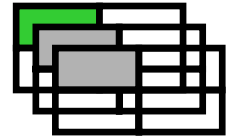




# THE SUSTAINABILITY REPORT



Volume 11 Issue 2

Summer 2006

## Washington, DC

The National Building Museum opened "The Green House: New Directions in Sustainable Architecture and Design" on May 20, 2006. The interactive exhibition features a simulated home filled with green products, appliances and technologies as well as a resource room with building-material information. Details of the exhibit are online at [www.nbm.org](http://www.nbm.org).

## Framingham, MA

Staples installed wireless energy control technology allowing the company to automatically reduce lighting / HVAC loads at California stores.

The company can curtail up to 2.8 MW of energy demand within minutes from a centralized location in their Massachusetts headquarters without compromising employee or customer comfort.

## Sacramento, CA

Governor Schwarzenegger's administration unveiled a "Green California" web site filled with ideas, guidelines, reference materials, data and purchasing information in an effort to assist state and local government agencies and businesses shift purchasing and consumption habits toward environmental sustainability.

## Albuquerque, NM

Green building pioneer Ron Jones of Santa Fe, NM was named Builder Advocate of the Year at the 2006 National Green Building Awards during the National Association of Home Builder's Annual Green Building Conference

## Portland, OR

Nike's Ken Griffey Jr. office building earned Oregon's first LEED-EB Gold rating. The 96,000 SF office building was built in 1999 and renovated this year to LEED standards.

## Tokyo, Japan

The World Sustainable Building Conference brought together more than 1,700 participants from over 80 countries to discuss best design and planning practices worldwide with a focus on mass transportation, energy efficiency, and sustainable land use patterns.

## THE VALUE OF COMMISSIONING

The commissioning process is a highly effective method to improve the performance of building systems and equipment. As today's buildings become more complicated and filled with technology-driven systems, the traditional linear design process becomes fraught with opportunities for compounded errors.

During the development process, design and engineering teams are brought in separately on an "as needed" basis ostensibly to keep costs down. As each team performs their respective work, they tend to produce designs without reference to the overall project goals and objectives missing opportunities for energy and operational savings.

Couple this with frequent operational, occupancy and ownership changes, it becomes clear that upfront design and ongoing operational processes can challenge a building's HVAC and other mechanical and electrical system's ability to perform at optimal levels.

The keys to effective green building design are: 1) an overall integrated design process, and 2) a watchful oversight verifying the design intent is followed. This is where commissioning plays an undeniably valuable role. A Department of Energy study of 60 commissioned buildings found that:

- 40% had problems with installed HVAC equipment.
- 33% had sensors that were not operating properly.
- 15% were actually missing specified equipment.
- 25% had energy management control systems, economizers, and/or variable speed drives that did not run properly.

## Commissioning Defined

Total building commissioning is an independent, systematic process ensuring a building performs in accordance with the design intent, contract documents, and the management / maintenance program's operational needs. This quality assurance process increases the likelihood that a newly constructed or renovated building will meet design expectations.

The benefits of commissioning can include reduced operating and maintenance costs, improved energy efficiency, better indoor air quality, complete operating documents and warranty information, and the opportunity to achieve LEED™ certification.

Unfortunately, commissioning is often perceived as a series of hoops to jump through rather than a valuable service. When costs become the main driver of service procurement, owners may be left with the same problems commissioning is designed to avoid. It is fairly easy to produce a LEED™ commissioning submission composed of paperwork containing little value to the building owner.

## Commissioning Benefits

**Improved Energy Efficiency** – A commissioned building operates optimally thereby consuming less energy than a non-commissioned building.

**Improved Indoor Air Quality** – Through testing and documentation, commissioning verifies that the systems are providing the proper air quality requirements.

**Reduced Operation Costs** – Equipment and systems training results in better trained and informed building operators; properly trained operators are less likely to make blind changes or system adjustments which can impair building efficiency.

## COMMISSIONING OVERVIEW

### BUILDING SYSTEMS

- Mechanical** – HVAC / Bldg. Controls
- Life Safety** – Fire Protection / Alarm
- Electrical** – Power / Lighting
- Plumbing** – Fixtures / Chiller Systems
- Envelope** – Roof / Doors / Windows
- Other Features** – Elevators / Security
- Specialty** – Greywater / Irrigation

### OWNER BENEFITS

- Reduced construction change orders
- Reduced project delays
- Lower energy bills
- Reduced equipment replacement
- Reduced equipment maintenance
- Increased operation staff training
- Shortened building turnover period
- Completed operations and maintenance manuals
- Reduced lawsuits and liability

### CONTRACTOR BENEFITS

- Improved installation through better upfront planning
- Greater emphasis on quality control
- Quicker problem resolution
- Increased likelihood of completing project on schedule
- Reduced post-construction callbacks
- Reduced lawsuits and liability

### OCCUPANT BENEFITS

- Building systems function as intended
- Improved satisfaction with working environment
- Improved productivity level

## COMMISSIONING COSTS

### Entire Building (All Systems)

- 0.75%-2.0% of total construction cost

### Electrical Systems

- 1.0%-1.5% of electrical system cost

### HVAC and Control Systems

- 1.5%-2.5% of mechanical system cost

*Continued from Page 1*

**Informed Ownership** – A building owner or subsequent acquirer has a better understanding of the intricate building systems and integration with other systems resulting in better future building system modification decisions.

### Pre- or Post-Occupancy

The commissioning process can offer significantly greater cost benefits when it begins during pre-design stage. Commissioning agents act as the owner's technical advisor and keep current with the project from design phase, into equipment start-up, and through to building occupancy. A critical function is verifying that ongoing design changes do not affect the overall design intent or compromise integrated system operations.

Post-occupancy commissioning can be difficult as it's generally the result of an occupied building not operating as expected. This results in tenant disruption and creates a delicate situation in dealing with the original design and contracting teams. Successful efforts require expensive time to learn building systems and how they operate.

Commissioning follows the following phases:

**Design** – A design intent document (DID) articulates a clear understanding of the building operational expectations and includes quantifiable design values. The DID is used to determine whether the building meets the owner's expectations and details contractor roles and responsibilities. System readiness checklists, test procedures, and expected results communicate the testing rigor expected.

**Construction** – A commissioning schedule includes milestones and order of completion; these are incorporated into the master construction schedule. The consultant verifies selected equipment is in compliance with the design intent and is copied on all architectural supplements, change orders, etc.

**Training** – Operations and maintenance personnel must fully grasp how to service and operate complicated, sophisticated and integrated systems. More important, they need to understand why the systems operate the way they do. The process coordinates and provides the necessary equipment and systems training for the owner and building operators.

**Verification Testing** – The final phase is to coordinate, conduct, and witness all system verification tests to certify that the systems operate in accordance with the design intent.

System deficiencies discovered during testing are documented in corrective action reports. Retesting specific systems and/or system components takes place once the respective deficiencies are resolved.

### Reality Jolt

Many owners question the need for commissioning on the belief that they are paying for a well thought-out design intent and thorough construction specifications. The design team agreed to develop a solid design intent before they were awarded a contract and also agreed to assure the design intent is fulfilled. Furthermore, most construction specifications clearly indicate the contractor will provide equipment training along with a building that is fully constructed, tested, and ready for occupancy. That's the theory.

Theory and reality can often deviate to a great degree. **REALITY:** In the budget-driven, high-speed construction industry, many basic design and construction objectives are left unmet. To cut costs and save time, design professionals are under constant pressure to spend minimum upfront time identifying project needs and instead start working immediately to get the job done.

**REALITY:** Design-oriented professionals spend little or no time on the job site after the construction documents are released as by that time they have generally exhausted their design budget and are under pressure to move onto the next job. **REALITY:** Contractors are under equal pressure to cut job costs. Typically, contractors move personnel off the job as soon as the building is substantially complete, using the warranty period to work out system bugs. Adequate training rarely happens, operational manuals / warranties go missing, and the ultimate reality is the owner's tenants suffer with the bugs.

Building owners who previously saw commissioning as an unnecessary component faced with this reality contract in desperation with a commissioning agent well after the construction documents are underway and/or after the building is occupied.

In these scenarios, commissioning activities quickly degenerate into a "police action" effort trying to identify who failed to meet their responsibilities rather than focusing on making the building a success. This leads to finger pointing and detracts from constructive activities like testing, correcting, and training. And that's a scenario no one wants.

## TRASH INTO TREASURE?

One of the largest Brownfield redevelopment sites in the western US is currently in the planning stages. Located on 659 acres of a former rail yard and municipal landfill site, midway between San Francisco's central business district and international airport, the Brisbane Baylands is envisioned as model of sustainable redevelopment by the community and project sponsor.

The planning area consists of three distinct sub-areas: commerce and entertainment in the north; a commercial campus in the middle; and lagoon recreation area to the south. Overall, the Specific Plan allows for up to 5 million square feet of commercial retail, office, hotel and light industrial development on 175 acres (not including 54 acres of road rights-of-way) and preserves 99 acres of upland open space and 118 acres of open water within the Brisbane Lagoon.



After listening to recommendations from a citizen led Open Space and Ecology Advisory Committee, Brisbane officials declared that 'sustainability should be the foundational core of any project approved for the Baylands'. To ensure that the community's vision is carried through to private development, the Plan requires that all buildings constructed within the Baylands meet U.S. Green Building Council LEED™ standards for certification.

The planning process has resulted in many sustainable features. At the macro scale, bioswales, storm water filters and other best management practices are designed into the master infrastructure plan to ensure that urban runoff does not pollute the Bay. Key natural areas such as the Lagoon, tidal marsh, and the tidal channel will be preserved as part of the open space system and reestablishment of native plant species throughout the park and buffer areas will enhance wildlife habitat.

An integrated bicycle and pedestrian network, including Class I and II bicycle lanes, is designed to facilitate non-vehicular circulation. Near the northwest project boundary, the newly constructed Caltrain Bayshore Commuter Rail Station will soon become an inter-modal facility following the completion of the MUNI Third Street Light Rail project scheduled to begin service in late 2006. In addition, implementation of a planned MUNI rail extension along Geneva Ave will ultimately connect the Baylands to Candlestick Point as well as the Balboa Park BART station.

"We see a tremendous opportunity for tenant attraction and market differentiation," notes Jonathan Scharfman, Senior Development Director for UPC and a LEED-Accredited professional. "As the green building sub-sector matures, tenants are demanding cleaner, healthier and more energy efficient product and we're delighted to accommodate them."

Land development costs attributable to the Baylands Phase I area are estimated to be \$200 million. This includes landfill closure, onsite infrastructure improvements, open space improvement costs, soft costs and contingencies. The first phase of infrastructure and site development is expected to occur in 2008 with delivery of the first mixed-use commercial center in 2010.

## EVENT CALENDAR

### Photovoltaics Summit San Diego, CA June 27-28, 2006

Summit explores the business and technical issues including assessing emerging markets and advancements in solar technology.

### World Energy Engineering Congress Washington, DC Sept. 13-15, 2006

This 29th-annual event examines economic and market forces, new technologies, regulatory developments, and industry trends merging to shape critical energy and economic decisions.

### G3 Global Reporting Initiative Amsterdam October 4-6, 2006

The third generation of the GRI Sustainability Reporting Guidelines (G3) will be released at a world class global conference. The two-day event is expected to draw 1,000+ including many international stakeholder groups and some of the world's most influential thinkers.

### Brownfields 2006 Boston, MA Nov 13-15, 2006

Eleventh annual conference on brownfields is the premier national event for solutions to cleanup and redevelopment challenges and examining lessons from the field. The three day event is attended by thousands of experts and practitioners and includes mobile workshops, walking tours, and exhibitions. Sessions cover economic development, financing and investment, real estate deal making, and the greening of redevelopment.

### US Green Building Council Greenbuild International Conference and Expo Denver, CO November 15-17, 2006

The largest green building conference bringing together design practitioners, developers, investors, product manufacturers and political leaders—expected attendance to exceed 15,000.





## STRUCTURED FINANCE

Equity

Debt

Tax Favored

## STRATEGIC CONSULTING

Corporate Strategy

Project Specific

## LEASING ADVISORY

## INVESTMENT SALES

**DANIEL R. WINTERS**  
Managing Principal

1511 Wisconsin Avenue NW  
Suite 200  
Washington, DC 20007

202.997.3922 — p  
202.338.2800 — f

Dan@EvolutionPartners.com

EVOLUTIONPARTNERS.COM

Evolution Partners is a boutique real estate private equity and investment banking firm specializing in financing and developing high-performance, environmentally responsible real estate projects.

Our clients are leading real estate developers and investors across North America who demonstrate commitment to creating and preserving long-term asset value by developing cutting-edge projects that meet or exceed the US Green Building Council's LEED™ and/or EPA EnergyStar™ standards of excellence.

We are specialists in developing structured finance solutions and securing the capital necessary to bring a project to life, sustaining it financially for the long term.

- Construction Financing
- Joint Venture Equity
- Permanent Debt
- Mezzanine Debt

Evolution Partners is passionate about the positive societal impacts represented by LEED™ certified and EnergyStar™ projects. These projects provide structural competitive advantages to their developers and owners at an asset level, while serving as superior workplaces and living environments for their occupants.

Demonstrating proper respect for the environment we all share is the utmost responsibility of any real estate developer—our clients inspire us through their vision which, in turn, inspires us to greater heights.

We maintain the highest standards of excellence and hold ourselves accountable to our clients, our partners, and the members of each community shaped by the projects which we are involved.

Our reputation is grounded in integrity, trust, leadership, and personal responsibility – these are our guiding principals and we make no compromise.

We look forward to working with you on your next great project.

