovated classrooms and offices, close to 90% have windows to the exterior providing some form of natural daylight. This is a standard for what is considered a good 'green' practice.
3. The large attic of the existing building was previously uninsulated and a source of heat gain or heat loss, depending on the season. The renovation provides insulation above the ceilings on the second floor. This greatly increases the efficiency of the heating and cooling system.
4. Indoor air quality complies with the current ASHRAE standards.
5. The new heating and cooling systems replace older, less efficient ones, conforming to current ASHRAE standards.

INNOVATION

- General Innovation: Provide design teams and projects the opportunity to be awarded points for exceptional performance above requirements set elsewhere in this document.
- Professional Training: Support and encourage sustainable design through professional training and information sharing.