

Energy & Store Development Conference

E+SD 2014

September 7-10, 2014
St. Louis Union Station Hotel
St. Louis, MO



THE VOICE OF FOOD RETAIL 

Using Green Globes for Sustainable Store Operations

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**Manager of Corporate Social Responsibility,
Price Chopper**

Green Globes Rating Systems

Agenda

- Introduction to the Green Building Initiative (GBI)
- Introduction to Green Globes
- Green Globes Program Attributes
- Green Globes for New Construction (NC) Features and Eligibility
- Green Globes for New Construction Assessment Areas and Point Allocation
- Green Globes NC Assessment Process
- Green Globes NC Rating Scales and Recognition
- Green Globes CIEB (Existing Buildings) Rating System
- Free Trial, Support, and Exam Instructions

ADEQ Headquarters, North Little Rock, Arkansas



The Green Building Initiative

Introduction

Green Globes for New Construction

The Green Building Initiative

- Nonprofit corporation – HQ in Portland, OR
 - Mission: Accelerate the adoption of building practices that result in energy efficient, healthier & environmentally sustainable buildings
- Founded in 2004
- U.S. provider of the Green Globes and Guiding Principles Compliance assessment & certification systems



Green Globes for New Construction

The Green Building Initiative

ANSI Standards Developer

- American National Standards Institute accredited standards developer since 2005



- Developed Green Globes for NC from an industry standard
 - ANSI/GBI 01-2010: Green Building Assessment Protocol for Commercial Buildings
 - Incorporated into *Green Globes* v3, 2013

Green Globes for New Construction

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- Developed Green Globes for NC from an industry standard
 - ANSI/GBI 01-201X: Now underway: An Updated Version of GBI's Green Building Assessment Protocol for Commercial Buildings
 - To Be Incorporated into a new *Green Globes v4* tool in 2016

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Green Globes

Introduction

Green Globes for New Construction

What is Green Globes?

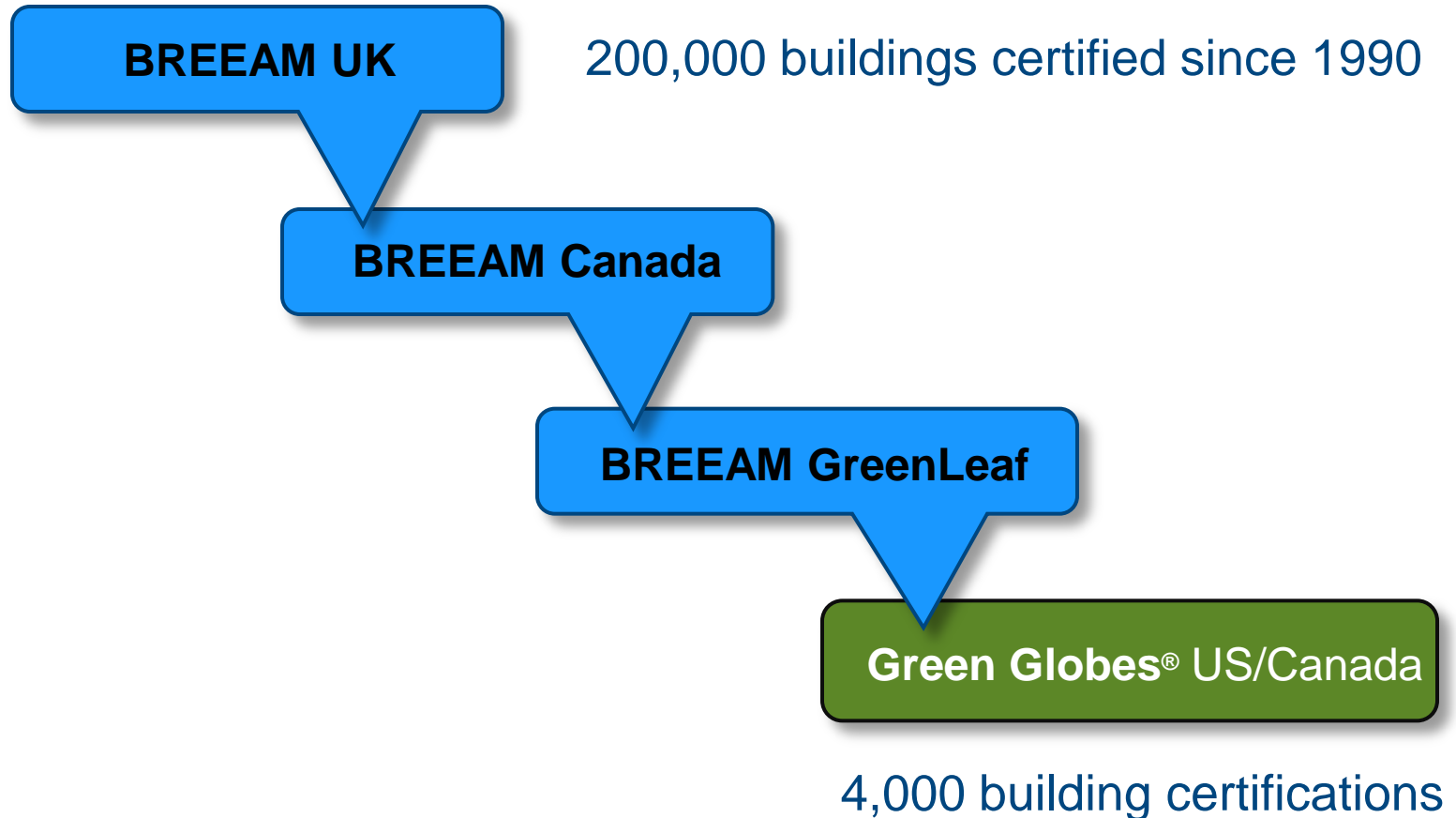


In 2004, Green Globes was...

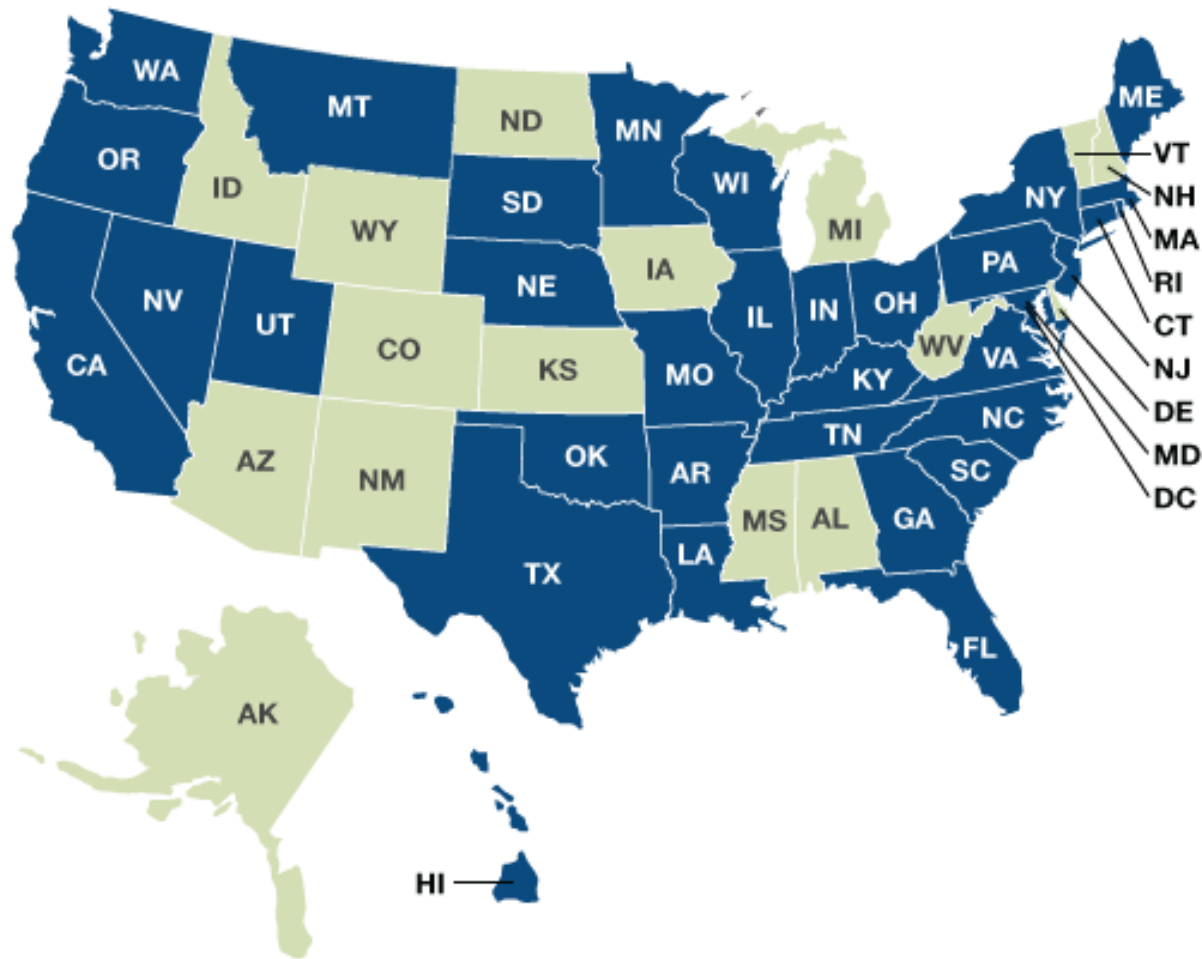
North America's first interactive
design guidance, environmental
assessment and rating tool

Green Globes for New Construction

Green Globes Lineage



States Laws Recognizing Green Globes



Green Globes for New Construction

Green Globes Federal Government Recognition

Green Building
Certification
System Review -
October 2013



*GSA recommends
agencies use
Green Globes
or LEED
green building
certification
systems*

Department of
Defense
Acknowledges
Green Globes



- 2012
 - National Laboratory Report found GBI's ANSI Standard version of Green Globes for New Construction met more federal government requirements than LEED
- 2013
 - Letter to Secretary of Energy recommended agencies use Green Globes or LEED certification systems

Green Globes for New Construction

Green Globes Assessment Tools

- **Green Globes NC**

- Guides the integrated design process at each stage of the project

- **Green Globes CIEB**

- Establishes a baseline, provides a current performance report, guides improvement

- **Green Globes Sustainable Interiors**

- Formal introduction Q1 2014
- In use since Q3 2013
- Useful for store remodels

Green Globes for New Construction

Green Globes Used Across Government & Industry



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Green Globes Program

Attributes

Green Globes Program

Attributes

- Transparent, interactive process
- Web-based survey starts the process
- Assessor/GBI staff available to answer questions
- Owner furnishes documentation to Assessor
- Site visit by third-party Assessor for certification
- Assessor's written report provides recommendations for improvement and clarification of assessment scores

Green Globes Program

Flexible Assessment Protocols

- 1000-point scale allows for accurate weighting of the criteria according to environmental impact/benefit
- No prerequisites; you decide where it's best to spend money
- Third-party assessor professional judgment allows for rapid credit interpretations; subject to approval by GBI
- Non-applicable provision for most technical criteria (maximum of 100 points allowed) and possible partial credit
- Process allows continuous dialogue with the assessor
- Projects can be assessed even after completion of construction

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Green Globes NC

Features and Eligibility

Green Globes for New Construction

Green Globes NC Features

Includes:

- Criteria developed by an ANSI-approved consensus body
- Focus on Energy
 - Four paths available for energy performance
 - Incorporates EPA's Green Chill program for New Construction
- Focus on Materials & Resources
 - An emphasis on life cycle assessment
 - A new approach assessing both the building assembly and interior fit-out utilizes multi-attribute certifications and/or third-party assessments from approved organizations
- Multiple paths available for certain criteria
 - Performance vs. Prescriptive

Green Globes for New Construction

Green Globes NC Features

EPA GreenChill Program



A supermarket receiving formal GreenChill certification automatically earns all 50 points in the Green Globes/Emission Credit subsection dealing with Cooling

Green Globes for New Construction

Eligibility

- Each building requires its own assessment; 400 sq.ft. minimum size
- Occupied less than 18 months (allows certification after occupancy)
- At least partially enclosed, occupied (at least on an interim basis), and incorporate some mechanical systems
 - Secondary, supporting space (such as parking garages, connecting corridors, mechanical plants, etc.) may be added as part of the main building.
- Addition & major renovation projects are eligible, if sufficient scope can be addressed by criteria
 - Green Globes encompasses a whole building approach. Building or site features already in place that meet criteria are eligible for credit

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Green Globes NC

Environmental Assessment Areas and Point Allocation

Green Globes for New Construction

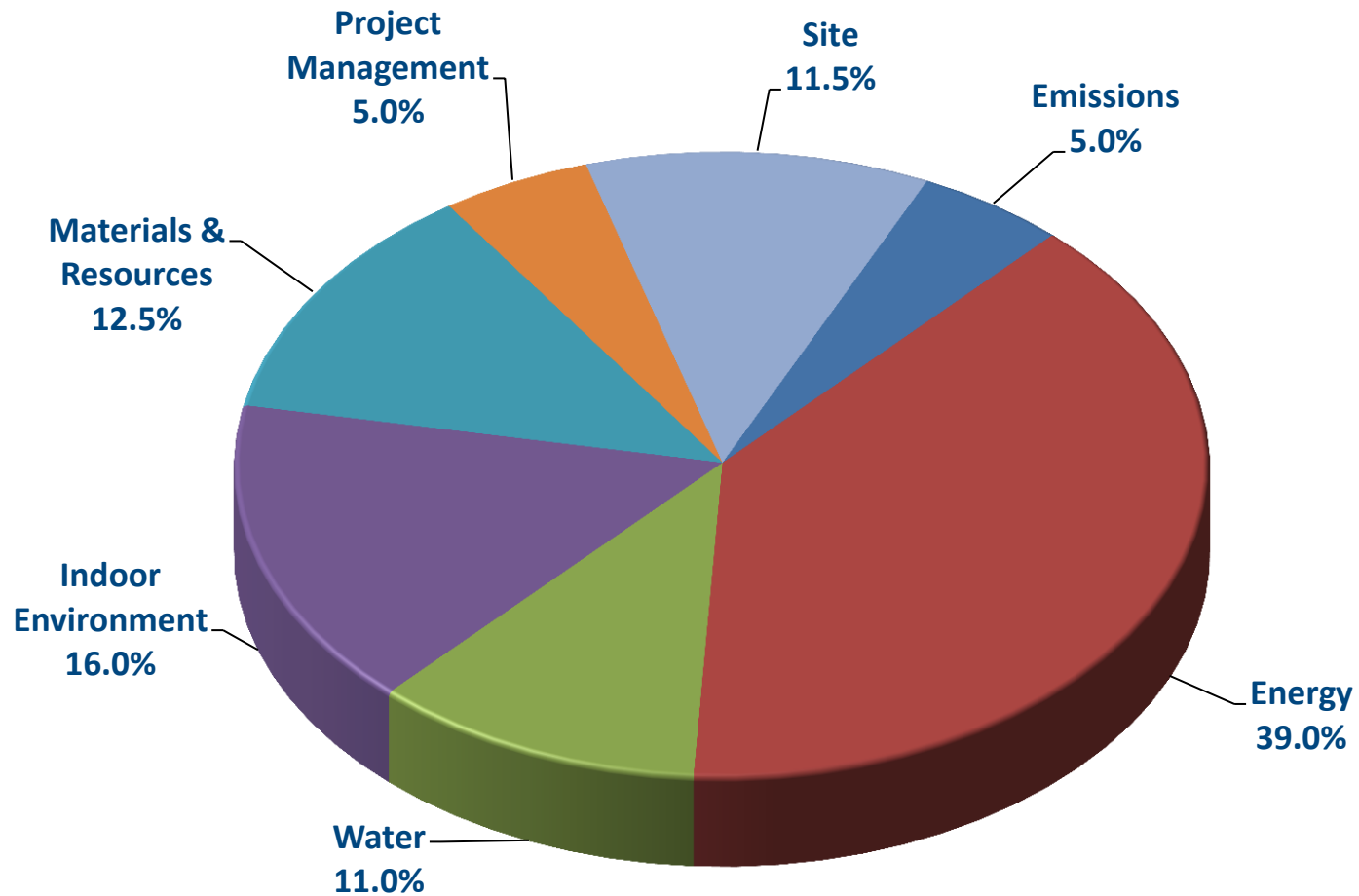
Environmental Assessment Areas

- 1** Project Management
- 2** Site
- 3** Energy
- 4** Water
- 5** Materials & Resources
- 6** Emissions
- 7** Indoor Environment



Green Globes for New Construction

Point Allocation – 1000 Possible Points



1 Project Management

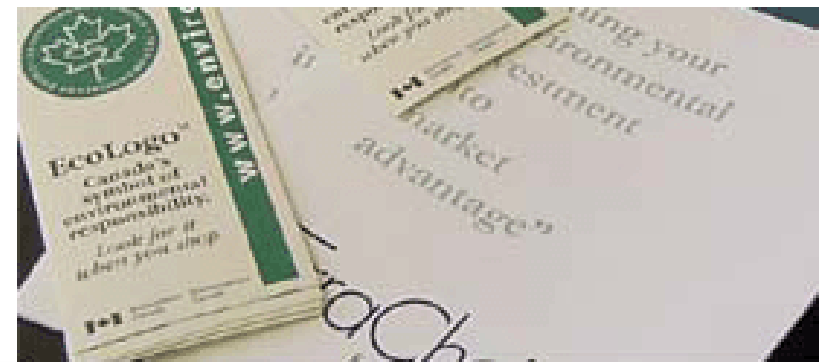
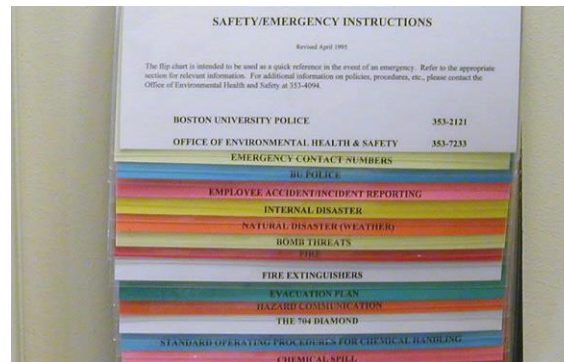
Integrated Design and Management

Project Management Best Practices

Whole Building Commissioning

Environmental Mgmt. – During & Post Construction

Emergency Response Plan



2 Site

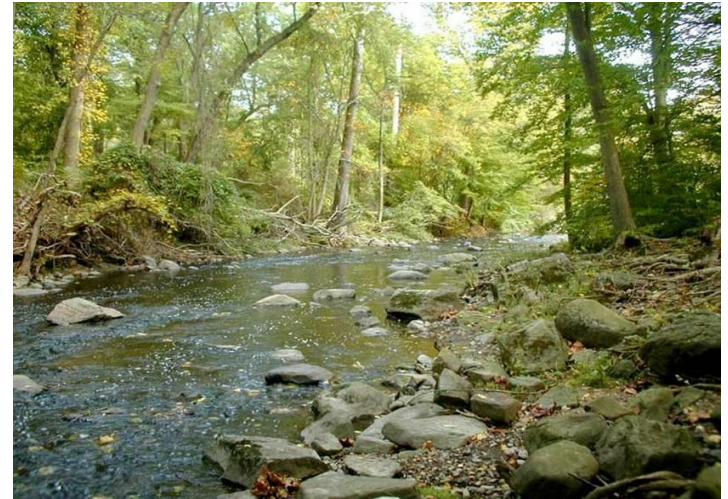
Development Area

Ecological Impacts (erosion, heat island, light pollution)

Watershed Features and Onsite Water Management

Site Ecology Enhancement and Landscaping

Site Construction Best Practices



3 Energy

Energy Performance - four paths described on the next slide

Reduced Demand - space optimization, microclimatic design, day-lighting, envelope design, metering, peak demand response

Energy Efficiency Features - lighting, heating & cooling equipment

Measurement and performance

Renewable Energy - including ground source

Transportation



3 Energy (continued)

Four pathways for Energy Performance:

- A. ENERGY STAR® Target Finder
- B. ASHRAE 90.1-2010, Appendix G
- C. ANSI/GBI 01-2010 Energy Performance Building Carbon Dioxide Equivalent Emissions (CO₂e)
- D. ASHRAE Building Energy Quotient (bEQ) 'As Designed' assessment

4 Water

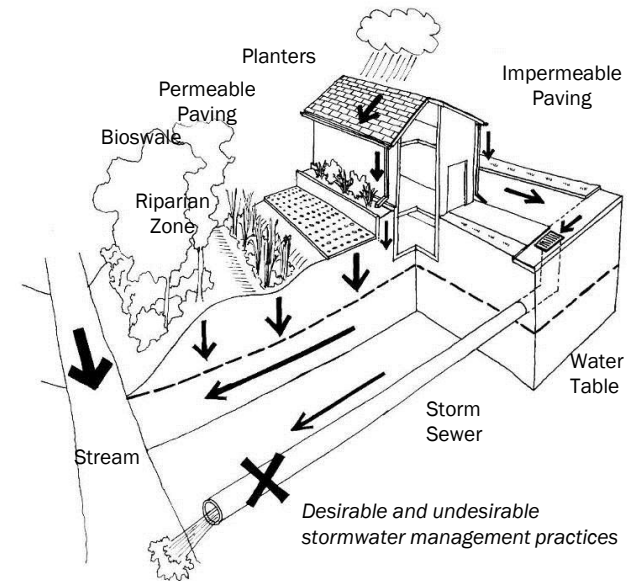
Water Performance – Benchmark using the GBI Water Calculator

Water Conserving Features (Plumbing, fixtures, fittings, appliances, and equipment, incl. medical, food service, laundry, cooling towers, boilers, water heaters, special water features and water treatment)

Alternate Water Sources

Metering and Submetering

Irrigation Design



4 Water (continued): GBI Water Calculator

An Excel based program that allows the user to gauge a proposed building's water performance by benchmarking against a base building:

- Input Assumptions includes data regarding building size and type, operating hours, fixture use frequency
- Output Page displays calculated baseline water use and allows addition of other water consumption features including HVAC systems, pools, water features, commercial kitchens, etc.
- Project use analysis – includes water performance improvement over the baseline
- Parallel program for Multi-Unit Residential

5 Materials & Resources

Building Assembly & Interior Fit-Out

Performance Path – Life Cycle Assessment

Prescriptive Path – Environmental Product Declarations (EPD) or 3rd Party Certification (utilizes consistent Product Category Rules” and conform to ISO standards)

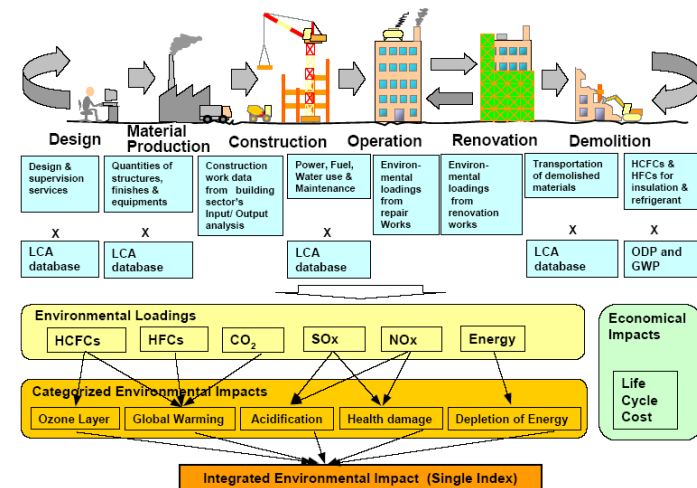
Wood certification – 4 options (incorporated in Prescriptive Path)

Whole Building Life Cycle:

- Reuse of Existing Buildings
- Building Life Service Plan - Durability, Adaptability and Disassembly

Construction Waste Management

Design & Construction of Waste Management Space



5 Materials & Resources (continued)

Green Globes NC introduces an advance in addressing materials and resources for building assemblies and interior fit-outs

- Eliminates the single attribute assessment method
- New Focus
 - Full life cycle assessment
 - Multi-attribute certifications
 - Third-party assessments by approved standard development organizations
- Similar to updates currently being considered by both ASHRAE (189.3) and LEED (v4)
- Green Globes is at the vanguard of green rating programs advancing Life Cycle Assessment in the U.S.

6 Emissions & Other Impacts

Air Emissions - heating equipment, including District Heating

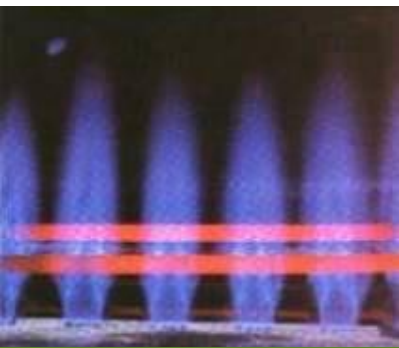
Refrigerants – ODP and GWP; GreenChill best design practices

Pollution Control - procedures, compliance with standards

Radon Mitigation/Asbestos - major renovations



Recuperative boiler



7 Indoor Environment

Ventilation System - including HVAC access

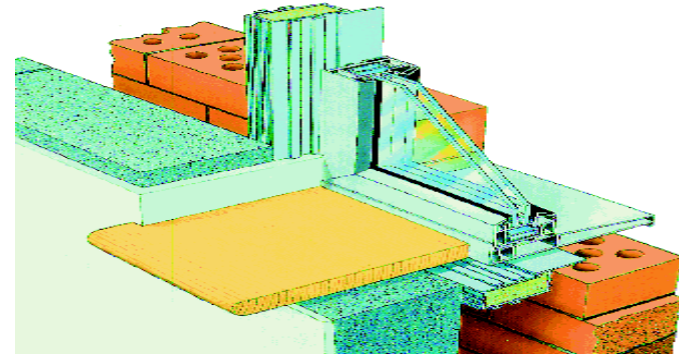
Lighting - daylighting & electric lighting integration

Source Control and Indoor Pollutants

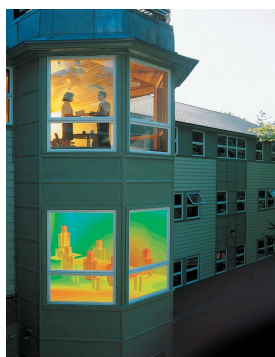
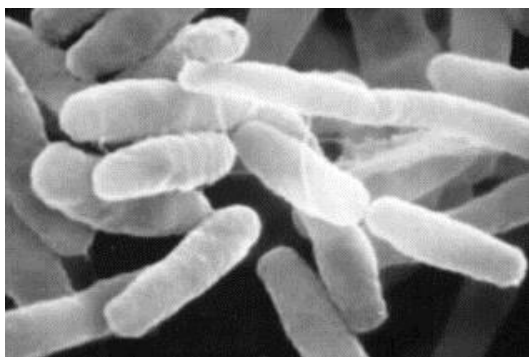
Integrated Pest Management

Thermal Comfort

Acoustic Comfort



Insulated cavity closer discourages mold and bacteria growth



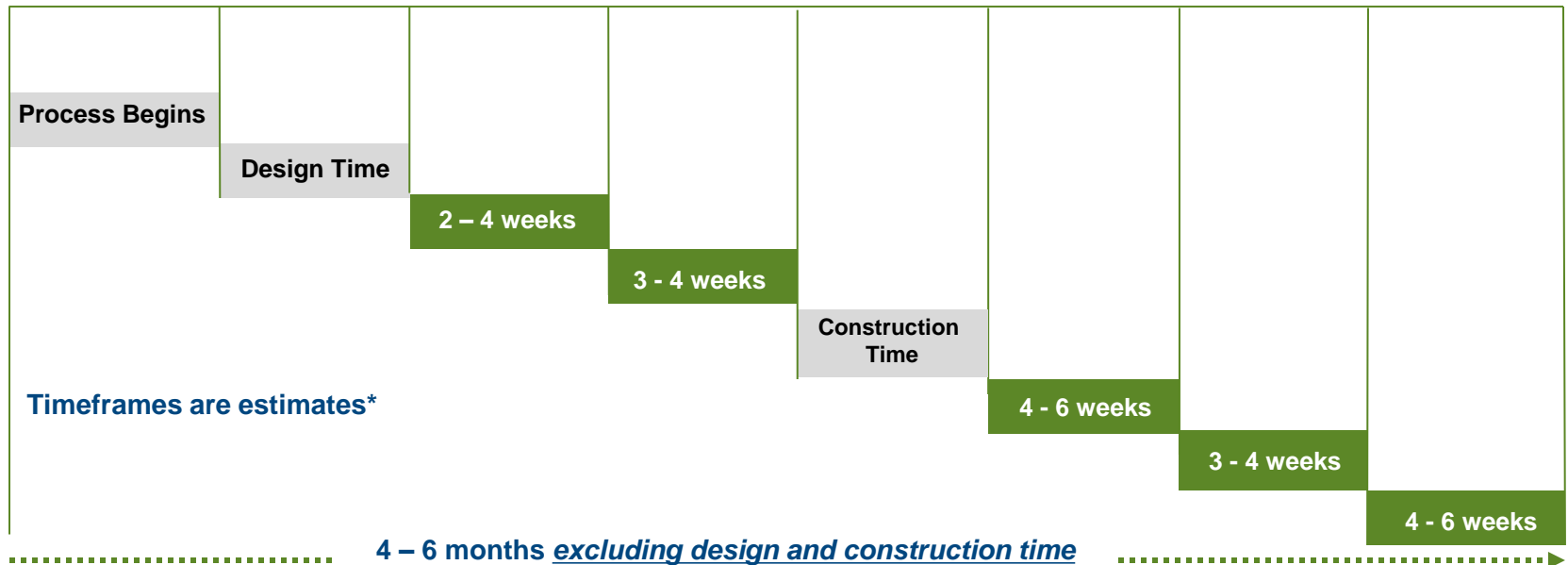
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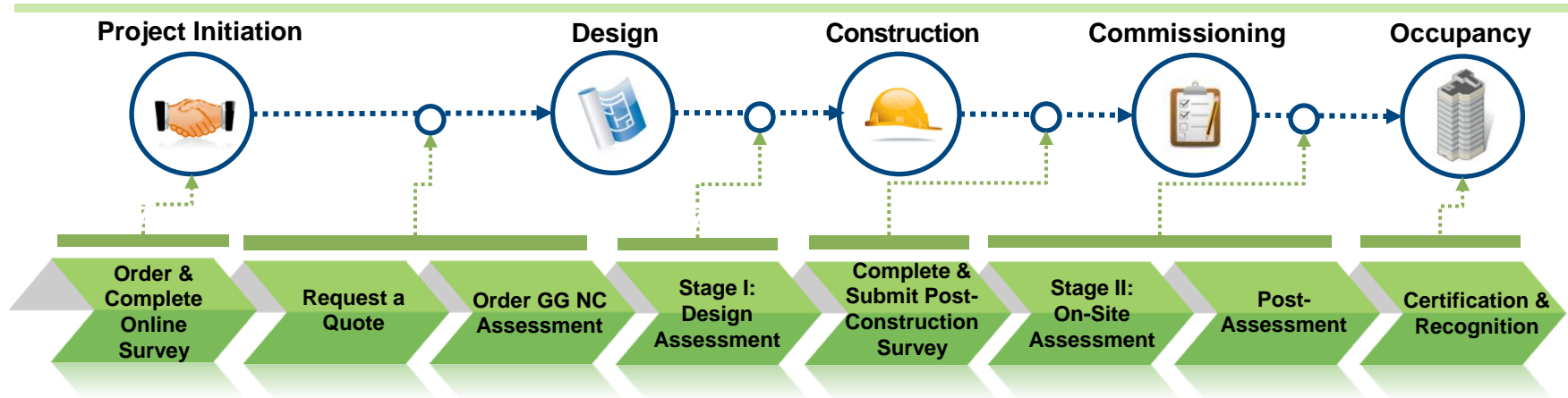
Green Globes NC

Assessment Process

Green Globes for New Construction Certification Project Timeline



Green Globes for New Construction Rating and Certification Process



1. Client orders, submits payment for, and completes the online survey
2. Client requests and receives quote from GBI
3. Client orders and submit payment for the GG NC assessment (score \geq 35% on evaluation required)
4. Stage I Design Assessment – design review includes written report with recommendations
5. Client updates the online questionnaire to reflect design changes, if needed
6. Stage II On-Site Assessment – on-site meetings and building tour
7. Post Assessment – client delivers any missing documentation, assessor prepares report with recommendations, GBI issues final report, client reviews findings
8. Certification and public recognition of the achievement

Green Globes for New Construction

Roles and Responsibilities

1. Green Building Initiative Staff

Assists with user support, assessment scheduling, assessor assignment, technical support, reviews reports and finalizes rating and certification

2. Client

Completes online survey(s), provide documentation to assigned assessor for review, confirms and ensures site visit requirements met (space, personnel, time), assembles team for site visit., and reviews assessors findings

3. Green Globes Professional (GGP)

Optional role – client may elect to contract to provide project management and technical support to for the building assessment and certification process

4. Green Globes Assessor (GGA)

Reviews documentation, visits site to interview key personnel and tour building to determine point awards. Writes the final building report and recommends certification rating based upon the verified number of points achieved

Green Globes for New Construction

GBI User Account

No purchase is required to establish a GBI user Account

How to Establish an Account

- Access the GBI website: www.thegbi.org
- Click “Sign In”
- Select “Register for a GBI User Account”
- Complete the process

Benefits

- Periodic communications
- Access to order and administer Green Globes and Guiding Principles products

Your GBI User Account includes access to your Green Globes:

- NC Project List
 - NC Project Dashboard
 - Online Evaluations for projects you purchase
-

Green Globes for New Construction Online Evaluation

Online Evaluation Features

- Web-based
- Includes all Green Globes NC and clearly identifies GPC NC criteria*
- Access to different “Phase” surveys:
 - I. Pre-Design
 - II. Schematic Design
 - III. Construction Documents
 - IV. Post-Construction (available upon completion of Stage I Design Review)
- The user interface is easier to navigate between surveys, sections (e.g. Energy, Water, etc.), and sub-sections (e.g. Renewable Energy, Energy Demand, etc.)
- Hover over questions for ToolTip guidance and references
- Create a printer-friendly version of the evaluation with your completed answers
- Phase III and IV surveys workflow creates less repetitive data entry

The screenshot displays the 'Construction Documents - Client' survey completion page. At the top, a header bar shows the survey title and two circular progress indicators: '86% COMPLETION' in a green circle and '88% SCORE' in a blue circle. Below the header, a breadcrumb trail reads 'Projects / Sample Office Building / Construction Documents - Client'. The main content area is divided into two columns. The left column contains a vertical navigation menu with buttons for 'Basic Information', 'Predesign', 'Schematic Design', 'Construction Documents - Client' (highlighted), 'PRINTABLE BLANK SURVEY', and 'PRINTABLE SURVEY WITH RESPONSES'. The right column displays the 'SURVEY COMPLETION' section, which includes the overall completion percentage (86%), a list of outstanding items with links to their respective pages, and a list of personnel to be reviewed. The list of personnel includes: Owner or Owner's Representative, Architect, Project Sustainability Coordinator, Mechanical Engineer, Energy Engineer (if different from above), Civil Engineer, Structural Engineer, Electrical Engineer, Commissioning Authority, Lighting Engineer, Landscape Architect, and Acoustics Engineer.

Construction Documents - Client
Survey Completion

Projects / Sample Office Building / Construction Documents - Client

BASIC INFORMATION

PREDISEIGN

SCHEMATIC DESIGN

CONSTRUCTION DOCUMENTS - CLIENT

PRINTABLE BLANK SURVEY

PROJECT MANAGEMENT

SITE

ENERGY

WATER

MATERIALS & RESOURCES

EMISSIONS

INDOOR ENVIRONMENT

SURVEY COMPLETION

PRINTABLE SURVEY WITH RESPONSES

SURVEY COMPLETION

OVERALL COMPLETION: 86%

The following pages have outstanding items that have not been completed:

Page

Project Management: [Environmental Management During Construction](#)

Energy: [Energy Performance](#)

Energy: [HVAC Systems and Controls](#)

Emissions: [Heating](#)

Indoor Environment: [Ventilation](#)

Indoor Environment: [Thermal Comfort](#)

Indoor Environment: [Acoustic Comfort](#)

The project/building owner or designated representative should be provided a final opportunity to review and approve the proposed submission to avoid potential conflicts later in the project delivery process. In addition, did all requisite building professionals provide input and review the final survey responses, including any or all of the following personnel as applicable to the project?

- Owner or Owner's Representative
- Architect
- Project Sustainability Coordinator
- Mechanical Engineer
- Energy Engineer (if different from above)
- Civil Engineer
- Structural Engineer
- Electrical Engineer
- Commissioning Authority
- Lighting Engineer
- Landscape Architect
- Acoustics Engineer

Green Globes for New Construction

Green Globes Assessor Report

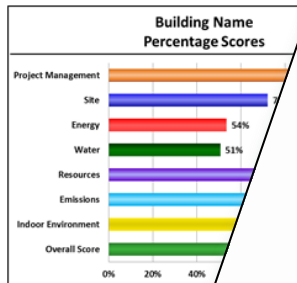
Assessor Company Letterhead

Report of Green Globes® for New Construction, Third-Party Assessment of the Building Name, Building City Name, State Zip

Thank you for the opportunity to complete a Green Globes® New Construction Stage II Assessment for Building Name, located at Building Address, City Name, State Zip.

The Green Globes Assessor, Assessor Name, visited the site on 10 January 2012 and reviewed the online self-evaluation information submitted for the purposes of obtaining a Green Globe certified project team. The meetings began at 8:00 am with Architect Name of Company Name, Client Name, Building Owner Name, and Assessor Name of the Assessor Company Name. Discussions focused on the points from the online self-assessment using the construction documents, records of the construction processes, specification sheets, shop drawings, logs, meeting minutes, reports, models, and other relevant information. At 10:00 am the group toured the project as part of the verification process. At noon a final briefing was conducted among the attendees to review the assessment and to identify additional information needed by the Assessor to complete the assessment process.

I am pleased to inform you that you have achieved a score of 663 out of 942 available, which is equivalent to Three Green Globes®.



Summary of Your Achievement: Building Name
*Assessor adjusted score varies from 0 to 100%
Please review the Points Summary

RECOMMENDATIONS

- Additional recommendations that may enhance the building and provide a better rating for the future include:
- Energy**
 - Energy models should be run for future projects to provide a basis for comparing the operation of the real store to the design to assist in troubleshooting operational problems. Additionally a significant number of points are associated with the results of the energy modeling process and its use in design and without an energy model these points can be lost.
 - Consider the use of on-site photovoltaic panels for future projects and design the roof structure and electrical system to accommodate future on-site renewable energy.
 - Water**
 - Consider using EPA WaterSense fixtures which use 20% less water than the Plumbing Code requires.
 - Emissions, Effluents and Pollution Controls**
 - Ensure that pest management contractors use environmentally friendly products.

SUMMARY

The Building Name has demonstrated a commitment to sustainability through the policies and procedures that have been implemented as part of the construction of their new facility located in City Name, Georgia. Verification of the self-assessment and modifications by the Assessor resulted in a rating of 70.4% or Three Green Globes for the Building Name in City Name, Georgia.

I would like to personally congratulate the management of the Building Name for their strong commitment to sustainability as evidenced by the requirement they have in place that their stores be Green Globes certified. Additionally the company has made a significant commitment to the purchase of Renewable Energy Certificates (RECs) for all of their stores and is a leader in fostering the shift to a low carbon economy.

Assessor Signature: _____

Assessor Name, credentials

2012

Green Globes NC Certificate
Building Name, City Name, State



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Green Globes NC Program

Rating Scales and Recognition

Green Globes for New Construction

Green Globes Rating Scale

Once an assessment is verified by a third party, buildings achieving a score of 35% or greater receive a Green Globes rating based on the percentage of total points achieved.

GREEN GLOBES RATING SCALE		
Buildings that achieve 35% or more of the points possible in the Green Globes rating system are eligible for a certification of one, two, three, or four Green Globes.		
85-100%		Demonstrates national leadership and excellence in the practice of energy, water, and environmental efficiency to reduce environmental impacts.
70-84%		Demonstrates leadership in applying best practices regarding energy, water, and environmental efficiency.
55-69%		Demonstrates excellent progress in the reduction of environmental impacts and use of environmental efficiency practices.
35-54%		Demonstrates a commitment to environmental efficiency practices.

Green Globes for New Construction Certification Plaque



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Continuous Improvement of Existing Buildings (CIEB)

Why is Assessment & Certification Important?

- Reduce operational costs in existing buildings
- Qualify for tax incentives in certain states
- Meet local, state and federal mandates for public buildings
- Increase the marketability of buildings with an eco-label



Example: Reduced Operational Costs

BOMA Canada data show: Green Globes buildings average:

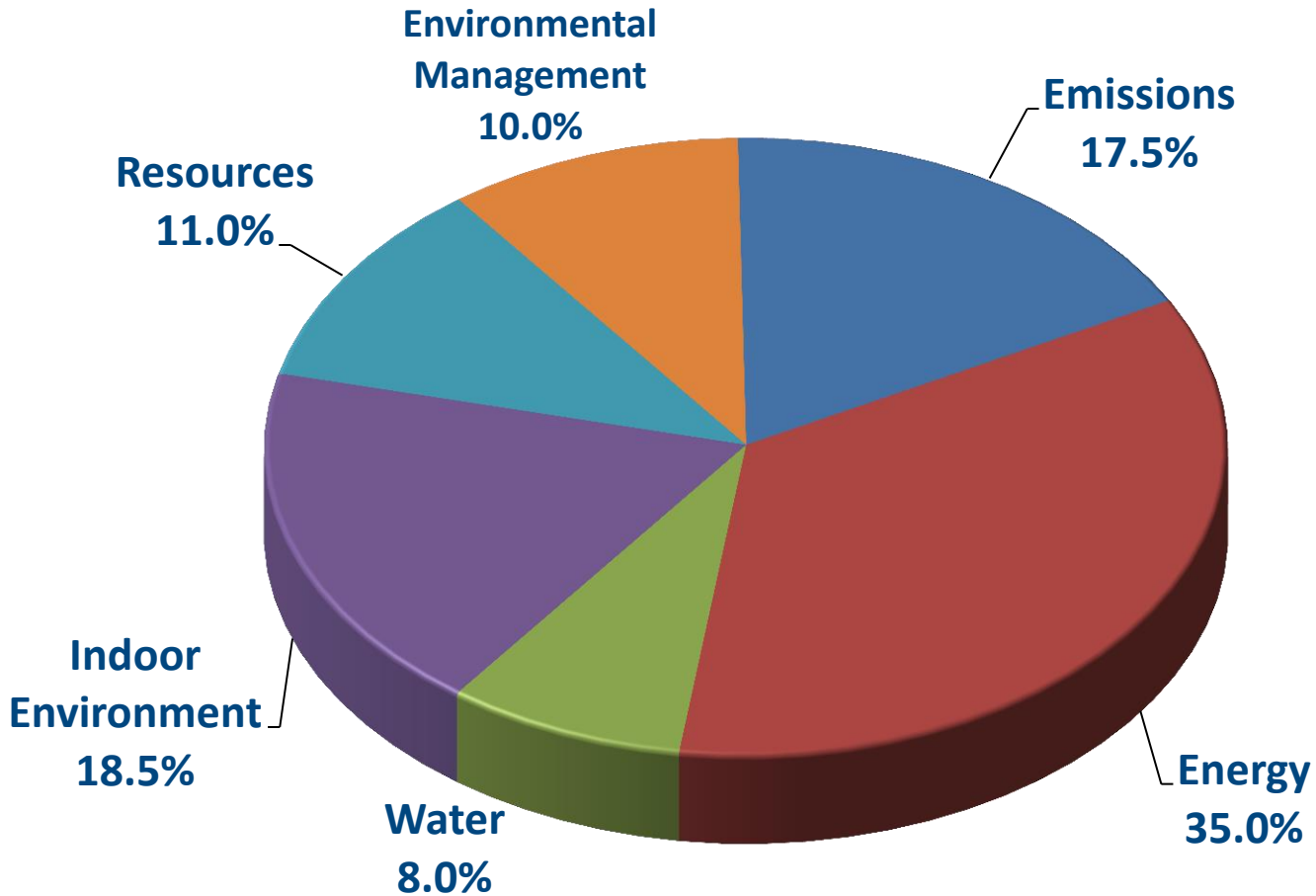
- 16% less energy use than average commercial buildings
- 55% less water usage
- >60% higher waste diversion rates





How it Works

Green Globes Points System – CIEB



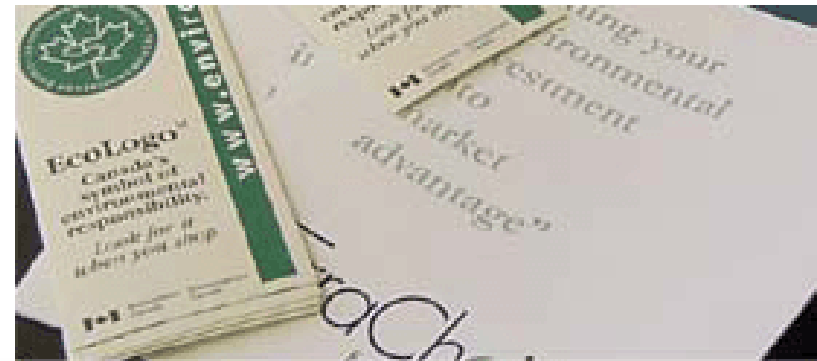
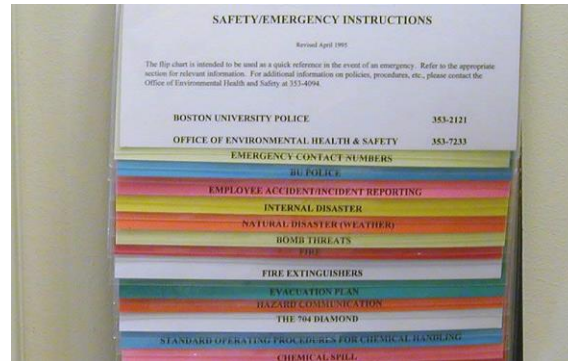
1 Management

EMS Documentation (policy, goals, targets, action plans)

Purchasing Policy (including energy efficient products)

Emergency Response

Stakeholder Awareness (communication, stakeholder satisfaction)



2 Site

Site assessment

Site enhancement



3 Energy

Energy performance and CO₂ emissions

Energy efficiency features (lighting, heating & cooling equipment, controls, building envelope, green energy (solar, wind, biomass, etc))

Energy Management (energy policy, audits, targets, metering, operating manual, schedules, preventive maintenance)

Transportation (access to public transport, bicycles, carpooling)

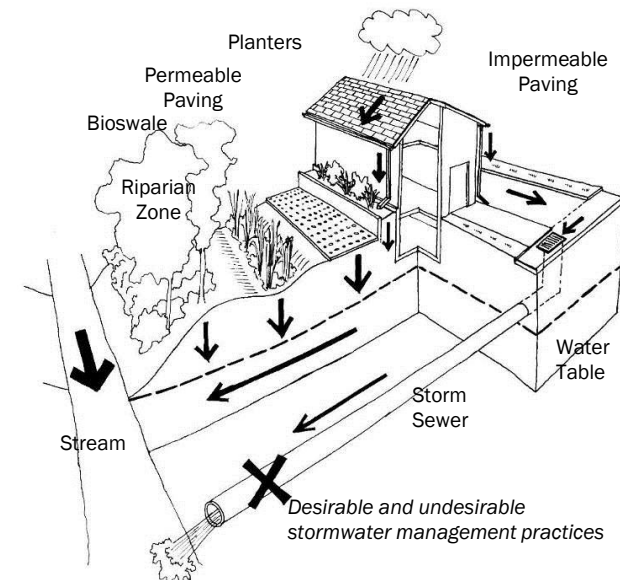


4 Water

Water performance

Water conserving features (equipment faucets, toilets, urinals, showers, cooling towers, irrigation, stormwater systems)

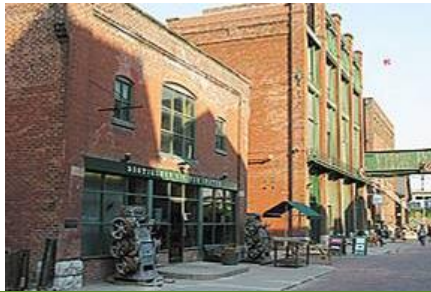
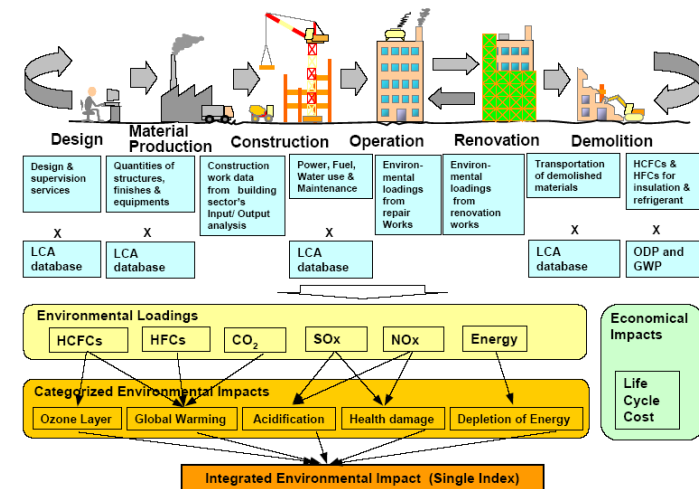
Water management (policy, monitoring, water audit, fix leaks)



5 Materials & Resources

Waste reduction and Recycling (collection/ storage/ handling facilities, composting)

Waste Reduction Workplan (waste audit, diversion rate, construction, renovation and demolition waste)



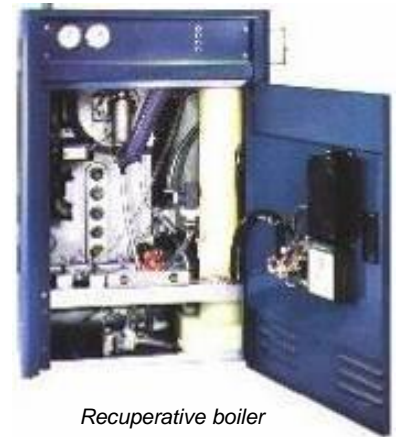
6 Emissions

Air emissions (boilers)

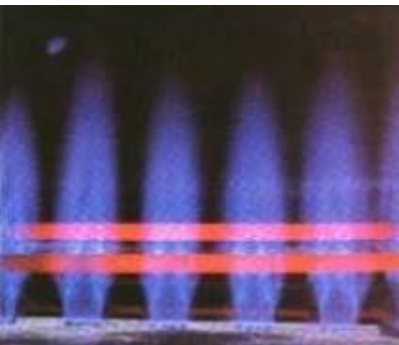
Water effluents (floor drains, roof drains, landscaping practices, glycol discharges)

Hazardous materials (asbestos, radon, PCBs, refrigerants, storage tanks, drinking water)

Hazardous products, HCS, health & safety (MSDS, health and safety, management, pesticides)



Recuperative boiler

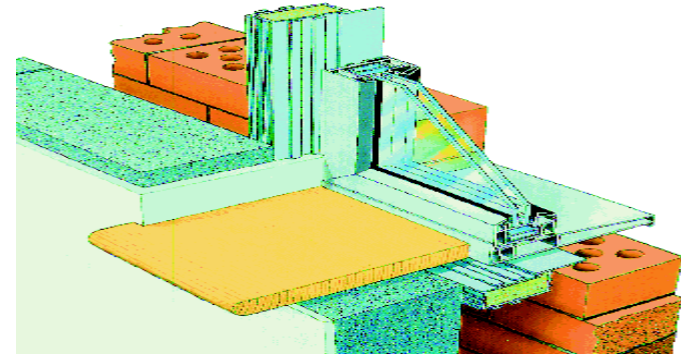


7 Indoor Environment

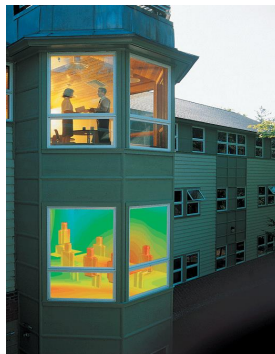
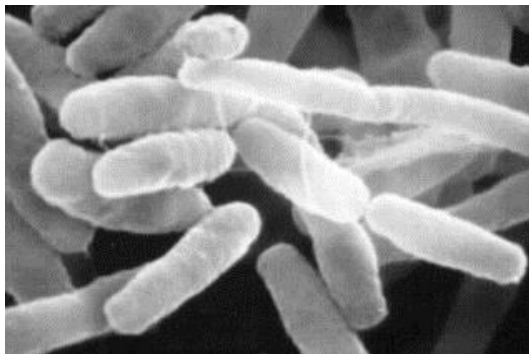
Indoor air quality (ventilation, filtration, humidification, cooling towers, parking and receiving, control of pollutants at the source, IAQ management, mold, temperature)

Lighting (Lighting features, Lighting Management)

Noise (volume, acoustic privacy)



Insulated cavity closer discourages mold and bacteria growth

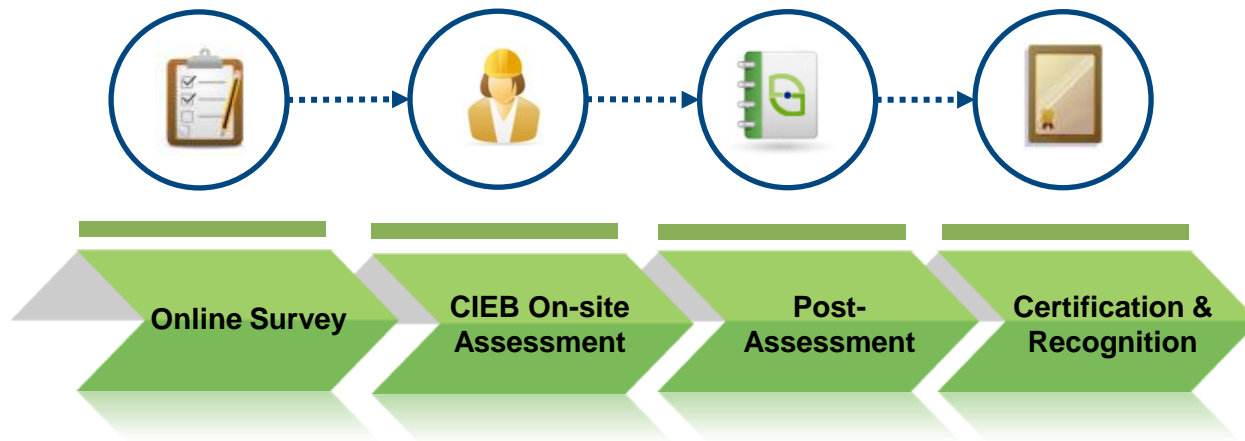


Flexible Assessment Protocols

- 1000-point scale allows for accurate weighting of individual criteria in relation to environmental impact/benefit
- No prerequisites
- Third-party assessor professional judgment; similar to most quality management systems
- “Non-applicable” provision for most technical criteria, and possible partial credit (i.e., not penalized if it doesn’t apply)
- Process allows ongoing dialog with the assessor





Rating & Certification Process

Green Globes for Existing Buildings (CIEB)



Green Globes Rating Scale

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Green Globes CIEB Certification Plaque



Green Globes Costs

Hard Costs (\$)	NC	CIEB
Cost of the license	1,000	1,000
On-site certification		
▪ Stage I (Document Review)	5,000	
▪ Stage II (On-Site Review)	4,000	5,000
Assessor travel	<u>1,500</u>	<u>1,500</u>
Total	\$11,500	\$7,500

(Cost for buildings 50,000-100,000 sq. ft.)

(Excludes any 'soft costs' associated with staff time or consultants)

<http://www.thegbi.org/products/pricing.shtml>

Green Globes Professional Training

- Green Globes Professional (GGP)
 - Certification program for qualified individuals to become expert users of Green Globes.
 - Registered with AIA CES for continuing professional education
- Green Globes Assessor (GGA)
 - Certification program for qualified individuals to become independent third-party assessor for the GBI.
 - Recommends certification rating based upon the verified number of points achieved.



Summary

Green Globes is grounded in building science, represents a major tool for the assessment and certification of commercial buildings

- Streamlined & transparent process, web-based survey
- Accurate assessment of environmental/energy effects
- Performance-oriented
- Broad coverage of most common building types
- Outstanding customer support
- Cost-effective

Getting Started with a Project – It's Pretty Simple!



- Select a building
- Contact GBI @ 1-877-424-4241 to discuss your project
- Complete and submit to GBI a Project Summary Sheet (Quote Form)
- Receive your formal pricing quote
- Place your order

ADEQ Headquarters, North Little Rock, Arkansas



Green Globes NC

**Free Trial, Support, and
Exam Instructions**

Green Globes for New Construction

Free Trial Available

NC 30-day Free Trial Available

- Available within your GBI User Account
- Allows temporary access to the Green Globes NC online building survey
 - Hands-on experience
 - View a sample printable survey with responses
- Information from the free trial transfers to a paid evaluation
- See more at: <http://www.thegbi.org/green-globes/30-day-free-trial.shtml#sthash.B4NgHUNW.dpuf>

Green Globes for New Construction

Support for Certification

GG NC Technical Manual

- Itemization of each criterion including:
 - Scoring
 - ToolTips
 - Assessment guidance – identifies what is required to meet the criterion
 - References/resources

GG NC Checklist

- Identifies each criteria within the evaluation
- Provides space to identify supporting documentation which verifies compliance to each criterion to assist client and assessor

Green Globes Frequently Asked Questions

GBI Staff

- Available to answer questions

GBI Assigned Third-Party Assessor

- After assignment, available to answer questions relating to the GG assessment process and clarify assessment requirements

Green Globes for New Construction

Supporting Materials

Additional resources available on our website at:

<http://www.thegbi.org/green-globes/revised-new-construction-program.shtml>

- White Papers
 - Overview from a users perspective [Morrison Hershfield]
 - Energy Section [Ravi Srinivasan, Ph.D. – U of FL]
 - Materials & Resources Section [Jane Rohde – JSR Associates]
 - Switching from LEED to Green Globes [Charles Kibert, Ph.D. – U of FL]
- GG NC/LEED v4 Comparison

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Thank you