GREEN BUILDING INITIATIVE™
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On behalf of the
Green Building Initiative
Testimony to the U.S. House Committee on Veterans Affairs

"Energy Efficiency at the U.S. Department of Veterans Affairs"

September 30, 2009

Chairman Filner, Ranking Member Buyer and members of the committee, thank you for the opportunity to discuss my experience evaluating the sustainability of VA Hospitals using the Green Building Initiative's Green Globes® rating system.

I am the principal and founder of JSR Associates, Inc., a senior living and healthcare consulting firm. As an architect with more than 20 years of healthcare experience, I've participated on many design committees, including the *Guidelines for Design and Construction of Health Care Facilities*, which is code in at least 44 states and referenced by the VA.

Today I am speaking on behalf of the Green Building Initiative, a non-profit organization that brought the Green Globes® building rating system to the United States in 2005.

About Green Globes®

The Green Globes system is a web-based tool being used by 21 VA hospitals to meet the federal requirements outlined in the Guiding Principles. Green Globes for Continual Improvement of Existing Buildings (CIEB) was the module used. During this process, VA Energy Managers were asked to complete an electronic survey of their medical center and report their findings. Important items requested during this evaluation are monthly energy and water consumption from utility bills, information on transportation practices that minimize energy consumption, and other data that describe policies related to containing emissions, promoting recycling, and monitoring indoor environmental issues.

Additionally, the Green Globes system recognizes progress in reducing energy consumption through use of the Energy Star rating system. By evaluating operational energy and source energy through Energy Star, and by using life cycle assessment tools, the Green Globes rating system can help building owners identify a building's carbon footprint and set goals for improvements.

Once the initial Green Globes survey is completed in-house, the team is then provided with an automated report with an initial score and opportunities for improvement. This automatically-generated report is based on the Green Globes protocol which assigns a certain number of points to each answer based on desirable outcomes. The report is for the internal team's use to evaluate the recommendations for improvements to the medical facility and its operations.

Following this evaluation, a third-party assessor visits the building to audit the team's documented outcomes, interview key staff, complete a walkthrough and determine if the building qualifies for Green Globes certification.

Lessons Learned on VA Buildings

As a third-party assessor, I have visited 15 out of the 21 hospitals that are working to complete the Green Globes evaluation and certification process.

While we are still in the early stages of evaluating the VA hospitals, I can tell you that these facilities are doing extremely well in their efforts to comply with federal sustainability requirements. It is clear to me that, in addition to receiving valuable feedback and recognition from this process, many of the VA's best practices in sustainability will provide valuable case studies to benefit the healthcare facilities in the private sector.

I would like to provide you with some of the creative ideas and programs that are currently proposed or being completed at VA hospitals across the country:

- Richmond, Virginia, has a proposed project to complete an arboretum that would not only be a site enhancement, but will reduce heat island effect, reduce water run-off, provide a resource for the Veterans and their families, and create an opportunity for engaging the community at-large.

- Portland, Oregon, has a boiler/chiller plant supervisor training program that is exemplary, including an education manual and on-site training tools. They are able to share their expertise with not only trainees but other locations that need assistance with additional improvement in energy and water consumption.

- Dallas, Texas, is in the process of completing an Ethanol fueling station for the VA and other governmental agencies for their Flexible Fuel fleet vehicles.

- Birmingham, Alabama, located in a tight urban block, is evaluating using an existing underground spring for recovery of water for the cooling tower.

- San Diego, California, has one of the strongest recycling programs across the board. This site, as well as Milwaukee, Portland, and Seattle, are excellent examples of systems that are working to reduce use of natural resources.

Because continual improvement is just that…continual…it is important to realize that on-going efforts are what make a hospital sustainable. Tools and certification programs like Green Globes allow the VA staff to conduct periodic assessments that then empower them to be the drivers of initiatives for improvement that can be quantified over time.

The next steps for VA and I assume all federal agencies will be to do the deeper dive on their portfolios. Continuing with such an assessment program will help to achieve the largest potential energy and water savings across all of VA Healthcare Facilities—not only hospitals, but the range of VA facilities, including CBOTs, CLCs, Hospice/Palliative Care, and Polytrauma Centers. To do this, they need multiple tools—like Green Globes—to help make surveying, measurement, evaluation, and regular benchmarking part of their ongoing process.

It is clear that the VA hospitals that have been assessed are on a positive path for sustainable improvement. I am fortunate to be part of this groundbreaking initiative, assessing first-hand the creativity, the potential, and the amazing outcomes that are sure to manifest as a result of this ongoing evaluation and certification process.

JSR Associates, Inc. Background and Relevant Information

JSR Associates, Inc. represents over 20 years of experience in programming, architecture, interior design, and operational consulting for Senior Living and Healthcare Projects. Jane Rohde founded the firm in 1996 and her practice focuses predominantly on senior living and healthcare consulting. She is an independent contractor serving the Green Building Initiative as a third party assessor for the Continual Improvement of Existing Buildings module of Green Globes®. Rohde holds a Bachelor of Architecture Degree from Virginia Tech and is certified by the American College of Healthcare Architects (ACHA) and the American Academy of Healthcare Interior Designers (AAHID). Rohde is also NCIDQ and NCARB certified, as well as being a LEED Accredited Professional. Additionally, Rohde is a professional member of the AIA and honored as a Fellow for her volunteer and leadership work in healthcare design by the International Interior Design Association (FIIDA).

Highlights from Third-Party Assessment of VA Hospitals Using Green Globes-CIEB Rating System

To date, the initial VA hospitals evaluated are on track to achieve Green Globes certification. This approach to evaluation provides a holistic review of facility operations addressing not only energy issues, but also water, indoor environment, site enhancement, emissions, and environmental management practices. With both the Energy Manager and GEMS Coordinator (Green Environmental Management System) positions already in place within most VA Medical Centers, an ideal team is created to work in tandem on completing the on-line Green Globes survey. VA was able to evaluate whether to hire outside vendor support to complete the sustainability evaluations or to use their in-house staff. In most cases, Green Globes is written in such a way that in-house teams will often choose to complete the work on their own, knowing that a highly qualified third-party assessor will be following through with a detailed audit. Furthermore, the Green Globes process provides instant feedback and recommendations for the teams to consider as they drive further improvements in the performance of the VA portfolio.

Opportunities for VA Hospitals to Conduct Ongoing Assessment and Continual Improvement

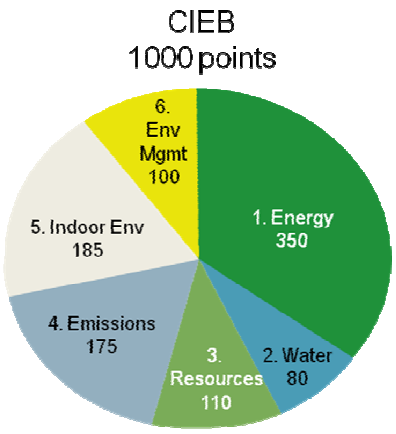
The following recommendations are some of those that will be made for consideration to the in-house teams to further this dynamic process:

- Use thermal imaging for all hospitals to detect thermal leaks in the envelope of the buildings. This includes evaluation of loss of thermal control through the roof, walls and windows.
- Create a task force to include IT departments and Energy Managers to review opportunities to reduce the time that computers are turned on in non-essential areas to conserve energy.
- Create a task force to include Food Service management, Canteen management, and Procurement/Acquisitions to discuss the potential of localizing contracts to reduce inherent energy and transportation costs of products that could be provided locally.
- Recommend discussion between NSF, VACO, and EPA to evaluate Kitchen Equipment for energy and water conservation compliance (Energy Star, FEMP, Waterwise, etc.).
- Continue to monitor and benchmark water usage and energy usage comparatively to uniques (patient types) and resulting staff changes for clearer evaluation of consumption in relationship to the water and energy reductions required by 2015.
- Work cooperatively with GBI and other similar green building organizations, the Irrigation Association and industry to enhance opportunities for water efficiency and site enhancement as this process is extended to other VA facilities, including cemeteries.

Third-party certification is also an important part of sustainability. It is important to validate the work that VA is doing—and—if it's similar to the process the VA has used through the GBI, it will provide them with valuable feedback and recommendations for continual improvement from highly qualified assessors.

Green Globes for Continual Improvement of Existing Buildings

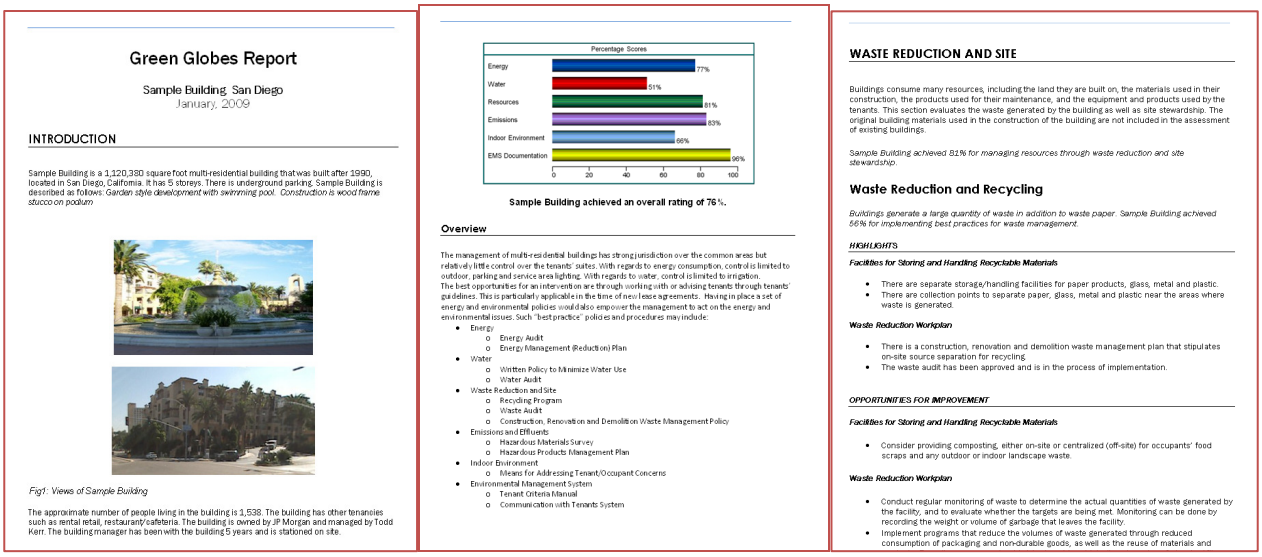
Considering that the United States is home to more than 100 million buildings, the need to improve the performance of existing structures is a necessary prerequisite for widespread energy efficiency; particularly for healthcare buildings, as their water and energy consumption are much larger than other building types. The missing element—until GBI introduced Green Globes-CIEB—was a practical and affordable way to measure and monitor sustainability and operational performance on an ongoing basis.



Green Globes-CIEB allows users to create a baseline of their building's performance, evaluate interventions, plan for improvements, and monitor success—all within a holistic framework that also addresses physical and human elements such as material use and indoor environment.

As in Green Globes for New Construction, energy is the most significant area of assessment within Green Globes-CIEB. A combined focus on energy use, building features, and management practices helps to pinpoint where performance is lacking and what corrective action is required. The system uses ENERGY STAR to determine a consumption target for each building type and, where appropriate, buildings must meet a minimum performance target of 75% based on the comparable ENERGY STAR rating system.

Green Globes Automated Reports



Green Globes Report

Sample Building, San Diego
January, 2009

INTRODUCTION

Sample Building is a 1,120,380 square foot multi-residential building that was built after 1990, located in San Diego, California. It has 5 storeys. There is underground parking. Sample Building is described as follows: *Garden style development with swimming pool. Construction is wood frame stucco on podium*

Fig1: Views of Sample Building

The approximate number of people living in the building is 1,538. The building has other tenancies such as rental retail, restaurant/cafeteria. The building is owned by JP Morgan and managed by Todd Kerr. The building manager has been with the building 5 years and is stationed on site.

Percentage Scores

Energy	77%
Water	51%
Resources	81%
Emissions	83%
Indoor Environment	66%
EMS Documentation	96%

Sample Building achieved an overall rating of 76%.

Overview

The management of multi-residential buildings has strong jurisdiction over the common areas but relatively little control over the tenants' suites. With regards to energy consumption, control is limited to outdoor, parking and service area lighting. With regards to water, control is limited to irrigation.
The best opportunities for an intervention are through working with or advising tenants through tenants' guidelines. This is particularly applicable in the time of new lease agreements. Having in place a set of energy and environmental policies would also empower the management to act on the energy and environmental issues. Such "best practice" policies and procedures may include:

- Energy
  - Energy Audit
  - Energy Management (Reduction) Plan
- Water
  - Written Policy to Minimize Water Use
  - Water Audit
- Waste Reduction and Site
  - Recycling Program
  - Waste Audit
  - Construction, Renovation and Demolition Waste Management Policy
- Emissions and Effluents
  - Hazardous Materials Survey
  - Hazardous Products Management Plan
- Indoor Environment
  - Means for Addressing Tenant/Occupant Concerns
- Environmental Management System
  - Tenant Criteria Manual
  - Communication with Tenants System

WASTE REDUCTION AND SITE

Buildings consume many resources, including the land they are built on, the materials used in their construction, the products used for their maintenance, and the equipment and products used by the tenants. This section evaluates the waste generated by the building as well as site stewardship. The original building materials used in the construction of the building are not included in the assessment of existing buildings.

Sample Building achieved 81% for managing resources through waste reduction and site stewardship.

Waste Reduction and Recycling

Buildings generate a large quantity of waste in addition to waste paper. Sample Building achieved 56% for implementing best practices for waste management.

HIGHLIGHTS

Facilities for Storing and Handling Recyclable Materials

- There are separate storage/handling facilities for paper products, glass, metal and plastic.
- There are collection points to separate paper, glass, metal and plastic near the areas where waste is generated.

Waste Reduction Workplan

- There is a construction, renovation and demolition waste management plan that stipulates on-site source separation for recycling.
- The waste audit has been approved and is in the process of implementation.

OPPORTUNITIES FOR IMPROVEMENT

Facilities for Storing and Handling Recyclable Materials

- Consider providing composting, either on-site or centralized (off-site) for occupants' food scraps and any outdoor or indoor landscape waste.

Waste Reduction Workplan

- Conduct regular monitoring of waste to determine the actual quantities of waste generated by the facility, and to evaluate whether the targets are being met. Monitoring can be done by recording the weight or volume of garbage that leaves the facility.
- Implement programs that reduce the volumes of waste generated through reduced consumption of packaging and non-durable goods, as well as the reuse of materials and

The best way to achieve facility-wide environmental goals is to put easy to understand information in the hands of those that make decision and maintain the facilities. Green Globes-CIEB reports are generated following completion by the in-house staff of an approximately 150-question building survey. The survey helps staff to identify their operations' strengths and weaknesses and provides them with opportunities for improvement. The report is a tool for the in-house staff and decision makers.

The report is also informative for the third-party assessor prior to evaluation of the building against Green Globes protocols. Each entry in the survey must be verified by the GBI-authorized third-party assessor before a building can qualify for a Green Globes rating of one, two, three, or four Green Globes. Once an on-site assessment is completed by a GBI-assigned third-party assessor—which includes evaluation of documentation and interviews with key facility personnel—a certified rating is assigned to the building.

Achieving Green Globes Certification

Projects that achieve a score of 35% or more out of applicable points become eligible for a Green Globes rating of one, two, three or four globes, as follows:

- One Globe: 35-54%
- Two Globes: 55-69%
- Three Globes: 70-84%
- Four Globes: 85-100%

However, buildings cannot be promoted as having achieved a Green Globes rating until the information submitted has been assessed and certified by a qualified third party.

The Green Globes third-party assessment features a rigorous evaluation process. The evaluation includes a thorough review of documentation, an on-site walk through, and interviews of key facility personnel.

The GBI currently oversees a network of Green Globes-trained assessors comprised primarily of licensed architects and engineers with significant experience in building sciences and sustainability issues. To accommodate increasing demand and further strengthen our third-party assessment program, GBI has launched a personnel certification and training program. The most highly qualified architects, engineers, and building sustainability experts will be eligible to become certified as Green Globes Assessors (GGAs) whereas other practitioners with experience in applying sustainability principles to buildings can earn a Green Globes Professional (GGP) certification. Both programs are accompanied by comprehensive training.

US Market Acceptance of Green Globes

To date, 76 buildings have successfully achieved Green Globes third-party certifications across the United States. More than 400 additional buildings are also registered to complete a Green Globes assessment in the future.

Green Globes has also been formally recognized by the public and private sectors including the following:

- To date, thirty-five federal government buildings are registered with Green Globes and are at some stage in the assessment process. This includes 14 buildings from the US Government Services Administration (GSA) Region 9 (San Francisco) and GSA Region 5 (Chicago), twenty-one Green Globes-CIEB assessments from the US Department of Veterans Affairs and one Green Globes assessment from the US Department of State.

- Nineteen states have included Green Globes in green building legislation, regulation or executive order, including: Arkansas, Connecticut, Florida, Hawaii, Illinois, Indiana, Kentucky, Minnesota, New

Jersey, New York, Nevada, North Carolina, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Virginia and Wisconsin.

- Green Globes is included in insurance packages offered for green buildings by Aon Corporation, Fireman's Fund Insurance Company, Liberty Mutual, and Travelers.

- Since the launch of Green Globes-CIEB, some of the largest corporations and real estate companies in the country have chosen to use it for their existing building portfolios, including the USAA Real Estate Company, Tishman Speyer-Chicago, Capital One, and Rubbermaid.

Green Building Initiative Background and Relevant Information

GBI Mission & Structure

The GBI is committed to accelerating the adoption of green building practices by offering credible and practical tools that make green design, management and assessment more accessible to a wider population of builders and designers.

The Green Building Initiative (GBI) is a 501(c)(3) non-profit education organization based in Portland, Oregon. It was established to accelerate the adoption of sustainable design and construction practices by promoting credible and practical approaches to green building for both residential and commercial construction.

Ward Hubbell, who has previously testified before Congress, serves as President of GBI at the discretion of an independent, multi-stakeholder board of directors comprised of construction professionals, product manufacturers, non-profit organizations, university officials, and other interested third parties. Each board member is allocated one vote to guide the GBI, ensuring an equal balance of influence. For a list of board members, please visit the board page of the GBI Web site.

Having long recognized the power of collaboration, GBI has sought to foster relationships with a variety of organizations related to the built environment with the goal of helping to accelerate the acceptance of sustainable design and construction in the marketplace. To this end, GBI has a formal partnership with the US Environmental Protection Agency's ENERGY STAR® program, as well as Memorandums of Understanding with the following organizations:

- American Institute of Architects (AIA)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Associated General Contractors of America (AGC)
- Building Owners and Managers Association (BOMA)
- National Association of Home Builders (NAHB)

GBI has also established collaborative relationships with, among others:

- Alliance to Save Energy (ASE)
- Architecture 2030
- Sustainable Buildings Industry Council (SBIC)

Accomplishments, Innovation and Competition

When GBI was established in late 2004, there were no green building rating systems with the specific objective of supporting mainstream design and building professionals. This is at the core of the Green Globes system and is fundamental to encouraging energy efficiency and other green building practices on the broad scale that is clearly necessary. That is why GBI obtained the exclusive rights to develop and promote Green Globes in the United States.

Having more than one rating system in the U.S. market supports the diversity of buildings, design and building professionals, and budgets. It also creates an atmosphere of healthy competition, which does for green building what it has done in countless other areas—drives improvements, lowers costs and benefits the ultimate consumer, which in this case is our shared environment.

In the last four years, for example, GBI:

- Became the first green building organization to be accredited as a Standards Developing Organization (SDO) by the American National Standards Institute (ANSI),

- Embarked on a process to establish Green Globes as the first ANSI standard for commercial green building, which will be completed this year,

- Introduced Green Globes-CIEB to strengthen the link between sustainable design objectives and actual building performance,

- Developed the first tool for integrating life cycle assessment (LCA)—widely considered to be the most effective way to compare the environmental impacts of building materials and assemblies—into a green rating system, and

- Chose to advance the green movement as a whole by supporting the development of a generic version of its LCA tool—the ATHENA® *EcoCalculator for Assemblies*—which is available free of charge from the ATHENA Institute (www.athenasmi.ca).

As evidenced by these highlights, GBI's offerings have evolved as new opportunities have arisen to help mainstream practitioners accelerate their adoption of green building practices. Our goal is for green building

to become the norm and, while GBI has arguably become a leading voice in the movement, we are committed to remaining nimble and continuing our role as an agent of positive change.

Conclusion

It is the GBI's view that improving the efficiency of buildings one of the most important things Congress can do to reduce energy consumption and address its related impacts. Green building rating systems can accelerate this process by defining goals that go beyond code, providing the means to measure progress, and rewarding those who excel. It is the GBI's hope that this committee will recognize the valuable and complementary role of green building rating systems and create policy that encourages rating system developers and others to create additional market-based incentives that help motivate significant energy and greenhouse gas reductions.

Thank you for inviting the Green Building Initiative to participate in this important hearing. We look forward to the opportunity to work with all of the members of the House Committee on Veterans Affairs to help increase the sustainability of VA facilities and operations.