January 12, 2018

Saint Paul City Councilmembers
15 Kellogg Blvd W
Saint Paul, MN 55102

Re: Support of Ordinance 17-60 and request for inclusion of Green Globes®

Dear Councilmembers:

On behalf of the Board of Directors of the Green Building Initiative (GBI), I respectfully request that the Saint Paul City Council consider including the Green Globes® Certification as an allowable sustainable building standard for projects and requirements under the scope and purview of Ordinance 17-60.

GBI is dedicated to hastening the implementation of sustainable building practices by providing an accessible, high-quality green building certification standard that helps to broaden the base of adaptors in the marketplace. We commend the Saint Paul City Council's commitment to improve its city's economic and environmental well-being, and we believe inclusion of Green Globes® in Ordinance 17-60 will help the city in meeting this goal.

GBI Overview

GBI is a nonprofit organization dedicated to accelerating the adoption of building practices that result in resource efficient, healthier and environmentally sustainable buildings. We advance this mission through credible and practical green building approaches for more sustainable communities.

GBI brought the Green Globes® environmental assessment and building certification and rating tool into the U.S. market from Canada in 2004. Green Globes® was adapted from the Canadian interactive tool and from BREEAM (Europe's most widely used green building certification tool). Throughout its history, GBI has been committed to the principles of consensus, transparency, balance, and due process and is a recognized Standard Development Organization (SDO) accredited by the American National Standards Institute (ANSI), becoming the first commercial building rating organization to be named an ANSI Developer in 2009. Today, Green Globes® sits in the upper echelon of the nation's sustainability rating systems, alongside USGBC's LEED®.

GBI believes that broad input from stakeholders ensures that the latest science, data, and market advances are incorporated during development of our rating systems and that ANSI-audited consensus processes provide the best opportunity for fostering open discussion and debate among stakeholders while also allowing for due process.

The GBI is governed by a multi-stakeholder board of directors featuring representatives from industry, NGOs, construction companies, architectural firms and academic institutions. A sampling of GBI clients includes a cross section of the private sector, major universities, city and state governments, and federal government departments and agencies. Among them are: Whole Foods Supermarkets, Fidelity Investments, the Clinton Foundation, MGM Resorts, Jones Lang LaSalle, the University of Arkansas, US Department of Veterans Affairs, Fairfax County, VA, Marriott Vacations Worldwide, Siemens, the National Institutes of Health, the University of Maryland, the state of Florida, and UNC Charlotte.

2013 Federal Recognition of Green Globes®

GBI's Green Globes® was recognized by the U.S. federal government in 2013 as a green building certification system that, along with LEED®, could be used to certify federal government buildings and properties. A number of federal departments and agencies use GBI's Green Globes® for the programs under their jurisdiction. This conclusion by the federal government was based on a thorough and objective review of green building rating systems conducted by the Pacific Northwest National Laboratories (PNNL) in 2012.

Other Recognition of Equivalence

In early September, 2016, the U.S. Department of Housing and Urban Development recognized Green Globes® as equivalent to LEED® for purposes of the programs HUD administers under the Rental Assistance Demonstration (RAD) program. This marks a first acknowledgement of equivalence for projects in the marketplace administered through HUD programs.

In addition, state and local governments are continuing to adopt Green Globes® as a comparable green building certification system to LEED®. Over 100 localities and approximately 23 states currently recognize Green Globes® as equivalent to LEED® for building projects. The City of Chicago is among large municipalities that have recently updated their policies to reflect equivalence of Green Globes® alongside of LEED® to achieve city incentives around green building and green permitting.

In the private sector, Green Globes® has also achieved significant designations of equivalence, with both Fannie Mae and Freddie Mac recognizing the standard as equivalent to LEED® for their green building incentive programs. In many cases, private sector companies have found that Green Globes®' unique adaptability helps to drive innovation in their building design.

Strongly Encouraging Government to Promote Competition

GBI has long been a voice in the marketplace for competition. We strongly believe that a competitive marketplace for green building certification makes all systems better and provides a more realistic opportunity for building owners and designers to utilize the system that best fits their project. GBI's certification system assigns a Green Globes Assessor to the project at the outset, and works with project designers and builders to ensure throughout the process that the strategies, technologies, materials and construction techniques employed match the proposed plans for certification. At the end of the project, assessors conduct a final walk through to ensure that the certification is validated by the final product

and that the building has earned its certification. This is a process and a step not seen in LEED®, where assessors can approve a building's certification without ever seeing the actual building.

Necessity of Competition

GBI has long believed that competition in the green building and sustainability marketplace is key to driving innovation in standards and rating systems, and in pushing the marketplace towards better performance. In many cases, LEED® certification is unfeasible. LEED®'s specific prerequisites can box in developers. Valuable resources are devoted to chasing points, instead of overall sustainability goals. LEED® is not always the right system for a unique project's needs. For example, major renovations with an historic preservation component can have a very difficult time complying with LEED®. We strongly believe that it is important to allow for a competitive arrangement of green building certification systems that gives developers a choice to certify their buildings based on the best performance path for them.

In support of our request for inclusion, we are attaching several documents:

- The 2013 letter issued by the federal General Services Administration, which declared Green Globes® to be equivalent to LEED® for federal projects;
- The 2014 Federal Register notice issued by the US Department of Energy on Green Globes® equivalence;
- A comparison table that compares Green Globes® v.3 with LEED® v. 4;
- The Green Globes NC Technical Manual, which details specifics about how the system operates and how buildings earn their certification;
- A quick reference chart that compares Green Globes® to LEED®;
- A white paper by LEED-AP and Green Globes Professional Donald Martin, which provides an overview of Green Globes®;
- A copy of the 2015 announcement of the opening of the comment period for GBI's ANSI-guided updated of the Green Globes® system, part of GBI's ongoing commitment to constantly updating and improving the standard to reflect new technologies and practices;

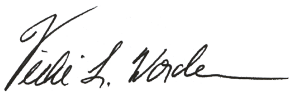
Request for Review of Green Globes®

We respectfully ask that the Saint Paul City Council conduct a review of the enclosures demonstrating Green Globes® equivalency to LEED® and include it as a sustainable building standard for projects within the Council's jurisdiction. Providing choice among a number of rigorous standards, we believe, is essential to Saint Paul meeting its admirable goals for a sustainable city. We are happy to answer any questions, or provide any additional information needed by the Council to determine inclusion. You may contact me directly at (202) 841-2999, or at vicki@thegbi.org. We can also be reached through our

DC-based Vice President of National Affairs, Jenna Hamilton at hamilton@thegbi.org, or (202) 684-3072 (direct).

Thank you for giving consideration to our request. We look forward to working with you.

Sincerely,



Vicki L. Worden
President & CEO

Comparing Green Globes & LEED

Program Features	Green Globes	LEED
Uses ANSI Approved Consensus Development Process	YES	NO
Nationally Accepted Program	YES	YES
Program Delivery	Online, interactive survey	Online submission of forms
1-on-1 Customer Support - Learn More	YES	NO
New Construction Assessment	YES	YES
Existing Building Assessment	YES	YES
Total Program Points	1,000	110
Minimum Points Required for Certification	YES	YES
Weighted Criteria & Partial Credit - Learn more	YES	LIMITED
Program Prerequisites - Learn more	NO	YES
Flexibility for Non-Applicable Criteria - Learn more	YES	NO
Energy Performance (New Construction) Learn more	Benchmarks against actual regional performance data	Benchmarks against hypothetical building model
Incorporates Life Cycle Assessment (LCA) Learn more	YES	NO
Forest Certifications Accepted	4	1
Sustainability Recommendations w/Automated Report	YES	NO
Certification Process	Preliminary online evaluation followed by third-party on-site assessment	Complete & submit assessment form, wait for results
Certification Rating System	4 Globes 3 Globes 2 Globes 1 Globe	LEED Platinum LEED Gold LEED Silver Certified LEED
Certified Personnel Training Program	YES	YES
Time to Complete Documentation	🕓	🕓 🕓 🕓 🕓
Cost to Certify a Typical Building >100,000 sq ft	$	$ $ $

For more details, please visit us online at http://www.thegbi.org.

Comparison of the
New Release of Green Globes for New Construction (GG NC) and the Proposed LEED v4
as of 2/24/13

Overview of GG and LEED Certification Requirements

LEED has prerequisites for certification, and certification is based upon meeting those prerequisites and scoring of additional criteria within a 100 point scale.
Green Globes has no prerequisites. Criteria are weighted relational to environmental impact/benefit. Certification is based upon scoring of all criteria within a 1000 point scale.

Green Globes NC and LEED v4 Evaluation Comparison

Both Green Globes and LEED cover the evaluation of a wide range of sustainability areas, but there are some differences. The table below compares the areas covered by the evaluation criteria for both GG NC and LEED v4.

	Coverage		Notes Specific to Coverage		
Green Globes Assessment Area Sections	**GG NC**	**LEED v4**	**GG NC**	**LEED v4**	
Project Management					
Integrated Project Management	Yes	Yes	• Less prescriptive allowing clients flexibility to design their own Integrated Project Management Plan	• Prescriptive criteria must be met	GG has always recognized the criticality of good management practices – LEED just finally realized this
Construction /Environmental Management	Yes	Yes	• Includes Environmental Response Plan, • Clean Diesel Program, and materials protection	• Indoor Air Quality post occupancy plan required in the new construction module	

Commissioning	Yes	Yes	• Includes Whole Building Commissioning	• Includes commissioning as a pre-requisite • Enhanced Commissioning - contains preparation for retro-commissioning	Cardinal best practice for NC – always hot industry topic
Indoor Air Quality (management practices)	Yes	Yes	• Specific major renovation criteria included for an occupied building	• No criteria for major renovations in an occupied building. • Post occupancy plan required	
Site					
Site/Development Area	Yes	Yes	• Looks at fundamental characteristics of the site, eg. Greenfield captures farm, undeveloped, parkland, etc.	Looks at fundamental site characteristics as well as development characteristics of the surrounding area	
Ecological Impacts	Yes	Yes			
Heat Island Effect	Yes	Yes			
Bird Collisions	Yes	No			
Watershed Features	Yes	Yes			
Landscaping	Yes	Yes	• Comprehensive coverage	• Limited coverage , but with Habitat Restoration	
Exterior Light Pollution	Yes	Yes	• Uses BUG (backlight-uplight-glare) method	• Uses BUG (backlight-uplight-glare) method	
Energy					

Energy Performance	Yes	Yes	• Four Paths: ANSI Path A; Energy Star Target Finder; ASHRAE 90.1, Appendix G; ASHRAE bEQ • Additional prescriptive criteria for energy performance (e.g. Building Envelope & Orientation and HVAC Systems and Controls etc.)	• Three Options: Whole Building Energy Simulation: Cost Savings +**Source Energy**; Prescriptive Compliance: based on ASHRAE Energy Design Guide – restricted to smaller buildings based on occupancy; Prescriptive Compliance: based on 'Advanced Buildings Core Performance Guide' (C&S only). ○ Minimum threshold of energy performance design is a prerequisite for certification. ○ Ability to earn energy performance credits within the three options based upon three factors related to project type: whole building, major renovations and core & shell	Energy perf. Is universal as the most prominent criterion – GG has four paths; LEED expanding to three
Energy Demand	Yes	Yes	• Comprehensive coverage	• Limited to two options: ○ Demand Response Program ○ Permanent Peak Load Shifting	
Energy Measurement and Verification	Yes	Yes	• Encourage the use of the Continual Improvement of Existing Buildings (CIEB) program after 18 months of occupancy	• Expectation to provide reconciliation of design versus actual energy performance	
Renewable Energy	Yes	Yes	• On-site includes ground source	• LEED does not include Ground Source	
Transportation	Yes	Yes		• Includes parking reduction and low emitting/fuel efficient vehicles	
Water					
Building Water Performance	Yes	Yes	• Whole building water performance • Additional prescriptive criteria for energy performance (e.g. fixture& equipment performance)	• No whole building water performance • Three prerequisites and three advanced criteria; one each for landscape; fixture and fitting; appliance and process loads	Water supply concern increasing – and only GG has whole building perf.
Alternative Sources of Water	Yes	Yes	• Wastewater measures include greywater only • Additional measures addressing rainwater, drainwater, HVAC and other process water, backwash water, and treated wastewater	• Specific wastewater management and reuse options	
Water Metering	Yes	No	• Building level and sub-metering		
Landscape and Irrigation	Yes	Yes	• Comprehensive criteria	• See building water performance above	

Materials & Resources					

Materials – Building Structural	Yes	Yes	• Two Paths for material and product selection:
			  ○ Whole Building Life Cycle Assessment
			  ○ Multi-Attribute select method
				• Criteria requires environmentally preferable materials and products with a focus on a single attribute product selection process
				• Raw materials sourcing
					GG has always been the leader in this area – now adopting the whole building LCA approach

Materials – Furnishings and Fit-Outs	Yes	Yes			True adoption of furnishings and fitups (vs LEED)
Reused and Salvaged Materials	Yes	Yes	• Comprehensive coverage	• Recycled demolition materials	
Construction/Demo Waste Management	Yes	Yes		• Management Plan is a prerequisite for certification	
Building Durability, Adaptability and Disassembly	Yes	No	• Includes performance and Building Life Service Plan		Whole Building Life Cycle -GG standout – only possible with GG assessment approach.
Building Envelope, Roof, Foundation - building service life	Yes	No			
Emissions and Other Impacts					

Heating	Yes	No	• Includes two paths for measuring emissions determined by circumstances of the heating system:
			  ○ Building Level
			  ○ District Heating		

Cooling (Refrigerants)	Yes	Yes	• Incorporated best practices based upon GreenChill covering ODP (Ozone Depleting Potential) and GWP (Global Warming Potential) ○ Available for use by building types other than Foodstores	• Includes Prescriptive and Performance Options • Requires GreenChill certification for Foodstores • Specific District Energy Systems Requirements	Adopting latest industry best practices, designs and tools – more performance than prescriptive compared to LEED
Source Control-Asbestos/Radon	Yes	No	• Asbestos – Major Renovations		
Indoor Environment					

Ventilation	Yes	Yes	• Comprehensive coverage
			• Management plan not included
				• Three prerequisites for certification
				  ○ Minimum Air Quality
				  ○ IAQ Management Plan
				  ○ Construction Indoor Air Quality Management Plan during construction
				• Ability to earn credit for Enhanced Air Quality	

Indoor Pollutants	Yes	Yes	• Comprehensive pollutant source controls (e.g. VOC's (Volatile Organic Compounds), IAQ monitoring ventilation intakes, mold and smoking etc.)	• Prerequisite to prohibit smoking • Criteria include pollutant source controls such as VOC's (Volatile Organic Compounds) and IAQ monitoring, but does not include mold and ventilation intakes)	
Lighting Systems	Yes	Yes		• Include criteria for views	
Thermal Comfort	Yes	Yes			
Accoustics	Yes	Yes	• Comprehensive coverage for all building types	• Includes criteria for acoustical comfort for schools	

Areas that LEED covers and GG NC does not.

IP Credit: LEED Accredited Professional 11
NC, CS, Schools, Retail, Data Centers, Warehouse & Distribution Centers, Hospitality

LT Credit: Low-Emitting and Fuel-Efficient Vehicles 32

EMBARGOED: FOR RELEASE TUESDAY, SEPTEMBER 8, 2015

MEDIA CONTACTS

- Vicki Worden, Executive Director, GBI, 202-841-2999, Vicki@thegbi.org
- Wayne Trusty, Chair, GBI Consensus Body, Wayne B. Trusty Associates, wtrusty@sympatico.ca, 613-269-3795
- Dr. Charles Kibert, Vice Chair of GBI Consensus Body, University of Florida, ckibert@ufl.edu, 352-262-2689

Green Building Initiative Announces Start of Public Comment Period on Revised ANSI Standard

GBI 01-201X will provide compliance requirements for the next version of Green Globes® for New Construction expected to be released in 2016

Portland, OR –(September 8, 2015) The Green Building Initiative's (GBI) 32-member Consensus Body today released for public comment a revision to GBI's American National Standard, known as ANSI/GBI 01-2010: Green Building Assessment Protocol for Commercial Buildings. Work on the revision began in 2014 and has included input to date from nearly 100 subject matter experts in the green building community through more than 50 public meetings and calls conducted as part of GBI's American National Standard Institute (ANSI) approved procedures. The procedures dictate requirements for openness, balance, consensus and due process.

The revised Standard, designated BSR/GBI 01-201X according to ANSI protocol, is now available on GBI's website along with a public comment form at www.thegbi.org/ansi. The official public comment period will begin Friday, September 11, 2015 and run through Monday, October 26, 2015.

"We'd like to thank the many volunteers that have contributed time and expertise to date," stated Wayne Trusty, Chair of the GBI Consensus Body. "The next stage of public comment review is critical to help ensure the Standard will help owners and design teams set appropriate goals and meet the expectations that we collectively have for the sustainable attributes and ultimate performance of their buildings."

According to GBI's published Schedule for Maintenance, this is one of at least two public comment periods under ANSI's periodic maintenance requirements. GBI plans to maintain the Standard under continuous maintenance to allow for annual or biannual updates.

GBI's Executive Director Vicki Worden states, "The public comment periods help GBI advance its mission to increase adoption of green building practices. Discussion and debate in the green building community improves the Standard and helps the community as a whole consider new avenues for achieving and assessing high performance and green building."

The ANSI GBI 01-2010 Standard forms the basis for the current version of Green Globes for New Construction (Green Globes NC), which was released in 2013 and is delivered through an interactive online platform that breaks down the criteria into questionnaires and allows users to access reference materials and ToolTips through hyperlinks. The current Green Globes NC was also updated to include criteria from the Federal government's Guiding Principles requirements. Additionally, updates were made to respond to customer feedback and incorporate changes that occurred in the market between 2010 and 2013.

Dr. Charles Kibert of the University of Florida serves as Vice Chair of the Consensus Body and also sits on GBI's Board of Directors. He notes, "Moving to a continuous maintenance process, where proposals for change can be considered by the Consensus Body on an annual or biannual basis, will help ensure both the Standard and the online Green Globes system can be updated simultaneously." Kibert adds, "In this way, Green Globes will be able to respond to customer feedback, promote innovation, and reflect technological advancements while ensuring that the rating system's compliance criteria are strictly maintained by GBI's Consensus Body."

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About the Green Building Initiative™ - The GBI is a nonprofit organization and American National Standards Institute (ANSI) Standards Developer dedicated to accelerating the adoption of green building practices. Founded in 2004, the organization is the sole U.S. provider of the Green Globes® and federal Guiding Principles Compliance building certification programs. To learn more about opportunities to become involved in the GBI, contact Vicki Worden at vicki@thegbi.org or visit the GBI website, www.thegbi.org.

GSA

The Administrator

October 25, 2013

The Honorable Ernest Moniz
Secretary of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary:

The purpose of this letter is to report the results of the U.S. General Services Administration's (GSA) review of green building certification systems (GBCS) and to provide recommendations to you, pursuant to section 436(h) of the Energy Independence and Security Act of 2007 (EISA).

EISA requires the Director of GSA's Office of Federal High-Performance Green Buildings to identify a certification system(s) every five years that is "most likely to encourage a comprehensive and environmentally sound approach to the certification of green buildings" and to provide a recommendation to the Secretary of Energy.

GSA makes the following six recommendations for the Federal government's use of green building certification systems. These recommendations were developed after a thorough evaluation of building certification systems by the Pacific Northwest National Laboratory, commissioned by GSA in 2011; as well as the deliberations of an Interagency Ad-hoc Discussion Group co-chaired by GSA, the Department of Energy and the Department of Defense; public comments received; and input from GSA's Green Building Advisory Committee.

1. **Agencies Should Continue To Use Third-Party Certification Systems**. GSA recommends that agencies continue to use third-party green building certification systems as one of many tools to evaluate building performance against federal statutory and executive order green building requirements. The use of these third-party certification systems, when properly aligned with government requirements, saves resources by eliminating the cost to the government of developing its own duplicative green building certification system while drawing on the expertise of the private sector.

2. **Agencies Should Choose Between Two Certification Systems**. When choosing to use a green building certification system, GSA recommends that agencies use either the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) 2009 or the Green Building Initiative's Green Globes 2010 green building certification system. Both LEED 2009 and Green Globes 2010 are being revised by their system owners and may only be available for a limited time once the revised systems are finalized and made available in the market. GSA's recommendation "5" suggests actions the federal government should take when green building certification systems are revised.

U.S. General Services Administration
1800 F Street, NW
Washington, DC 20405
Telephone: (202) 501-0800
Fax: (202) 219-1243

If pursuing a green building certification, GSA recommends that agencies achieve at least LEED Silver or 2 Green Globes for new construction and major renovation and achieve as many points in the energy and water categories as possible. This should not dissuade agencies from earning a higher certification level from either green building certification system if the agency deems such pursuit to be cost effective or necessary to allow the agency to continue its mission (e.g., water conservation in the southwest). If agencies decide to pursue green building certification for existing buildings through Green Globes or LEED, GSA recommends that agencies set a minimum goal of achieving LEED Certified or 1 Green Globe, provided that all the points associated with statutory and regulatory requirements are achieved.

3. **Agencies Should Use Credits that Align with Federal Requirements**. Several agencies, including the Department of Energy and GSA, have identified credits within green building certification systems that align with federal statutory and executive order green building requirements. Many agencies have published these analyses on their websites. If agencies choose to use a green building certification system, GSA recommends that agencies use these publicly available analyses to focus on achieving those credits that help buildings meet federal green building requirements.

4. **Agencies Should Select Only One System on an Agency, Bureau or Portfolio Basis**. GSA recommends that individual agencies be encouraged to use only one green building certification system at the agency, service, or portfolio level. GSA recommends that decisions to use multiple systems within one agency should be based on a determination by that agency that the organizational structure supports an effective use of training resources and that multiple systems effectively meet the agency's portfolio needs.

5. **GSA Should Establish a Process to Keep Current with Revisions to the Rating Systems**. GSA recommends that the federal government formalize a process similar to GSA's green building certification system review to stay current with green building certification systems and their underlying standards. GSA suggests that its Office of Federal High-Performance Green Buildings track the evolution of green building certification systems and standards, and evaluate revisions to certification systems once they have been approved by their respective system owners. Within one year after a certification system is finalized by its respective system owner, GSA proposes to work with the Departments of Energy and Defense, and other agencies as appropriate, to discuss the finalized revisions and whether the federal government should adopt the newest version.

6. **The Federal Government Should Participate in the Ongoing Development of Green Building Rating Systems**. GSA recommends that the federal government continue to work with green building certification system owners to better align with federal statutory and executive order green building requirements to ensure the federal government's needs are met.

If you require additional information, please contact me, or have a member of your staff contact Mr. Kevin Kampschroer, Director of GSA's Office of Federal High-Performance Green Buildings, at 202-501-4411.

Sincerely,

Dan Tangherlini
Administrator

Green Globes® for New Construction

Better Building Science for Better Results

Prepared by:
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MARSTON design studio

MARSTON design studio
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MORRISON HERSHFIELD
People • Culture • Capabilities

Dan Prows, LEED AP, CSDP
Morrison Hershfield Corporation

MORRISON HERSHFIELD
People • Culture • Capabilities

May 2013

Introduction

In today's economy, owners and design professionals are looking to design and construct projects that are environmentally friendly and within budget. Sustainable design or green design has gained significant strength in the last 10 years and is a widely employed element for design and construction professionals. Programs to support green building assessment and certification are now undergoing significant changes. Due to a recent major program update, Green Globes now uses the most advanced building science to support the design and construction of sustainable buildings that can also deliver significantly reduced operating costs.

Why Sustainable Design and Construction?

There are many distinctive and substantial benefits to building sustainable buildings due to the integration of economic, environmental and social goals.

The economic advantages of building sustainable buildings include reduced life cycle operating costs, reduced water consumption, reduced insurance rates, productivity gains, improved image and increased property values.

Ecological benefits are broad and wide reaching, from protecting natural spaces and enhancing existing ecology to reducing water/energy/material use. These measures directly and indirectly result in reductions to greenhouse gas emissions, ecological footprint, climate change impact, natural resource consumption, and strain on infrastructure.

There are also substantial social benefits, including increased occupant comfort and health, increased natural light, the promotion of mass transit, and urban densification.

As you can see, there is a strong business case for green building in the United States when a holistic, long-term view of the benefits and real building costs are considered.

Green Building Rating Systems

There are four green building rating systems at the pinnacle of sustainable design and construction: Green Globes, LEED™, ENERGY STAR® and ASHRAE Building Energy Quotient (bEQ).

Most of the design and construction industry is familiar with the United States Green Building Council's (USGBC) Leadership in Energy & Environmental Design (LEED) certification program. LEED is an internationally recognized green certification program that addresses multiple project types to include new construction, core and shell, and existing building projects to name a few. LEED has proven to be an effective tool in raising the design and construction community's awareness of promoting sustainability in the built environment. The program is continuing to evolve and its users should see several improvements in the soon to be released LEED v4. LEED 2009 will be available as a certification protocol through 2015 and is planned to run as a parallel certification track with LEED v4.

People outside of the design and construction industry are most familiar with the ENERGY STAR logo that can be seen on laptops and home appliances. The ENERGY STAR program

certifies a building based on Energy Use Intensities (EUIs) and rates the project on a scale of 1-100. The performance information used to rate the project is based on information received from the US Energy Information Agency's Commercial Building Energy Survey (CBECS) collected by the EPA. A project team can utilize the ENERGY STAR program to achieve energy performance points in the Green Globes for New Construction certification program.

The ASHRAE Building Energy Quotient is a new certification program that measures both as-designed and in-operation energy performance. ASHRAE bEQ derives its usage and intensity baselines from the ENERGY STAR Target Finder™ Tool (Ravi Srinivasan, 2013) and is one of the four paths a design team can utilize to achieve energy performance points in the Green Globes for New Construction certification program.

The Green Building Rating System at the forefront of sustainable design is Green Globes. Its overall "ease of use, system flexibility, adaptability and transparency" separate Green Globes from LEED as a distinct and effective certification system (Charles J. Kibert, 2012). The overall spirit and intent of sustainable design are most clearly represented within Green Globes. Buildings are essentially a "business" and, as with all sustainable building projects, any sustainable approach/path/technology must make sense and be reasonable to the business community or it will more than likely be rejected.

Green Globes for New Construction

Green Globes traces its origins to the United Kingdom and the BREEAM program (Building Research Establishment Environmental Assessment Method) as one of the first systems to environmentally assess buildings and to rate existing buildings. It helped set the standard for green building and measuring a building's environmental performance.

The Green Globes certification program is available in the U.S through the Green Building Initiative (GBI). In 2005, the GBI became the first green building organization accredited as a standards developer through the American National Standards Institute (ANSI). The GBI developed the ANSI/GBI 01-2010: Green Building Assessment Protocol for Commercial Buildings and used it as the basis for the latest enhancements to the Green Globes for New Construction protocol.

Green Globes for New Construction is part of an integrated design process. It utilizes an online building assessment tool for each design phase from pre-design to construction documents. A third-party assessor is assigned to the project to review the online assessment and construction documents and then perform an on-site inspection. The process is user-friendly, and having an assigned assessor to contact regarding decisions and certification requirements ensures it is transparent and interactive. The GBI also has Green Globes certification programs for existing buildings (called Continual Improvement of Existing Buildings, or CIEB) and CIEB for Healthcare.

Recent enhancements to the Green Globes for New Construction assessment and certification protocol include Building Energy Performance Options and Life Cycle Assessment. These and other updates were made to make sustainability assessments more comprehensive and to give the design team more options to achieve sustainability goals. This concept of flexibility is the spirit of sustainability embodied in Green Globes. It

encourages the design team to create higher performing buildings for their clients by allowing more than one path to achieve the owner's sustainability goals. It is the opposite of a "one size fits all" approach and results in more building types being recognized for the sustainable measures employed.

Criteria Incorporates Advanced Building Science

The Green Globes certification process has seven environmental assessment areas: management, site, energy, water, materials & resources, emissions, and indoor environment. The energy, materials & resources, and water assessment areas are what separate Green Globes for New Construction from other green certification programs.

FIGURE 1-GREEN GLOBES ENVIRONMENTAL ASSESSMENT AREAS

Energy

The building industry is full of requirements related to energy efficiency, most of which mandate achieving specific reductions in energy use. The latest version of Green Globes for New Construction offers project teams and building stakeholders several options when it comes to assessing and implementing energy performance/efficiency into the design. Up to four paths, each of which has its own specific requirements and point limits, are available in order to achieve points in the Energy Performance section. Each path is proven to assist building stakeholders in decreasing building energy use. These paths are as follows:

Path A: ENERGY STAR Target Finder

Path B: ASHRAE 90.1-2010

Path C: ANSI/GBI 01-2010 Energy Performance Building Carbon Dioxide Equivalent Emissions (CO_2e)

Path D: ASHRAE Building Energy Quotient (bEQ)

Path A: The ENERGY STAR Target Finder offers performance ratings based on Energy Use Intensity, which is extrapolated from actual performance data from related building types and related energy performance. The median building is modeled using data from US Energy Information Agency's Commercial Building Energy Consumption Survey (CBECS) 2003. If your project meets the requirements of the eligible building types that can be entered into the ENERGY STAR Target Finder, this would be the most straightforward approach as compared to the other paths. If your project is not one of the eligible building types, then one of the other three paths should be pursued.

Path B: ASHRAE 90.1-2010 is the path most pursued with LEED projects. It models a baseline building based on the characteristics in ASHRAE 90.1-2010, Appendix G, with a proposed design using the same methodology from Appendix G. The energy performance is measured in in the form of energy cost reduction.

Path C: Buildings account for 35% of all Green House Gas (GHG) emissions in North America. The building industry is being called upon not only to reduce energy consumption costs but to help fight climate change by achieving ambitious reduction targets for GHG emissions. The ANSI/GBI 01-2010 Energy Performance Building C02e performance path offers teams a way to quantify their reduction in CO2e as the energy performance metric is provided in CO2 equivalent emissions. Reducing GHG comes not only from energy efficient design and optimizing the building's energy demand, but also from utilizing low-carbon energy sources with clean/renewable energy generation. One advantage of this energy path is that the baseline building is determined by ENERGY STAR Target Finder, so the energy modeler and design team can spend their efforts on modeling the proposed building as accurately as possible and looking at real energy performance measures instead of spending effort on trying to make the baseline building worse. By comparing to an actual EUI, building stakeholders can look at things in absolute terms rather than using a "better than baseline" based on a fictitious reference.

Path D: The ASHRAE Building Energy Quotient rating program provides rating levels from B (Efficient) to A+ (Net Zero Energy). Similar to ENERGY STAR Target Finder, it utilizes information from CBECS (2003) data for the baseline building. The proposed design is modeled using ASHRAE 90.1-2007 and the energy performance is measured as a reduction in EUI.

The Green Globes for New Construction certification program offers the design team the four energy performance paths described above. This allows the project flexibility to show energy performance on various platforms, from the most familiar (ENERGY STAR) to the most cutting edge (ANSI and bEQ). This flexibility is unique to Green Globes and allows the energy modeler to provide information that helps the designers make informed decisions. In addition, extra credit points are available to project teams who show exemplary performance using Path C or Path D. Green Globes' flexible approach to energy performance provides building stakeholders with the means to achieve a balanced end product that is project specific and more energy efficient.

Similar to the notion that no single energy simulation software can accurately model all building and systems types accurately (i.e. EnergyPlus may model displacement ventilation more accurately than eQuest), no single energy performance path can suit all building types and project specific requirements.

Materials and Resources

Life Cycle Assessment (LCA) is an emerging trend in green building design and is critical to achieving high levels of sustainability. Since its inception, Green Globes has promoted and encouraged LCA as an important part of its program. Green Globes for New Construction includes the building industry's LCA as a protocol for obtaining a quantifiable measurement of sustainability. Currently, LEED 2009 has LCA as a pilot credit. It appears that LEED has begun to recognize the importance of LCA within their certification programs as it is expected that LEED v4 will offer LCA credits under the Material and Resources section.

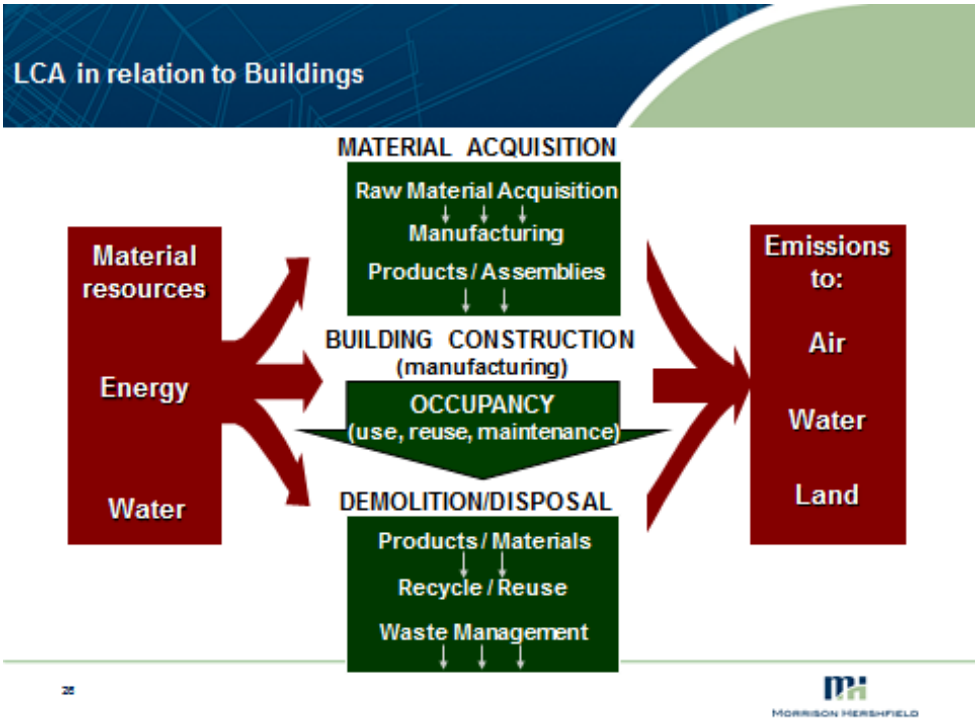

FIGURE 2-LIFE CYCLE DIAGRAM DIAGRAM COURTESY OF WAYNE TRUSTY, ATHENA MATERIALS INSTITUTE

The Materials & Product Selection section of Green Globes for New Construction is divided into two categories: Building Assembly and Interior Fit-Out. The building assembly includes the core, shell, and envelope whereas the interior fit-out includes all of the finishes and furnishings within the building assembly. Each category can be evaluated using either Path A: Performance Path or Path B: Prescriptive Path. This separation allows different approaches for product selection and evaluation and gives designers options for compliance.

Path A: Performance Path Green Globes for New Construction encourages use of the Athena Impact Estimator and/or other life cycle assessment tools for the Building Assembly and third-party peer reviewed life cycle assessments for the Interior Fit-out. The use of the Impact Estimator allows the design and construction teams to compare design scenarios and

environmental considerations throughout the design process so that sustainable design decisions can be made prior to construction. The Impact Estimator is a "robust life cycle inventory of databases that provides accurate, scientific cradle-to-grave information for building materials and products, transportation, and construction and demolition processes" (Institute, 2013). Life cycle assessment is a sustainable method for comparing building assemblies and their ability to meet project goals.

Path B: Prescriptive Path Currently, the most common method for sustainable product selection is the evaluation of "single attributes" (e.g. VOC's, recycled content, bio-based, etc.), which is not ideal. To maximize sustainability, materials should be compared and selected based on multiple attributes. There are three such methods to evaluating products. The first is to use Type III Environmental Product Declarations (EPD's), which are based upon recognized Product Category Rules and ISO Standards 14040, 14044, 14025 and 21930 or EN 15804. There are two classifications of Type III EPDS: Industry Wide EPDs, which are generic to a product type, and Product Specific Declarations, which are manufacturer-specific for a family of products. The second method is to utilize third-party material/product certifications that are based upon multiple attributes, such as NSF International assessment standards, UL Environment sustainability certifications, and sustainable forestry certifications. Multiple attribute standards should be consensus based and issued by an approved standards development organization. The third method is to utilize a third-party certified life cycle product assessment. Path B may be a better choice for interior fit-outs than Path A because "the multitude of different types of proprietary product formulations used for interior products" make it difficult to perform life cycle analysis of an interior fit-out (Jane M. Rohde, 2013). Ultimately, the goal is to select products that are environmentally responsible, durable and meet the functional and aesthetic needs of the client.

Water

Water consumption is an important factor to consider during project design and construction. Both the fixtures used and their installation play a role in how a building consumes and disposes of water. The GBI has created a water calculator that allows clients to gauge a building's water performance by benchmarking it against a base building. This Excel-based water calculator offers the following features:

1. Input assumptions, such as building size and type, operating hours, and fixture use frequency
2. An output page that displays calculated baseline water use and allows the addition of other water consumption features, such as HVAC systems, pools, water features, commercial kitchens, etc.
3. Project use analysis, which includes water performance improvements over the baseline
4. A parallel program for multi-unit residential buildings

Water is an important resource, and water calculations play a key role in sustainable design and conservation. The GBI Water Calculator simplifies the water calculation process for

building projects and is more accurate than other calculators due to its ability to accommodate additional water consumption fixtures.

Green Globes - The Process

Green Globes for New Construction is at the forefront of sustainability certification programs. Compared to LEED, Green Globes cuts out the bureaucracy, long review times, and complexity. Auden Schendler said it best in his essay "LEED is Broken, Let's Fix It": "We're concerned that LEED has become expensive, slow, confusing, and unwieldy, a death march for applicants administered by a soviet-style bureaucracy that makes green building more difficult than it needs to be. The result: mediocre 'green' buildings where certification, not environmental responsibility, is the primary goal" (Schendler, 2005).

Green Globes for New Construction is the answer for the frustrated LEED project team looking for an alternative green certification process. The excellent customer service, overall ease of use, transparency of the certification process, national recognition, and swift response times surpass LEED.

Any design team working on a sustainable project knows that documentation is of the utmost importance. During design and construction, questions arise and answers are needed in a timely manner to make decisions. Green Globes clients receive answers to those questions very quickly, usually within 1-2 days. Questions can be discussed with GBI staff or a third-party Green Globes Assessor so an informed decision can be made. This is where LEED fails and continues to get worse. LEED questions have to be submitted by email, and technical questions may have an associated cost. It often takes 2-4 weeks to receive a response to a LEED question, and sometimes they go unanswered. The GBI staff aids clients throughout the Green Globes certification process, and their customer service far surpasses that of any other green certification program.

Green Globes for New Construction consists of 6 phases.

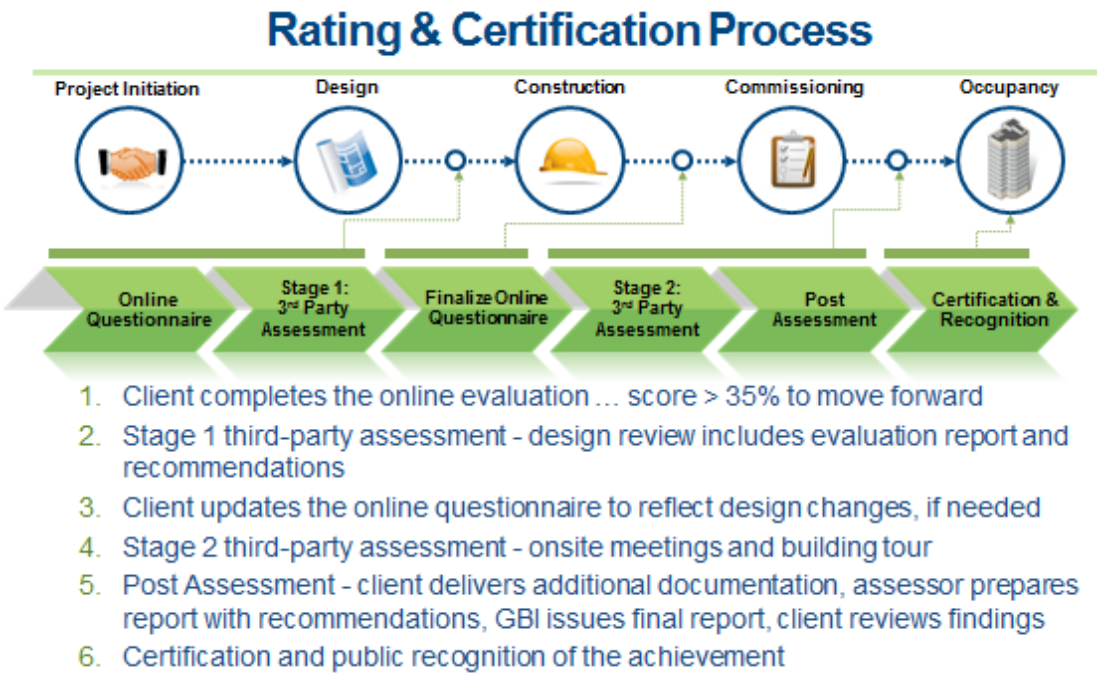

FIGURE 3-GBI RATING & CERTIFICATION PROCESS SUMMARY

Green Globes uses an online questionnaire to streamline the process and get to the overall intent of what sustainable design is all about. The online tool is easy to use, is compatible with any computer, and does not require special software for completion (LEED requires outdated Internet Explorer and Adobe Reader software). Once the questionnaire is complete, the NC Stage I Assessment can begin.

During the Stage I Assessment, a third-party assessor reviews the construction documents and compares them with the client's responses in the online questionnaire. The assessor then composes a Stage I report containing comments, recommendations, and a projected Green Globes score. The report provides the design team with helpful feedback on the current design, itemization of missing documentation, and suggestions to improve sustainability. The assessor is also available to answer any questions the client has about the report contents or projected Green Globes score. The dynamic interaction between the design team and assessor make the certification process easy, enjoyable, and successful.

When construction is essentially complete and the client makes any necessary updates to the online questionnaire, the third-party assessor can complete the Stage II On-Site Assessment. A member of the project team joins the assessor on-site to visually inspect the building and verify information submitted within the questionnaire and construction documents. The assessor may use his/her professional judgment to determine the level of compliance and points awarded. Unlike LEED, Green Globes allows partial points to be awarded if warranted. After the on-site assessment is complete and the client submits any missing documentation, the assessor writes a Stage II report that contains the evaluation results and recommended Green Globes rating. The GBI staff reviews the report and issues it to the client.

Overall, the Green Globes assessment process takes 30-45 days, compared to 120 days for LEED. This is a significant time difference and can be a critical decision factor when choosing

a green certification program. A design team can lose a lot of time with LEED due to failed credit certification and poor response time from the USGBC. The GBI and Green Globes Assessor are dedicated to responding to client concerns quickly and with helpful information that keeps the review process moving forward. The intent of sustainable design is environmental awareness and support of long-term ecological balance, both of which are supported and promoted by Green Globes.

Conclusion

Green Globes for New Construction employs the best building science to deliver sustainable building certification. The certification process is streamlined by an online questionnaire and verified on-site by a 3rd party assessor. Green Globes projects benefit from reduced operating costs and provide real/tangible sustainability results while costing less for certification. Building owners often comment on the cumbersome LEED process, the high cost of certification, and the expense of required building features that do little to improve sustainability. The GBI believes that a client's return on investment in green building certification should outweigh its costs in both time and money spent.

The Green Building Initiative and the Green Globes for New Construction rating system represent the true intent of sustainable design. The GBI uses a proven process for the certification and recognition of sustainable projects and continues to improve along with the design and construction industry. Green Globes is a competitive green building certification program that is at the forefront of building sustainability efforts.

Bios

Donald M. Martin, AIA, NCARB, LEED AP, GGP

Donald Martin has over 12 years of experience in architecture, planning, and consulting and is the Principal of MARSTON design studio. The past 12 years Donald has provided architectural design and consulting to sustainable construction and environmental design on multiple project types. Donald is a consulting Project Architect with Morrison Hershfield and is part of the sustainable services and building consultation team in Atlanta Georgia. Donald oversees the green certification of projects pursuing LEED, Green Globes, and ENERGY STAR. Donald's unique experience in the design and construction industry provides him a unique experience into environmental and sustainable design and the green certification process.

Stevan Vinci, CET, LEED AP BD+C, LEED AP O+M, GGP

Stevan serves as the Sustainability Practice Lead for Morrison Hershfield's Pacific Northwest offices and has provided green building consulting, building envelope/durability and commissioning duties on sustainability projects in Canada and in the US. Further to sustainability, Stevan has over 16 years of building science experience completing several building envelope assessments for building envelope failures as well as design assist services to architects on new construction projects. His experience also includes 3rd party building envelope drawing review, specification writing and construction drawing preparation of

envelope systems. His experience in building envelope contributes to a better understanding of whole-building systems in his work in green buildings.

Dan Prows, LEED AP, CSDP

Dan Prows has over 14 years of experience in construction and business management, including 7 years dedicated solely to sustainable construction and environmentally conscious design. Dan brings with him vast experience in the building sciences of thermal envelope, HVAC, and alternative energy. Dan's work in the Northwest, Intermountain West, and Southeast United States provide him with unique experience to address challenges in multiple climate zones. He is currently Morrison Hershfield's U.S. Buildings Group's Director of Operations and is primarily responsible for the overall development, operation, and growth of sustainable services and building consultation. He teaches sustainable design and green construction methodology to architects, engineers, and construction personnel throughout the country.

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