



GREEN GLOBES® FOR
EXISTING BUILDINGS
2007 - MULTIFAMILY
PERFORMANCE PLUS
PROTOCOL GUIDANCE

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PREFACE FROM GREEN BUILDING INITIATIVE

The Green Building Initiative (GBI) is a 501(c)3 nonprofit organization and American National Standards Institute (ANSI) Standards Developing Organization (SDO) dedicated to accelerating the adoption of green building best practices. GBI is nimble and entrepreneurial in nature, believing that the market benefits from multiple pathways to integrate sustainability into the built environment. Creating credible, practical, third-party auditable assessment programs has been a priority since GBI was founded in 2004.

For many industry members, the expectation has been that achieving sustainable building certification must be costly and bureaucratic to be effective. GBI rejects that concept and has crafted an assessment program that is time- and cost-effective through Green Globes. Paperwork does not have to be laborious when a well-qualified Assessor visits the site and visually verifies the attributes of a building. A building team can have peace of mind knowing that their client service team will be supportive and transparent throughout the entire certification process. Green Globes is developed by the building industry for the building industry and has been deemed equivalent to other leading rating systems by the U.S. General Services Administration, Department of Energy, and Department of Defense. Large, progressive portfolio owners across the United States use Green Globes with the understanding that they can achieve improved sustainability results through a simple and seamless process. Green Globes provides a platform for teams to engage in the sustainability conversation and continue learning during the certification process.

Green Globes Multifamily Performance Plus for Existing Buildings (Green Globes MF EB) provides a certification option that meets the needs of owners and project teams with multifamily projects. Green Globes MF EB includes:

- Minimum requirements for energy efficiency that ensures resource conservation through operations and tenant best practices
- Flexibility and multiple pathways to success
- A question set that prompts users to think critically about their project
- Third-party Assessor onsite review providing assurance of certification claims
- GBI customer service and technical support for step-by-step guidance

These attributes make Green Globes the first choice for multifamily existing buildings. By engaging with Green Globes and reading through the question set in this manual, you will discover new ways to adopt green building best practices in your multifamily project.

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Green Globes® Multifamily Performance Plus for Existing Buildings Overview

Introduction

Green Globes is a well-established green building guidance and assessment program that offers a practical and affordable way to advance the environmental performance and sustainability of a wide variety of building types. Green Globes Multifamily Performance Plus for Existing Buildings (Green Globes Multifamily Performance Plus EB) is a rating system designed specifically for operation and management of existing buildings and minor renovations. This program is intended to be used for residential buildings on a multifamily property. Other buildings on the property, such as leasing offices, clubhouses, and community centers should use the standard Green Globes for Existing Buildings program and technical manual.

Green Globes Multifamily Performance Plus EB is a smart alternative for assessment and certification owing to these three key attributes:

- Minimum requirements required of all projects to meet targeted energy savings requirements and to be certified through the Green Globes Multifamily Performance Plus programs
- A comprehensive environmental assessment protocol using accepted criteria
- Best practices guidance for operating and managing efficient and environmentally sustainable existing buildings
- A hands-on and cost-effective approach using independent third-party professionals who work with owners and facility teams

Objectives of the Program

Prior to beginning the Green Globes Multifamily Performance Plus for Existing Buildings assessment, project teams must review and complete the Minimum Requirements Survey to ensure their project meets program requirements necessary for certification.

The objectives of the Green Globes Multifamily Performance Plus EB program are to:

- Evaluate energy and environmental performance of buildings and demonstrate energy consumption savings of 20% or greater over baseline plus water consumption savings of 10% or greater over baseline
- Encourage peer reviews of building and management practices
- Increase awareness of environmental issues amongst building owners and facility managers
- Provide action plans for improvement where needed
- Provide certification and recognition for building operation and management

Green Globes Multifamily Performance Plus EB is both a guide to integrating green building operation/management principles and an assessment tool, providing options when considering implementation of best practices. Green Globes Multifamily Performance Plus EB assists in the management and operation of buildings that are energy and resource efficient, achieve operational savings, and improve occupant health and comfort.

Green Globes Multifamily Performance Plus for Existing Buildings Process

Online Questionnaire

The Green Globes Multifamily Performance Plus EB program is based on a user-friendly, online questionnaire that contains approximately 200 questions and takes a few hours to complete. The questions are grouped into six assessment areas: Energy, Water, Resources, Emissions, Indoor Environment, and Environmental Management System. The first step of the assessment process is to register the project with GBI and purchase access to the online questionnaire. On its own, the questionnaire is a helpful tool, but meeting energy savings goals are best achieved when completing the questionnaire in tandem with an onsite assessment. The questionnaire used for the Green Globes Multifamily Performance Plus EB program is the same as used for the Green Globes for Existing Buildings program. However, this technical manual is updated to include specific guidance for multi-residential buildings.

Onsite Assessment & Verification

Third-party verification of the questionnaire responses is required for Green Globes certification. A contracted GBI assessor will interview the client (building owner/operator or project team), perform a walk-through of the facility, and review supporting documentation to verify the claims made in the questionnaire.

While completing the questionnaire the client should gather all documentation available to support the responses. When the questionnaire is complete, the client will contact GBI to schedule the onsite assessment (site visit). GBI will assign a third-party Green Globes Assessor to perform the site visit and issue a formal scheduling letter to the client and assessor. The letter includes contact information for both parties to facilitate direct contact. Please note that site visit scheduling typically requires at least 30 days' notice (unless the certification has been expedited). In the weeks (or days) leading up to the site visit, the assigned assessor will contact the client to discuss the itinerary and specific details of the assessment.

Typically, the Onsite Assessment begins with an introductory meeting in which the assessor can interview the key project players (Facility Manager/Owner, Facility Team Members, Property Management Staff etc.). Afterward, a representative of the facility team can guide the assessor through the building. Someone knowledgeable about all aspects of the facility should be onsite during the entire visit to ensure the assessor receives the information needed. If any follow-up documentation is requested during the site visit, it should be sent to the assessor within one week.

The duration of the site visit varies considerably based on the scope, size, and complexity of the facility. Please allow 4-8 hours for the assessor to review documentation onsite, conduct a thorough walk-through, and interview personnel.

After the visit, the assessor will create a detailed report of his/her findings that contains the recommended score and rating. Green Globes certification requires a minimum overall score of 35% of the total applicable points within the questionnaire, and certified projects are assigned a rating of One to Four Green Globes. GBI will review and approve the assessor's report and issue it to the client along with the formal rating and certification. After reviewing the report and sharing the results with the project team, the client may order recognition items to help celebrate and market the achievement.

Figure 1: Green Globes Multifamily Performance Plus EB Assessment Process Flowchart



For projects pursuing a financing incentive, GBI will provide a certificate of completion which can be forwarded to the lending institution.

Green Globes Program Features

One of the defining qualities of Green Globes is its flexibility. The goal of the program is to promote the adoption of green building practices on a comprehensive scale by providing a flexible rating system that can be applied to a wide range of building types. To achieve this goal, Green Globes makes use of several important features and concepts, as follows.

Weighted Criteria

The Green Globes 1000-point scale allows for weighted criteria, wherein the assigned number of points for individual criteria reflects their relative impact and/or benefit on the sustainability of the building. For example, energy is considered to be the most important area affecting the sustainability of a building, so it carries the highest point value of all the Green Globes assessment areas within the New Construction (NC), Existing Building (EB), and Sustainable Interiors (SI) programs. This method emphasizes sustainable design while minimizing unnecessary “point chasing” for criteria that are outside of the project scope or provide relatively little environmental benefit.

Minimum Requirements

Green Globes Multifamily Performance Plus for Existing Buildings includes Minimum Requirements as requirements to be eligible for the program. These minimum requirements are separate from the criteria used in the assessment, therefore, do not result in point awards. These Minimum Requirements work to ensure that multifamily existing buildings and renovation projects meet energy savings requirements as applicable to, and identified for, the project.

To be certified under the Green Globes Multifamily Performance Plus for Existing Buildings program, projects must achieve all Energy and Water Minimum Requirements. In addition, projects must achieve a minimum 35% total score out of all applicable points to attain certification, as is customary for all Green Globes projects.

Third-Party Assessor

Green Globes Assessors are sustainability experts, generally with more than 10 years of applicable industry experience, who have successfully completed GBI’s Green Globes Assessor training program. Once certified, Green Globes Assessors are authorized to perform Green Globes and Guiding Principles Compliance assessments for GBI as independent contractors. Their professional judgment is critical in the assessment process to verify point awards, determine criteria applicability, and provide sustainability recommendations within their assessment report. Once assigned, the client has direct access to contact the assessor for assessment guidance. Although GBI assigns Green Globes Assessors to projects, the assessor decisions and recommendations are not revised or redirected by GBI, thus ensuring assessor autonomy and their third-party status.

Non-Applicable Criteria


Within the Green Globes questionnaires, many criteria include a “non-applicable” (N/A) response selection. This provision increases the flexibility of the tool as points that are impossible or unreasonable for a building to achieve do not result in a penalty as they would if the criteria yielded a “No” response. This feature encourages a more regional approach and recognizes differences—and potential conflicts—between various local codes and standards.

The user should only select an available N/A response within the survey when there is a compelling, technical reason to do so. The non-applicable provision is not to be used when project teams/clients decide not to incorporate sustainability items that are part of the criteria measured in the assessment. In those cases, the client should select a “No” response or reconsider incorporating more sustainable features and answer the question accordingly.

GBI has identified the following Green Globes for Existing Buildings criteria that are likely N/A for multifamily existing building projects.

1.0	Energy – Likely N/A Criteria for Multifamily	Maximum Applicable Points
1.2.1.4	Lighting: fluorescent fixtures	3
1.4.1	Temperature Controls	6
1.4.2	Building automation system (BAS)	8
4.0	Emissions, Effluents and Pollution Controls – Likely N/A Criteria for Multifamily	Maximum Applicable Points
4.2.3	Refrigerant recovery	5
4.5.4	Cooling tower glycol discharges	5
4.9.1	Above-ground & under-ground storage tanks	20
4.12.5	Health and Safety Committee	4
5.0	Indoor Environment – Likely N/A Criteria for Multifamily	Maximum Applicable Points
5.8.3	IES guidelines: office space	5
5.8.4	Individually controlled task lighting	5
5.8.5	Work area daylighting	5
5.8.6	Workstation lighting controls	-
5.9	Lighting Management	7

Wherever these criteria appear in this technical manual, the criterion details have been replaced with “Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings,” Or “Leave blank for Green Globes Multifamily Performance Plus for Existing Buildings.”.

Criteria with a  symbol denotes a N/A response for low and mid-rise buildings but may apply to high-rise buildings.

The Green Globes third-party assessor will validate all “N/A” responses during the third-party assessment based on four primary justifications: 1) regional/climatic applicability; 2) jurisdictional/code conflict or inconsistency; 3) building occupancy type; and 4) criteria that address a facility, design feature, or building appurtenance that is not designated or used for that particular project space or is completely outside the control or influence of the client. Using these four

justifications, the Green Globes Assessor has the flexibility to use his/her professional judgment to categorize additional criteria as non-applicable.

Incremental Point Awards & Partial Credit

For some Green Globes criteria, there are threshold values, which allow the incremental award of points depending on the level of achievement. In these cases, reaching a higher threshold earns relatively more points. The third-party assessors are permitted to use their professional judgment to award partial credit where deserved, even when the thresholds don't exist within the program.

The incorporation of these flexibility features—1000-point scale, weighted criteria, no pre-requisites, non-applicable criteria, incremental point awards, and partial credit—result in the highest possible accuracy of the final Green Globes score and rating. This flexibility recognizes the vast differences in building types and the nuances of tenant improvement projects.

Environmental Assessment Areas & Point Allocation

Green Globes Multifamily Performance Plus EB ensures that environmental impacts and key sustainability issues are comprehensively assessed using a 1,000-point scale among six environmental assessment areas: Energy, Water, Resources, Emissions and Other Impacts, Indoor Environment, and Environmental Management System. Each environmental assessment area utilizes weighted criteria assigning points to criteria based upon the impact to sustainability and efficiency.

1	Energy	350
1.1	Energy Consumption	80
1.2	Lighting	25
1.3	Boilers	16
1.4	Controls	14
1.5	Hot Water	12
1.6	Other Energy Efficiency Features	16
1.7	Green Energy	12
1.8	Envelope	35
1.9	Energy Policy	5
1.10	Energy Audit	2
1.11	Energy Management, Monitoring, and Targeting	16
1.12	Energy Training	5
1.13	Financial Resources	5

1.14	Sub-metering	10
1.15	Operating Manual	15
1.16	Maintenance Schedules	22
1.17	Public Transportation	45
1.18	Cycling Facilities	10
1.19	Other Features	5
2	Water	80
2.1	Water Consumption	30
2.2	Water Conserving Features	32
2.3	Water Management	18
3	Resources	110
3.1	Facilities for Storing and Handling Recyclable Materials	25
3.2	Waste Reduction Workplan	30
3.3	Site Pollution	50
3.4	Site Enhancement	5
4	Emissions and Other Impacts	175
4.1	Boiler Emissions	30
4.2	Refrigerants	25
4.3	Management of Ozone Depleting Refrigerants	10
4.4	Halons	10
4.5	Waste Water Effluents	20
4.6	Asbestos	15
4.7	Radon	5
4.8	PCBs	5
4.9	Storage Tanks	20
4.10	Drinking Water (lead and bacteria)	2
4.11	HCS Program	10

4.12	Health & Safety and Management of Hazardous Products	18
4.13	Pesticides	5
5	Indoor Environment	185
5.1	Ventilation System	24
5.2	Filtration System	11
5.3	Humidification System	15
5.4	Cooling Towers	15
5.5	Parking and Receiving	10
5.6	Control of Pollutants at Source	43
5.7	IAQ Management	25
5.8	Lighting Features	25
5.10	Noise	10
6	Environmental Management System	100
6.1	Environmental Management System (EMS) Documentation	30
6.2	Environmental Purchasing	25
6.3	Emergency Response	20
6.4	Tenant Awareness	25

Minimum Requirements for Green Globes Multifamily Performance Plus (EB)

To be certified through Green Globes Multifamily Performance Plus for Existing Buildings, projects must achieve all Energy and Water Minimum Requirements. In addition, projects must also achieve a minimum 35% total score out of all applicable points in the Green Globes Multifamily Performance Plus for Existing Buildings program. Minimum Requirements are required to be eligible for the program but are separate from the criteria used in the assessment.

Meet all Energy and Water Minimum Requirements.

ENERGY MINIMUM REQUIREMENTS

Demonstrate 20% or greater energy consumption savings over respective established baseline and meet all three (3) Energy Minimum Requirements.

1. Energy Performance

Choose either the ENERGY STAR® Portfolio Manager Path or the Energy Consumption Savings Path and document the energy savings.

1.A ENERGY STAR® Portfolio Manager Path

Projects following the ENERGY STAR® Portfolio Manager Path must choose one of the following two options:

Option 1: ENERGY STAR® Score

For multifamily properties with 20 or more units. Achieve an ENERGY STAR energy performance score of 80 or greater using the Portfolio Manager program.

Option 2: EUI Reduction

Demonstrate 20% or greater reduction of energy use intensity (EUI) compared to the national median source EUI.

1.B Energy Consumption Savings Path

Demonstrate 20% or greater energy consumption savings over respective established baseline. Compare whole building energy data from previous 12 months against 3 contiguous years of energy consumption use within the previous 9 years (normalized for climate and occupancy). All data must be input into ENERGY STAR Portfolio Manager.

2. Energy Efficient Equipment & Products

Confirm Operations & Maintenance (O&M) policy to install ENERGY STAR-labeled and/or FEMP-designated energy efficient products and appliances (including clothes washers, dishwashers, and refrigerators), when such products and/or appliances are being replaced.

ENERGY STAR Qualified Product Lists: <http://www.energystar.gov>

Federal Energy Management Program (FEMP) Energy and Water Efficient Products: <http://www1.eere.energy.gov/femp>

3. Energy Performance Monitoring & Tracking

Confirm that the local utility or onsite master energy meter(s) provide, at a minimum, aggregated whole-property energy consumption data for each energy utility type. Where local utility or current meters do not provide such data install energy meters that do.

Commit to entering energy consumption data into ENERGY STAR Portfolio Manager to track ongoing performance and sharing of that data with Green Building Initiative. Document for future performance verification.

WATER MINIMUM REQUIREMENTS

Demonstrate 10% or greater water consumption savings over respective established baseline and meet both Water Minimum Requirements.

1. Water Consumption Savings

Projects must install WaterSense-labeled low flow fixtures and fittings where installed and/or supplied. In lieu of the WaterSense label, low flow fixtures and fittings that meet or exceed the following prescribed more stringent volume ratings:

1. Private lavatory faucets – 0.8 gpm
2. Public lavatory faucets – 0.5 gpm
3. Kitchen faucets – 1.5 gpm
4. Showerheads – 1.75 gpm

2. Water Performance Monitoring & Tracking

Confirm that the local utility or on-site master water meter(s) provide, at a minimum, aggregated whole-project water consumption data. Where local utility or current meters do not provide such data install water meters that do.

Commit to entering water consumption data into ENERGY STAR Portfolio Manager to track ongoing performance and sharing of that data with Green Building Initiative. Document for future performance verification.

Required Documentation – upload to Green Globes “v3” Software:

- Completed Minimum Requirement Survey
- ENERGY STAR Portfolio Manager Statement of Energy Design Intent (SEDI), or screenshot of ENERGY STAR Score
- Energy model outputs
- List of WaterSense-labeled low flow fixtures and fittings

*Note on Whole Building Energy Consumption Data

An energy model may be developed if you don't have 12 months of energy data to use as your baseline, including scenarios where it is not possible to access all tenant utility data. The energy model must include the following systems:

1. All mechanical systems;
2. Domestic hot water systems;
3. Lighting;
4. Renewable sources of energy, as applicable;
5. Pool equipment pumps and spas, as applicable.

Exception Policy

GBI reserves the right to issue energy and/or water exceptions on a case-by-case basis as needed for unique circumstances, e.g., function of the building requires a limited amount of high flow fixtures. Multifamily projects must still meet the 20% or greater energy consumption savings requirement plus 10% or greater water consumption savings requirement.

1.0 ENERGY (Total Points: 350/1000)

To be certified through Green Globes Multifamily Performance Plus for Existing Buildings, projects must achieve all Energy and Water Minimum Requirements. In addition, projects must also achieve a minimum 35% total score out of all applicable points in the Green Globes Multifamily program. Minimum Requirements are required to be eligible for the program but are separate from the criteria used in the assessment.

ENERGY MINIMUM REQUIREMENTS

Demonstrate 20% or greater energy consumption savings over respective established baseline and meet all three (3) Energy Minimum Requirements.

1. Energy Performance

Choose either the ENERGY STAR® Portfolio Manager Path or the Energy Consumption Savings Path.

1.A ENERGY STAR® Portfolio Manager Path

Projects following the ENERGY STAR® Portfolio Manager Path must choose one of the following two options:

Option 1: ENERGY STAR® Score

For multifamily properties with 20 or more units. Achieve an ENERGY STAR energy performance score of 80 or greater using the Portfolio Manager program.

Option 2: EUI Reduction

Demonstrate 20% or greater reduction of energy use intensity (EUI) compared to the national median source EUI.

1.B Energy Consumption Savings Path

Demonstrate 20% or greater energy consumption savings over respective established baseline. Compare whole building energy data from previous 12 months against 3 contiguous years of energy consumption use within the previous 9 years (normalized for climate and occupancy). All data must be input into ENERGY STAR Portfolio Manager.

2. Energy Efficient Equipment & Products

Confirm Operations & Maintenance (O&M) policy to install ENERGY STAR-labeled, FEMP-designated, and/or AHAM Verifide energy efficient products and appliances (including clothes washers, dishwashers, and refrigerators), when such products and/or appliances are being replaced.

ENERGY STAR Qualified Product Lists: <http://www.energystar.gov>

Federal Energy Management Program (FEMP) Energy and Water Efficient Products: <http://www1.eere.energy.gov/femp>

AHAM Verified: <http://ahamverifide.org/search-for-products/>

3. Energy Performance Monitoring & Tracking

Confirm that the local utility or onsite master energy meter(s) provide, at a minimum, aggregated whole-property energy consumption data for each energy utility type. Where local utility or current meters do not provide such data install energy meters that do.

Commit to entering energy consumption data into ENERGY STAR Portfolio Manager to track ongoing performance and sharing of that data with Green Building Initiative. Document for future performance verification.

Required Documentation – upload to Green Globes “v3” Software:

- Completed Minimum Requirement Survey
- ENERGY STAR Portfolio Manager Statement of Energy Design Intent (SEDI), or screenshot of ENERGY STAR Score
- Energy model outputs

***Note on Whole Building Energy Consumption Data**

An energy model may be developed if you don’t have 12 months of energy data to use as your baseline, including scenarios where it is not possible to access all tenant utility data. The energy model must include the following systems:

1. All mechanical systems;
2. Domestic hot water systems;
3. Lighting;
4. Renewable sources of energy, as applicable;
5. Pool equipment pumps and spas, as applicable.

1.1 Energy Consumption (80 points)

1.1.1

Document the Building’s ENERGY STAR® Score. **(Max 80 points)**

Tool Tip: For buildings that are part of a healthcare campus scored by ENERGY STAR, provide the campus ENERGY STAR rating and energy consumption data. Complete the relevant ENERGY STAR questionnaire information regarding occupancy, number of PC’s, open hours and 5 heated and % cooled for the individual building only.

TABLE 1.1.1: ENERGY STAR SCORES FOR GG EB

ENERGY STAR Score ≥ 94	80 points
ENERGY STAR Score 91 – 93	72 points
ENERGY STAR Score 88 – 90	64 points
ENERGY STAR Score 85 – 87	56 points
ENERGY STAR Score 82 – 84	48 points
ENERGY STAR Score 79 – 81	40 points
ENERGY STAR Score 76 – 78	32 points
ENERGY STAR Score 75	24 points
ENERGY STAR Score 0 – 74	0 points

- **1.1.1.1:** Install functional individual metering or plan to install an individual building meter within the next 12 calendar months.

Tool Tip: In the event of campus ENERGY STAR (ES) score, this question will in part determine the pro-rated share of eligible energy performance credits that will be awarded. If your building is master metered on a HC campus, with an ES HC campus rating, your building is eligible for up to 80 points of energy performance credits if an individual meter was installed in the last 12 months, up to 40 points of the energy performance credits if you plan to install a meter within the next year, and up to 20 points if there are no existing individual meters. Buildings with individual building meter data for 12 months or more are not eligible for the award of energy performance credit based upon the HC campus ES rating. The individual building energy consumption data and/or ES rating must be entered to calculate and award energy performance credits.

- **1.1.1.2:** Supply the following data to establish Energy Star energy target:
 - Number of people working in the facility during normal operating hours.
 - Number of PCs
 - Number of hours per week the facility is open.
 - % Heated
 - % Air-Conditioned.

Tool Tip: Enter the total number of employees who work in this space. The normal occupant density ranges between - 0.3 and 10 occupants per 1000 square feet.

- Enter the total number of personal computers and servers in this space.
- The total number of hours per week that this space is in operation, excluding hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed. Office space operation time averages 65 hours per week, rather than 40 hours per week. Operating hours per week must be 35 or greater for office spaces and must not be greater than 168.
- The percentage of gross floor area that is heated.
- The percent of gross floor area that is air conditioned.
- **1.1.1.3:** Specify the ending month of the 12-month period for which energy consumption figures are being entered.

Tool Tip: Please select the month and year corresponding to the last month of the 12-month period for which you will be entering energy consumption figures.

- **1.1.1.4:** Provide the building's total energy bill for the 12-month period specified.

Tool Tip: Include the total figures (including taxes) for the overall energy cost of the building. If detailed information is not available, please provide an estimate.

- **1.1.1.5:** Provide the total energy consumption for each non-renewable fuel type, in total or by month, for the 12-month period specified.

Tool Tip: Provide energy consumption for the specified 12-month period by inputting either total values (in any of the boxes provided), or monthly or bi-monthly amounts.

1.2 Lighting (25 points)

1.2.1

Incorporate the following energy-efficient lighting features where appropriate:

- **1.2.1.1: Compact fluorescents. 3 points**

Tool Tip: Compact fluorescents are suitable replacement for incandescent lighting, combining small size with high level of performance.

- **1.2.1.2: T8 or T5 florescent lamps. 3 points**

Tool Tip: T8 or T5 florescent lamps are suitable for general lighting, are highly efficient and produce warmer colors than traditional cool white fluorescents.

- **1.2.1.3: Exit signs with light-emitting diodes (LEDs). 3 points**

Tool Tip: LED exit signs consume very little electricity and have a long life.

- **1.2.1.4: Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.**

- **1.2.1.5: Task lighting. 3 points**

Tool Tip: Task lighting (e.g. desk lamps) concentrate light in specific areas rather than brightly lighting an entire room.

- **1.2.1.6: Installation of automated lighting controls. 3 points**

Tool Tip: These include lighting management software, digital addressable lighting interface (DALI), occupancy controls, daylight sensors or automatic dimmers.

- **1.2.1.7: Document the percentage of all lighting in the facility that is “high efficiency lighting.” 7 points**

Tool Tip: Estimate the percentage either by floor area of occupied space or by number of lights.

1.3 Boilers (16 points)

1.3.1

The boilers are less than 20 years old.

Tool Tip: The average life cycle of a boiler is 25 years. A boiler older than 20 years may need to be replaced. If there are no boilers, mark as "not applicable N/A".

1.3.2

A percentage of the boilers in the facility are high-efficiency. **12 points**

Tool Tip: These incorporate sealed consumption and pulse technology to obtain efficiencies of 83% to 90%. They can be either condensing (recuperative) or power/fan assisted. If there are no boilers mark as "not applicable".

1.3.3

Boilers have automatic vent dampers. **4 points**

Tool Tip: These are placed in the flue pipe between the heating unit and the chimney to restrict the flow of heated air up the chimney. If there are no boilers, mark as "not applicable".

1.4 Controls (14 points)

1.4.1

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

1.4.2

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

1.5 Hot Water (12 points)

1.5.1

The building has high-efficiency water heating equipment. **4 points**

Tool Tip: Equipment may consist of condensing water heaters, "tankless" (instantaneous) water heaters, heat pump water heaters or solar water heating technology. Note that ASHRAE 90.1B IES tanks are not considered high efficiency for this assessment.

1.5.2

There are hot water saving devices. **4 points**

Tool Tip: Devices that reduce the rate and duration of water-flow in faucets can lower hot water costs.

1.5.3


Maintain hot water temperatures between 120°F and 130°F. **4 points**

Tool Tip: Measure temperature at the taps.


1.6 Other Energy Efficiency Features (16 points)

1.6.1


There are other energy efficiency measures such as:

- **1.6.1.1:** A percentage of chillers in the facility are high-efficiency 

Tool Tip: High efficiency chillers are typically rated at full-load efficiency in the range of 0.46-0.65 kW/ton compared to old CFS-11 or CFC-12 chillers which have an efficiency in the range of 0.72-0.90 kW/ton. If there is no cooling, mark as "not applicable".

- **1.6.1.2:** Install variable speed drives. 

Tool Tip: These electronic devices control motor speed by varying the frequency of the electrical supply, thereby reducing energy consumption, improving fan or pump control, and extending the life of the equipment.

- **1.6.1.3:** Combined heat and power (CHP) plants 

Tool Tip: Cogeneration is the simultaneous production of heat and electrical or mechanical power achieved by capturing and recycling the rejected heat that escapes from an electricity generation process in the building. Cogeneration can be used to reduce peak demand.

- **1.6.1.4:** Energy recovery ventilation systems

Tool Tip: Energy recovery ventilation systems reclaim waste energy from the exhaust air stream and use that heat to condition the incoming fresh air.

- **1.6.1.5:** Use other energy-saving systems or measures

Tool Tip: Describe any other energy-saving systems or measures (e.g. deep lake cooling, displacement ventilation, underfloor air distribution, dehumidification methods etc.) used to save energy.

TABLE 1.6.1: OTHER ENERGY EFFICIENCY MEASURES SCORING

Section 1.6.1 is scored based on total number of “other energy efficiency measures” per the following:

> 3 measures	16 points
3 measures	12 points
2 measures	8 points
1 measure	4 points

Percentage of high-efficiency chillers are awarded per:

- 50 – 100% = 2 measures
- 25 – 49% = 1 measure
- 0 – 24% = 0 measures
- N/A = 2 measures

1.7 Green Energy (12 points)

1.7.1

Purchase “green electricity.” **5 points**

Tool Tip: Many energy retailers now offer energy produced from certified solar, water, wind, and recovery technologies.

1.7.2

Utilize any of the following renewable onsite energy sources. **5 points for 2+ sources, 3 points for 1 source. Max 5 points**

Tool Tip: Renewable energy sources do not deplete natural resources)

- **1.7.2.1:** Active Solar

Tool Tip: This is generally used to increase the temperature of large volumes of water or air in commercial and industrial buildings.

- **1.7.2.2:** Wind

Tool Tip: Wind turbines are generally used in stand-alone or wind farm applications to generate electricity.

- **1.7.2.3:** Photo Voltaic

Tool Tip: Photovoltaics generate electricity. They are most effective when used during the day, avoiding the need for battery or other storage systems.

- **1.7.2.4:** Ground Source

Tool Tip: Using the temperature differential between above ground and below ground (or ground water), fluid is circulated in an underground (or underwater) loop. The energy collected is used for air and/or water heating. The system can be reversed in summer to provide cooling instead of heating.

- **1.7.2.5:** Bio-mass

Tool Tip: Fuel such as round wood, wood and agricultural waste, prepared wood fuels, landfill gas and digester gas are burned using high efficiency combustion to provide space and/or water heating.

1.7.3

Renewable sources supply a percentage of the building’s energy use. **2 points for >10%, 1 point for 1-9%. Max 2 points**

Tool Tip: Enter percentage of total annual energy requirements supplied from above sources.

1.8 Envelope (35 points)

1.8.1

Assess the current performance and condition of the building envelope per the following.

4 points for 2-4 items, 2 points for 1-2 items. Max 4 points

- **1.8.1.1:** Condensation

Tool Tip: Consider the differences in temperature on the inner surface of the building and the water vapor condensation on the surface of thermal bridges - the mold and mildew control points.

- **1.8.1.2:** Moist air transfer

- **1.8.1.3:** Air flow

Tool Tip: Consider the envelope permeability and the ability of materials to withstand, without deterioration, periods of freezing rain and thawing.

- **1.8.1.4:** Heat transfer

Tool Tip: Assess the thermal resistance and quantity of heat transferred through the envelope.

Tool Tip: The condition of the building envelope is critical to the building performance. An assessment of the current performance and condition of the envelope should consider the issue of relative humidity temperature and interior pressure.

1.8.2

There are energy-efficient windows and doors. **5 points**

Tool Tip: Energy efficient windows consist of, at a minimum, double-glazed low-e windowpanes with frame spacers that have high thermal integrity. High performance weather-stripping on doors and windows also increases their thermal performance.

1.8.3

Reduce the cooling load using appropriate shading or reflective film. **3 points**

Tool Tip: Exterior awnings, exterior and interior solar blinds, green roofs and exterior vegetation, high-albedo (reflective) roofing materials, and low-e film reduce cooling loads and reduce glare.

1.8.4

Air-seal the building in the following areas: **Max 11 points**

- **1.8.4.1:** The top part of the building. **4 points**

Tool Tip: Exterior openings and roof-to-wall connections of mechanical penthouse and floors in the upper part of the building.

- **1.8.4.2:** The bottom part of the building. **4 points**

Tool Tip: Exterior openings and floor slab-to-wall connections and service core of the parking areas, entrance doors and the floors in the lower third of the building.

- **1.8.4.3:** Vertical shafts and elevators. **3 points**

Tool Tip: Service ducts and conduit penetrations, including excessive cable holes in the elevator shafts.

Tool Tip: Stack effect and air leakage through the building envelope can cause significant heat loss and deterioration of the building envelope. One indication of a leaky building is when in the winter the occupants in the lower levels complain of a draft and cold and those in the upper levels complain of over-heating.

1.8.5

The insulation of the walls complies with the recommendation of the building condition report. **6 points**

Tool Tip: Because of the factors involved, proper application of the insulation should be guided by the federal or state energy building code. Where the insulation meets federal or state energy building code mark as "not applicable".

1.8.6

The insulation of the roof complies with the recommendation of the building condition report. **6 points**

Tool Tip: Because of the factors involved, proper application of the insulation should be guided by the federal or state energy building code. Where the insulation meets federal or state energy building code mark as "not applicable".

1.9 Energy Policy (5 points)

1.9.1

Senior Management endorses an energy policy. **5 points**

Tool Tip: This should be a public document that expresses commitments to establish energy targets, assign responsibilities, monitor performance, and undertake an annual review and report.

1.10 Energy Audit (2 points)

1.10.1

The building has had an energy audit within the past three years that included recommendations with costs, savings, and payback period. **2 points**

Tool Tip: An energy audit identifies areas that unnecessarily consume excessive amounts of energy, and provides the most cost-effective solutions with costs, savings, and payback period.

1.10.2

Audit the following systems:

- **1.10.2.1:** Lighting system
- **1.10.2.2:** Heating plant
- **1.10.2.3:** Cooling plant
- **1.10.2.4:** Domestic hot water system
- **1.10.2.5:** HVAC distribution system
- **1.10.2.6:** Major equipment
- **1.10.2.7:** Appliances
- **1.10.2.8:** Building envelope
- **1.10.2.9:** Solar and renewable resource potential

Tool Tip: Where applicable, if no audit was done, mark as "no". Where not applicable, mark as "not applicable"

1.11 Energy Management, Monitoring and Targeting (16 points)

1.11.1

Address issues raised in the energy audit with an energy management (reduction) plan. **2 points**

Tool Tip: If no energy audit was done, mark as "no".

1.11.2

Monitor energy use. **3 points**

Tool Tip: Monitoring should be reviewed monthly. This can be done by installing sub-meters in several locations, or by listing all energy intensive equipment and corresponding hours that it is being used.

1.11.3

Set energy usage targets. **3 points**

Tool Tip: Targets are best expressed as a percentage in decrease of energy used.

1.11.4

Provide evidence of movement towards energy targets over time. **4 points**

Tool Tip: Review energy figures for the past 3 years. If there are no energy figures or no targets, mark as "no".

1.11.5

Take steps to analyze and reduce peak energy demand. **4 points**

Tool Tip: This means monitoring total monthly energy use and peak demand in 15-30-minute increments using an interval meter on a week day and weekend-day for each season. Finding measures to flatten the load profile makes the facility more attractive to power vendors.

1.12 Energy Training (5 points)

1.12.1

Sufficiently train the building staff, including new employees, to design and implement an energy efficiency improvement program. **5 points**

Tool Tip: Training needs should be identified for each staff member. Training updates should be provided on a regular, ongoing basis. New employees are familiarized with the building's operations.

1.13 Financial Resources (5 points)

1.13.1

Ensure there are financial resources to improve the energy efficiency of the building or the building participates in a program for energy efficiency upgrades. **5 points**

Tool Tip: This could be an energy efficiency improvement budget or participation in a program that provides financial assistance for energy upgrades.

1.14 Sub-metering (10 points)

1.14.1

Install tenants' sub-metering in the building. **7 points**

Tool Tip: Sub-metering not only encourages energy conservation by tenants; it also enables the owner to charge them fairly. If there is only one tenant, mark as "not applicable".

TABLE 1.14.1: TENANT SUB-METERING SCORING

Scoring for 1.14.1 is based on percentage of tenants with sub-metering:

50 – 100%	7 points
25 – 49%	3 points
1 – 24%	1.5 points

1.14.2 

Sub-meter the building’s major energy uses (e.g. lighting, hot water, motors, etc.). **3 points**

Tool Tip: This is critical to managing energy for it makes it possible to establish the building-load profile and demand structure.

1.15 Operating Manual (15 points)

1.15.1

There is a readily available operating manual covering standard control settings and operating instructions for all services equipment that may affect the energy consumption. **15 points**

Tool Tip: A user-friendly manual listing all the building services and describing their function with operating instructions, standard control settings, and basic trouble-shooting makes it possible to handle minor problems and make adjustments without interrupting the service or having to call in the contractor.


1.16 Maintenance Schedules (22 points)

1.16.1

Document and maintain records of the regular mechanical systems maintenance schedule that includes: **Max 15 points**



- **1.16.1.1:** Measurement of boiler efficiency. **2 points**

Tool Tip: If there are no boilers, mark as “not applicable”

- **1.16.1.2:** Checks on the correct operation of ventilation and cooling controls. **2 points** 

Tool Tip: If there is no HVAC, mark as “not applicable”

- **1.16.1.3:** Checking of temperature, humidity and fresh air controls to ensure they are set correctly and are responding as intended. **1 point**

- **1.16.1.4:** Identification and investigation of all occurrences of excess energy use. **2 points**
- **1.16.1.5:** Checking of air supply grilles to ensure they are not blocked and are delivering fresh air as required. **1 point**
- **1.16.1.6:** Checks for refrigerant leaks. **1 point** 
Tool Tip: If there is no central cooling plant, mark as “not applicable”
- **1.16.1.7:** Checks on air-handling units, cooling towers and boilers. **2 points** 
Tool Tip: If there is no air handling unit, mark as “not applicable”
- **1.16.1.8:** Replacement of filters. **2 points**
Tool Tip: If there is no air handling unit, mark as “not applicable”
- **1.16.1.9:** Cleaning and sterilizing of wet regions in the air-conditioning system and checking for accumulation of dirt. **2 points**
Tool Tip: If there is no air handling unit, mark as “not applicable”

Tool Tip: The maintenance schedules should be documented, and records maintained.

1.16.2

Develop a preventative maintenance program for building systems, which takes into account their lifecycle. **7 points**

Tool Tip: Preventative maintenance differs from regular maintenance in that it takes into account that certain systems components require overhauling or replacement after a certain age or at certain intervals.

1.17 Public Transportation (45 points)

1.17.1

The building has access to public transport within 0.3 miles. **25 points**

Tool Tip: Good access to public transport is defined as at least one bus or streetcar stop, or train or underground station within 500 meters of the building

1.17.2

There is public transport service at least every 15 minutes during rush hour. **20 points**

Tool Tip: Commuters expect public transport services at least every 15 minutes during rush-hour periods.

1.18 Cycling Facilities (10 points)

1.18.1

Provide bike racks that are sheltered from rain. **7 points**

Tool Tip: Providing bicycle facilities for a minimum of 5% of occupants at destinations to encourage cycling to work.

1.18.2

Provide changing facilities and showers for staff. **3 points**

Tool Tip: Although cyclists and joggers can change in washrooms and store their clothes in the workplace, dedicated facilities do more to encourage use of bicycles for regular commuting. Provide changing facilities and showers for min of 5% of occupants.

1.19 Other Measures (5 points)

1.19.1

Incorporate and describe other measures to reduce car dependency (e.g. car-pooling, subsidized transit passes, etc.). **5 points**

Tool Tip: By providing a database where staff and tenants and share postal code information enables them to make carpooling arrangements. Building-wide purchase of transit passes can provide public transportation at reduced rates. Improving the site access for pedestrian and bikes through signage and/or landscaping can also help to decrease car dependency.

2.0 Water (Total Points: 80/1000)

To be certified through Green Globes Multifamily Performance Plus for Existing Buildings, projects must achieve all Minimum Requirements for Energy **and** Water. In addition, projects must also achieve a minimum 35% total score out of all applicable points in the Green Globes Multifamily Performance Plus for Existing Buildings program. Minimum Requirements are required to be eligible for the program but are separate from the criteria used in the assessment. Points are awarded for criteria within the survey, not for meeting the minimum requirements.

Meet all Energy and Water Minimum Requirements.

WATER MINIMUM REQUIREMENTS

Demonstrate 10% or greater water consumption savings over respective established baseline and meet both Water Minimum Requirements.

1. Water Consumption Savings

Projects must install WaterSense-labeled low flow fixtures and fittings where installed and/or supplied. In lieu of the WaterSense label, low flow fixtures and fittings that meet or exceed the following prescribed more stringent volume ratings:

1. Private lavatory faucets – 0.8 gpm
2. Public lavatory faucets – 0.5 gpm
3. Kitchen faucets – 1.5 gpm
4. Showerheads – 1.75 gpm

2. Water Performance Monitoring & Tracking

Confirm that the local utility or on-site master water meter(s) provide, at a minimum, aggregated whole-project water consumption data. Where local utility or current meters do not provide such data install water meters that do.

Commit to entering water consumption data into ENERGY STAR Portfolio Manager to track ongoing performance and sharing of that data with Green Building Initiative. Document for future performance verification.

Required Documentation – upload to Green Globes “v3” Software:

- Completed Minimum Requirement Survey
- List of WaterSense-labeled low flow fixtures and fittings

2.1 Water Consumption (30 points)

2.1.1

Please specify the ending month of the 12-month period for which water consumption figures are being entered.

Tool Tip: Please select the month and year corresponding to the last month of the 12-month period for which you will be entering water consumption figures.

2.1.2

Provide the building’s total water bill for the 12-month period specified.

Tool Tip: Include figures for the overall water cost of the building. If detailed information is not available, please provide an estimate.

2.1.3

Provide the total water consumption, in total or by month, for the 12-month period specified.

30 points

Tool Tip: Provide water consumption for the specified 12-month period by inputting either total values (in any of the boxes provided), monthly or bi-monthly amounts.

TABLE 2.1.1: WATER CONSUMPTION SCORING

Scoring for 2.1.1 is based total water consumption (in total or by month) for the specified 12-month period:

Consumption < 0.5 m ³ / m ² / year	30 points
Consumption < 1 m ³ / m ² / year	24 points
Consumption < 2 m ³ / m ² / year	18 points

2.2 Water Conserving Features (32 points)

2.2.1

Install the following water-conserving fixtures: **Max 19 points**

- **2.2.1.1:** Low flow toilets that use less than 1.5 GPF. **5 points**
- **2.2.1.2:** Ultra low flush urinals that use less than 1.0 GPF. **5 points**
- **2.2.1.3:** Automatic valve controls and/or proximity detectors. **5 points**
- **2.2.1.4:** Low flow or laminar flow faucets (2.2 GPM). **2 points**
- **2.2.1.5:** Other water-saving features. **2 points**

Tool Tip: Other water-saving devices include low flow showerheads (2.5 GMP), waterless urinals, greywater systems, etc.

- **2.2.1.6:** Describe the other water-saving features

2.2.2

Minimize the need for irrigation of the Landscaping. **5 points**

Tool Tip: Xeriscaping involves the use of plant species that require little watering and techniques that help reduce the amount of water needed for irrigation. If the building covers more than 80% of the site area, i.e. there is no land available for landscaping mark as "not applicable".

2.2.3

Use other sources of water for irrigation, such as the following. **Max 6 points**

- **2.2.3.1: Rainwater. 3 points**

Tool Tip: Rainwater is a water collected specifically for irrigation in rain cisterns. If the building covers more than 80% of the site area, i.e. there is no land available for landscaping mark as "not applicable".

- **2.2.3.2: Graywater. 3 points**

Tool Tip: Graywater is treated waste-water from sinks and showers (not toilets) that has had soils and undesirable bacteria removed. If the building covers more than 80% of the site area, i.e. there is no land available for landscaping mark as "not applicable".

2.2.4

Use once-through water-cooled units in the building. **2 points**

Tool Tip: Some equipment is cooled by a single-pass through flow of water, often from a municipal water supply. After passing through and cooling the equipment, the water is discarded.

2.3 Water Management (18 points)

2.3.1

Write a policy intended to minimize water use and encourage water conservation. **3 points**

Tool Tip: Water Conservation Policy should express the commitments to reduction of demand for water and for establishment of goals and strategies to reduce water consumption.

2.3.2

Monitor water consumption. **4 points**

Tool Tip: Monitoring can only be done provided there is a meter. Metering and checking bills help to verify consumption and to red flag occurrences of unusual and excessive consumption which should be investigated and corrected resulting in savings.

2.3.3

A Water audit has been conducted in the last three years. **4 points**

Tool Tip: The water audit report must include:

- water benchmarking analysis with benchmarking observations,
- a summary of major water-consuming systems in the buildings,
- and a list of potential water conservation opportunities based on walk-through audit of the facility.

An audit should provide recommendations for maintenance procedures that may need to be revised and identify water-using equipment that should be upgraded.

2.3.4

Establish water-reduction targets. **4 points**

Tool Tip: Water targets should be established in gallons/ft², or as a percentage reduction in gallons/person.

2.3.5

Develop regular procedures and schedules for checking and fixing leaks. **3 points**

Tool Tip: Periodic checks for leaks can be done by recording the water-meter reading before and after any long period when there is no water use, for example, late at night and again in the early morning.

3.0 RESOURCES (Total Points: 110/1000)

3.1 Facilities for Storing and Handling Recyclable Materials (25 points)

3.1.1

Provide separate storage/handling facilities for used paper products, glass, metal, and plastic. **10 points**

Tool Tip: A separate designated area for storage will help avoid recycled waste being inadvertently hauled away with other refuse.

3.1.2

There are collection points for sorting paper, glass, metal, and plastic near areas where the waste is generated. **10 points**

Tool Tip: Unless there are collection points near the areas where waste is generated, it is unlikely that occupants will recycle.

3.1.3

Put a composting program in place. **5 points**

Tool Tip: Composting may be done onsite or at a special centralized facility.

3.2 Waste Reduction Workplan (30 points)

3.2.1

A waste audit was conducted within the last three years. **5 points**

Tool Tip: A waste audit can be conducted in-house or using a waste-management firm. It should identify the types and quantities of waste generated in the building and assess which waste materials are produced in sufficient quantities to warrant recycling.

3.2.2

Conduct regular monitoring of waste. **5 points**

Tool Tip: This is done by recording the weight or volume of garbage that is leaving the building.

3.2.3

Provide the current diversion rate. **Max 10 points**

Tool Tip: Diversion rate is used by commercial contractors to report the rate at which non-hazardous solid waste is diverted from entering a disposal facility.

TABLE 3.2.3: WASTE DIVERSION RATE SCORING

Scoring for 3.2.3 is based on current diversion rate:

>85%	10 points
>75%	5 points
>50%	2 points
Unknown	0 points

3.2.4

Provide waste-reduction targets. **5 points**

Tool Tip: Waste measurements should be expressed both in absolute terms (e.g. the total amounts of garbage and recycling) as well as per capita amounts (e.g. the amounts of garbage and recycling per occupant).

3.2.5

Implement a construction, renovation, and demolition waste management policy. **5 points**

Tool Tip: The U.S. Environmental Protection Agency (EPA) estimates that 136 million tons of building related construction and demolition debris was generated in the United States in 1996. This can be reduced by implementing source separation and recycling programs on site. The program should meet the requirements of the jurisdiction (e.g. 3R Code of Practice). The waste specification should address recycling of corrugated cardboard, metals, concrete blocks, clean dimensional wood, plastic, glass, gypsum board and carpet.

3.3 Site Pollution (50 points)

3.3.1

Ensure the building site is free of contamination. **30 points**

3.3.2

If the site is known to be free of contamination base this on the following:

- **3.3.2.1: Document Search. +20 points**

Tool Tip: A document search has been conducted and there is no reason to suspect that the site is contaminated (i.e. it has never had underground storage tanks (USTs) or outside storage tanks (ASTs), it was always an office or

other facility that did not use chemicals, it is not situated near gas stations or other problem industries, there have been no previous potential problem businesses on the site).

- **3.3.2.2:** Phase 1 Environmental Assessment. **+10 points**

Tool Tip: A Phase 1 Environmental Site Assessment has been conducted that proves the site to be free of contamination.

- **3.3.2.3:** Confirmation Phase 2 clean site or Phase 3 Clean Up Report. **+10 points**

Tool Tip: The site was once contaminated but has been remediated to an acceptable level as indicated by a Phase 3 Cleanup Report.

3.3.3

Make an effort to clean the site up if it is known to be contaminated. **10 points**

Tool Tip: If the site is known to be uncontaminated, mark as “not applicable”.

TABLE 3.3: SITE POLLUTION SCORING

Scoring for 3.3 Site Pollution is based on the following:

3.3.1	Site is known to be free of contamination.	30 points
3.3.2.1	Site is known to be free of contamination via Document Search.	+20 points
3.3.2.2 or 3.3.2.3	Site is known to be free of contamination via means other than Document Search.	+10 points
3.3.3	Site is not free of contamination, but efforts are being made to clean it up.	10 points

3.4 Site Enhancement (5 points)

3.4.1

Indicate that the site has been enhanced. Enhancements can include measures such as an increase of indigenous species, the re-establishment of vegetation corridors, or the implementation of erosion-control measures. **5 points**

Tool Tip: The ecological value can be enhanced by increasing the rooftop vegetation, number of indigenous plant species, “lights-out” policies and programs to protect birds, or creating a small natural “oasis” on the site. If the building occupies over 90% of the site, mark as “not applicable”.

4.0 EMISSIONS, EFFLUENTS, AND POLLUTION CONTROLS - Total Points: 175/1000

4.1 Boiler Emissions (30 points)

4.1.1

A percentage of the building's boilers have low NOx emission rates. **23 points**

Tool Tip: A low-NOx emitting boiler produces less than 30ppm of NOx emissions (0.037 lb. NOx) per million BTU of heat input. If there are no boilers mark as "not applicable".

TABLE 4.1.1: BOILER NOX EMISSION RATE SCORING

Scoring for 4.1.1 is based on total percentage of the building's boilers that have low NOx emission rates:

None	0 points
25%	13 points
50%	17 points
75%	20 points
100%	23 points

4.1.2

Keep record of burners, monitoring of controls, and analysis of flue gas. **7 points**

Tool Tip: The maintenance should take place once or twice per year. If there are no boilers mark as "not applicable".

4.2 Refrigerants (25 points)

4.2.1

Describe the type of refrigerant that is used for most of the cooling in the building chiller system.
Max 10 points

Tool Tip: The ODP for a substance is the measure of its contribution to ozone depletion relative to that of CFC11 - the higher the value, the more damaging it is to the ozone layer. Another concern with regards to refrigerants is global warming potential (GWP). If there are no ODS or if the building is using a distributed system (e.g. heat pumps) mark as "not applicable".

TABLE 4.2.1: REFRIGERANTS SCORING

Scoring for 4.2.1 Refrigerants is based on type of **worst** refrigerants used:

R11	0 points
R12	0 points
R22	3 points
HCFC123	8 points
HFC134	10 points
Other	10 points
N/A	10 points

4.2.2 

Install automatic refrigerant leak detectors. **10 points**

Tool Tip: There should be refrigerant sensors in machinery rooms where refrigerant vapor from a leak may be concentrated. In well-ventilated areas leak detection should consist of air-sampling lines connected to specific parts of the refrigeration system, such as the compressor housing. If there are no ODS mark as "not applicable".

4.2.3 

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

4.3 Management of Ozone Depleting Refrigerants (10 points)

4.3.1

Include the following in the management program for ODS: **Max 4 points**

- **4.3.1.1:** Inventory of refrigerants and records. **1 point**
- **4.3.1.2:** Maintenance reports, loss reports, and leak test results. **1 point**
- **4.3.1.3:** Operational staff training. **1 point**
- **4.3.1.4:** Periodic leak testing. **1 point**

Tool Tip: Maintenance of the refrigeration system can reduce the operating costs by improving the chiller performance, avoiding costly repairs, and reducing the need for refrigerant replacement. If there are no ODS mark as "not applicable".

4.3.2

Plan for the phase-out of ozone-depleting refrigerants. **4 points**

Tool Tip: Under the Title VI of the Clean Air Act Amendments of 1990, the US must reduce the amount of HCFCs imported and produced nationwide by 35% in 2004. If there are no ODS mark as "not applicable".

4.3.3

Contract a certified contractor for the maintenance of the cooling system. **2 points**

Tool Tip: The contract should be for a regular maintenance and monitoring of the refrigeration system, the pipework and the leak detection system. If there are no ODS mark as "not applicable".

4.4 Halons (10 points)

4.4.1 (20+ years old)

Document if there are halon fire -protection systems in the building. **10 points**

Tool Tip: If present, these are most likely to be found in older central computer rooms. Halons are potent ozone destroyers. Halon 1211 (or BCF) has an ODP of approximately 3 while halon 1301 (or BTM) has an ODP of approximately 10.

4.5 Waste Water Effluents (20 points)

4.5.1

Protect floor drains in areas where chemicals are stored. **5 points**

Tool Tip: At a minimum, there should be contaminate of chemicals used in building operations, such as oils, solvents, rust inhibitors, biocides and pesticides. This can consist of plastic trays to store the materials.

4.5.2

Disconnect roof drains from sanitary or combined sewers. **5 points**

Tool Tip: Disconnecting roof drains from sanitary or combined sewers avoids unnecessarily loading the community wastewater treatment facilities.

4.5.3

Implement storm water management measures to reduce water run-off from roofs and hard surfaces, such as parking areas. **5 points**

Tool Tip: Measures include allowing the water to soak into the ground or collecting and re-using it. If the building covers more than 80% of the site, mark as “not applicable”.

4.5.4

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

4.6 Asbestos (15 points)

4.6.1

If the building was completed at a time when asbestos was used in construction (up to 1975), maintain an up-to-date inventory based on an asbestos survey, that includes records of locations and the condition of all asbestos. **15 points**

Tool Tip: If there is no asbestos in the building mark as “not applicable”

4.6.2

Encapsulate friable asbestos (i.e. prevent any possibility that asbestos fibers could become air-borne)

Tool Tip: The presence of asbestos-containing materials does not, in itself, constitute a health hazard, provided the asbestos is intact. Friable asbestos can crumble. Encapsulating it avoids the health hazards, which can occur when asbestos fibers become airborne. If the building was completed after 1981 mark as "not applicable".

4.6.3

Document an asbestos management plan that includes precautions to be taken during repairs and renovations.

Tool Tip: If the building was completed after 1981, mark as “not applicable”.

4.7 Radon (5 points)

4.7.1

Check that the building is located outside a high-risk area or complete a radon survey which indicates levels below 4 pCi/L. **5 points**

Tool Tip: Radon is a colorless, odorless, naturally occurring, radioactive gas produced by radium decay that is believed to cause lung cancer. The most common source of indoor radon is the uranium in the soil or rock upon which facilities are built. Areas considered high-risk in the US are Alabama, Santa Barbara, Colorado, southern Connecticut, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Minnesota, Montana, Northern New Jersey, southern New York, North Dakota, Mid-Ohio, Eastern Pennsylvania, southern Rhode Island, eastern part of South Dakota, Eastern Utah, Virginia and Wyoming.

4.8 PCBs (5 points)

4.8.1

Avoid having PCBs in the building. **5 points**

Tool Tip: Until the early 1980s, PCBs were used in fluorescent lamp ballasts for interior lighting and in some high-intensity discharge (HID) ballasts for exterior lighting. There are also electrical transformers and capacitors still in operation that contain PCBs. If the building was constructed after 1908 mark as "not applicable".

4.8.2

A PCB management plan designates responsibilities, requires inventory of all materials containing PCBs, including transformers, as well as records showing locations of major PCB-containing equipment, stipulates storage requirements, and describes a strategy for phasing out and disposing of PCB-containing equipment.

Tool Tip: If there are no PCBs mark as "not applicable". Mark "yes" only if the plan contains all the above elements.

4.8.3

Put procedures in place to ensure that any PCB containing materials are safely stored, storage sites are regularly inspected by designated persons, and spill response includes training for staff.

Tool Tip: If there are no PCBs mark as "not applicable". Mark "yes" only if the plan contains all the above elements.

4.9 Storage Tanks (Max 20 points)

4.9.1

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

4.9.2

Ensure legal compliance with a storage tank management plan that includes the following operation and maintenance procedures: **If "YES" to 4.9.1, 2.5 points per item below; Max 20 points. If "NO" to 4.9.1, "N/A" for items below; 20 points**

- **4.9.2.1:** Tank system registration and annual reporting as required by US EPA Regulations. **2.5 points**

Tool Tip: According to the US EPA, all underground storage tank systems that are greater than 110 gallons should be registered. If the single or combined capacity of the storage tank systems is less than 110 gallons mark as "not applicable".

- **4.9.2.2: Inventory control. 2.5 points**

Tool Tip: Establish an inventory of tank systems is the first step in preparing a tank management plan.

- **4.9.2.3: Tank upgrading and replacement schedule. 2.5 points**

Tool Tip: The components that are subject to upgrade are leak detection, secondary containment, corrosion protection, overflow protection and spill containment. Mark as "not applicable" if the tanks were already replaced or upgraded.

- **4.9.2.4: System testing. 2.5 points**

Tool Tip: Tank systems can be tested for leaks as part of the tank management plan.

- **4.9.2.5: Filling, transferring operations, and spill protection. 2.5 points**

Tool Tip: The US EPA may require property managers to install systems for spill containment, overflow protection, secondary containment, dispenser sump and leak detection. Various systems are available for both aboveground and underground storage tank systems.

- **4.9.2.6: Emergency preparedness. 2.5 points**

Tool Tip: An emergency preparedness plan should identify response personnel who are to be trained and their responsibilities in the event of a leak or spill.

- **4.9.2.7: Record keeping. 2.5 points**

Tool Tip: All inspection and maintenance, alterations and upgrading should be documented.

- **4.9.2.8: Tank closure, abandonment, or removal procedures. 2.5 points**

Tool Tip: A storage tank system must be properly decommissioned when replaced or taken out of service.

Tool Tip: Choose as many procedures as apply. If there are no storage tanks mark as "not applicable".

4.10 Drinking Water (lead and bacteria) (2 points)

4.10.1

Provide evidence that drinking water is safe. **2 points**

Tool Tip: There should be evidence of test results of lead and other contaminants, including bacteria. If necessary, bottled drinking water should be provided.

4.11 HCS Program (10 points)

4.11.1

Locate MSDSs, spill clean-up kits, and safety equipment such as eye-wash stations in accessible places near the chemical storage areas. **3 points**

Tool Tip: Material Safety Data Sheets (MSDS) contain information about the properties and safe handling of each hazardous product.

4.11.2

Ensure that MSDSs are less than 3 years old. **2 points**

Tool Tip: Data sheets should not be more than 3 years old.

4.11.3

Ensure that HCS labels are present on regulated products. **5 points**

Tool Tip: Implementing the Hazard Communication Standard (HCS) and the Workplace Hazardous Materials Information System (WHMIS) is a US-wide legal requirement designed to ensure that chemicals and other hazardous substances are handled safely and that information about them including the relevant protective measures is disseminated to workers and employers.

4.12 Health & Safety and Management of Hazardous Products (18 points)

4.12.1

Store chemicals and hazardous materials under appropriate conditions in secure locations. **5 points**

Tool Tip: Chemicals used in the building that are classified as hazardous include oils, biocides, solvents, insecticides, pesticides and herbicides. Store in rooms with proper ventilation, controlled temperatures, drain protection and adequate shelf space. Cap containers to avoid possible spills and fumes, label properly and keep in securely locked areas.

4.12.2

Provide HCS education and training for the person responsible for the management of chemicals and for staff who may be required to work with them. **3 points**

Tool Tip: HCS/WHMIS education refers to the instruction of workers in general information as how HCS works and the hazards of certain chemicals, whereas training refers to the instruction in site-specific information such as work and emergency procedures.

4.12.3

Designate someone to be responsible for managing hazardous materials. **3 points**

Tool Tip: The designated person should be responsible for:

- advising workers of potential and actual hazards;
- ensuring that workers use prescribed protective equipment devices; and
- taking every reasonable precaution for the protection of workers

4.12.4

Conduct an inventory and keep records of the hazardous materials/waste, including their removal and disposal. **3 points**

Tool Tip: The inventory must identify the hazardous waste streams, the operations in the building that produce them, how and where hazardous waste is handled and stored and who is responsible for it. The records should show that the organization tracks hazardous wastes from the facility through a provincially state, region, or municipality licensed or certified carrier to a waste disposal facility that is also licensed or certified by the province to accept hazardous waste.

4.12.5

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

4.13 Pesticides (5 points)

4.13.1

To minimize access by rodents, use suitable measures to ensure that food or food waste is well contained and that there are no unprotected openings. **1 point**

Tool Tip: One way to minimize pesticides usage indoors is through the planned elimination of sources of food and pest habitats.

4.13.2

Use landscaping practices that minimize the use of pesticides, herbicides, fertilizer, and petroleum-based products. **2 points**

Tool Tip: Pesticide refers to insecticides, herbicides, fungicides, rodenticides, disinfectants, anti-foulants and plant growth regulators. Use of local resistant plants in landscaping may lead to a minimal need for pesticides. If there is no landscaping mark as “not applicable”.

4.13.3

Ensure that pest control contracts require that the staff be licensed and use integrated management methods. **2 points**

Tool Tip: The contract should require that records are kept on the type and frequency of applications of pesticides, alternative pest management approaches, compliance with legislation, and communication to tenants to notify them of pesticide application in locations that they use. If there is no landscaping, mark as “not applicable”.

5.0 INDOOR ENVIRONMENT - Total Points: 185/1000

5.1 Ventilation System (24 points)

5.1.1

Locate air intakes far from sources of pollution such as parking areas, bus stops, cooling towers or stagnant water. **3 points**

Tool Tip: If inlets are on the roof, check for stagnant pools of water, insects, and pigeon droppings as well as proximity and wind direction with regard to the spray from cooling towers. If near the ground level, also check for sources of vehicle emissions (parking and idling), industrial or commercial pollutions.

5.1.2

Locate air intakes at least 30 ft. away from building exhaust outlets. **3 points**

Tool Tip: Separating air intakes from exhaust avoids “re-entrainment” (short-circuiting) of exhaust air. Also consider the prevailing direction of the wind relative to the intakes and exhaust.

5.1.3

Regularly check outdoor air intakes to ensure that the openings are protected and free from obstruction. **2 points**

Tool Tip: Check that the grilles on the fresh-air supply inlets are free from obstruction by leaves, snow, insects, and pigeon droppings.

5.1.4

Verify that free-standing water can drain away in the condensate drip trays. **3 points**

Tool Tip: Verify that there is no free-standing water in the air-conditioning ductwork, particularly in the condensate drip trays of cooling coils, downstream from humidifiers, which can result in contamination of ducts by bacteria and fungi. If there is no air-conditioning, mark as “non-applicable”.

5.1.5

Inspect for signs of corrosion, loose material (such as damaged filter bags) or sound attenuation materials in the air-handling unit (AHU). **2 points**

Tool Tip: Inspect the air-handling units (air-mixing chambers, coils, and fan blades) and duct interiors including any crawlspaces, tunnels or other areas that are used as ducts or which may be in contact with the ventilation air stream. Investigate whether commissioning took place. If there are no air-handling units, mark as “non-applicable”.

5.1.6

Maintain CO2 levels less than 850 ppm (assuming outdoor levels 400 ppm). **6 points**

Tool Tip: Measure CO2 concentration using a Draeger pump or CO2 data logger. Be sure to take enough readings to establish a representative profile for a wide range of spaces in the buildings.

5.1.7

Provide permanent carbon dioxide monitoring or sensors to maintain pre-set levels of carbon dioxide. **3 points**

Tool Tip: Monitoring should be located in areas with high occupant densities and at the ends of the longest runs of the distribution ductwork. CO2 monitoring can be installed as an independent system or be a function of the building automation system, preferably with feedback on space ventilation performance and operation of the air intake vents.

5.1.8

Provide occupants with personal control over the ventilation rates in the area in which they work, either through hybrid system (operable windows) or personalized HVAC controls. **2 points**

Tool Tip: Personal controls refer to 4-6 workstations or less

5.2 Filtration System (11 points)

5.2.1

Include filters that are able to remove particles from incoming air (Efficiency Grade between 60% and 85% Dust Spot or a Minimum Efficiency Reporting Value (MERV) of 8). **4 points**

5.2.2

Fit manometers to indicate when filters should be changed. **3 points**

Tool Tip: A Manometer, which measures the pressure drop across filters, indicates when these need cleaning or replacing. Manometers connected to BAS give even better warning.

5.2.3

Provide easy access for cleaning and inspecting filters. **2 points**

Tool Tip: Easy access makes it less difficult to visually check whether air is bypassing the filters and to determine whether they are properly installed.

5.2.4

Verify that the filters fit snugly within the filter supports. **2 points**

Tool Tip: Verify that there is a snug fit, that filters are the right size and they are installed in the correct direction.

5.3 Humidification System (Max 15 points)

5.3.1

Describe what type of humidification system the building uses. **10 points if “Steam” is selected.**

Tool Tip: Because of the risk of microbial contamination associated with spray humidification, a preferred method is humidification by steam. If there is no humidification mark as "not applicable".

5.3.2

If steam humidification is used, utilize clean steam rather than treated boiler water. **5 points if “Steam” is selected in 5.3.1 and “Yes” to 5.3.2,**

Tool Tip: Steam humidification should be provided from an independent source, as there are some concerns with steam generated as a by-product, because of potential air contamination from boiler additives used to control scale and corrosion. If no steam humidification is used, mark as “not applicable”.

5.3.3

If spray humidification is used, rigorously maintain the system, and keep free of rust, algae, or loose contaminants of any kind. **5 points if “Spray” is selected in 5.3.1 and “Yes” to 5.3.3.**

Tool Tip: Verify that there are documented maintenance procedures and records. If no spray humidification is used, mark as “not applicable”.

5.4 Cooling Towers (15 points)

5.4.1

Locate cooling towers away from fresh air intakes and flue outlets. **5 points**

Tool Tip: Check the relative positions of ventilation intakes to cooling tower drift, and the prevailing wind direction. If there are no cooling towers, mark as “not applicable”.

5.4.2

Install drift eliminators. **5 points**

Tool Tip: Drift eliminators remove water droplets generated by the cooling tower. This saves water and reduces the risk of downdraft of a spray that could contain Legionella. If there are no cooling towers, mark as “not applicable”.

5.4.3

Implement a program of regular maintenance and cleaning of the cooling towers that includes monthly inspection for evidence of mold or slime. **5 points**

Tool Tip: There should be at least monthly inspections of cooling towers that include checking for evidence of slime or mold (which could indicate an elevated level of bacteria), regular treatment of the cooling tower water, and complete cleaning and disinfection of each cooling tower at least every six months. If there are no cooling towers, mark as “not applicable”.

5.5 Parking and Receiving (10 points)

5.5.1

Provide mechanical ventilation of enclosed parking areas. **3 points**

Tool Tip: Closed garages are generally underground and require mechanical ventilation to avoid carbon monoxide, oil, and gas fumes becoming concentrated in the garage and entering the building. Open and partially open garages which are typically above-grade, may not need mechanical ventilation. If there are no enclosed parking areas, mark as “not applicable”.

5.5.2

Incorporate measures to prevent intake of exhaust fumes from the loading dock and parking areas. **4 points**

Tool Tip: Measures include posting notices to turn off vehicles, having well-sealed doors between the parking and occupied areas, ensuring that occupied spaces near parking garages and loading docks are under positive pressure, and increasing exhaust ventilation in the garage and loading docks. If there are no loading docks, mark as “not applicable”.

5.5.3

Provide carbon monoxide monitoring in garages and near boilers. **3 points**

Tool Tip: Carbon monoxide monitoring should occur in the parking garage and near boilers. If there are no enclosed parking areas and no boilers, mark as “not applicable”.

5.6 Control of Pollutants at Source (43 points)

5.6.1

Document observations or complaints of any of the following symptoms of mold or excess moisture:

Max 7 points

- **5.6.1.1:** Tank closure, abandonment, or removal. **3 points**
- **5.6.1.2:** Damp or musty carpets. **2 points**
- **5.6.1.3:** Musty odors. **2 points**

Tool Tip: Check for visual or odor clues in the following areas: crawl spaces, sub-floor cavities and service tunnels, cold surfaces such as under windows and in corners formed by exterior walls, uninsulated cold water piping, bathrooms, indoor areas in the vicinity of known roof or wall leaks, floors and ceilings under plumbing, duct interiors near humidifiers, cooling coils, outdoor air-intakes and under carpets.

5.6.2

Install effective local exhaust in large printing rooms, cafeteria, kitchens, chemical storage, and washrooms. **3 points**

Tool Tip: Some special-use areas may require additional local exhaust to prevent air pollutants from accumulating in or spreading beyond a local area. Fans should operate continuously when the source is present, not only when the room is occupied. Text the exhaust effectiveness with chemical smoke or light tissue paper.

5.6.3

Document measures to control pollutants at source in areas such as washrooms, kitchens, printing areas, chemical storage, and general storage areas. **3 points**

Tool Tip: Measures to reduce pollution at source should be documented and maintenance record kept, otherwise they may be implemented in a haphazard fashion. For example, in washrooms that are not frequently used, toilets should flush and water run in the sinks so that water does not stagnate in the supply lines; fume hoods should be installed over printing areas; cooking activities managed carefully to avoid indoor air quality problems; gas appliances vented and checked for leaks, dumpsters properly located to avoid odors and so on.

5.6.4

Specifically state in the cleaning contract and/or in-house policy that environmentally preferable cleaning materials are to be used. **5 points**

Tool Tip: These are cleaning materials which do not greatly sacrifice performance and which are biodegradable, do not contain phosphates, or do not fall under the Resource Conservation and Recovery Act (Sub chapter 3: Hazardous waste management). This requirement should be documented in the cleaning contract.

5.6.5

Document if smoking is permitted in the building. **15 points**

Tool Tip: Banning smoking is the most effective way to avoid environmental tobacco smoke – a source of irritation and a known carcinogen.

- 5.6.5.1: If smoking is permitted, designate a smoking area that will prevent contamination of smoke to the rest of the building

Tool Tip: A smoking room should be maintained under negative pressure, with a dedicated exhaust pipe.

5.6.6

Develop a checklist of items connected to IAQ that must be discussed with architects, engineers, contractors, and other professionals prior to renovation and repairs. **10 points**

Tool Tip: Discussion is essential to avoid design features that could interfere with ventilation or thermal comfort, or which could cause condensation, or result in the selection of inappropriate materials or systems. Renovation procedures should also be discussed to avoid the release of dust and hazardous materials.

5.7 IAQ Management (25 points)

5.7.1

Have building management document the means for addressing patient and staff concerns regarding indoor air quality that include the following: **Max 4 points**

- 5.7.1.1: Complaint forms. **2 points**
- 5.7.1.2: Incident log. **2 points**

Tool Tip: Building management must have in place a documented means for addressing tenants/occupant concerns regarding indoor air quality.

5.7.2

The building has had an IAQ audit in the past year. **5 points**

Tool Tip: The audit should have been detailed enough for management to gain a comprehensive understanding of the current IAQ situation in the building, including all the factors that could influence the buildings IAQ.

5.7.3

Document procedures for maintaining good IAQ, including: **Max 8 points**

- 5.7.3.1: HVAC operations. **2 points**

Tool Tip: There should be daily, weekly and monthly schedules.

- **5.7.3.2: Housekeeping procedures. 2 points**

Tool Tip: These should identify all areas that should be cleaned, specify the products that are to be used and their appropriate application, and provide a cleaning schedule.

- **5.7.3.3: Preventive maintenance. 2 points**

Tool Tip: This should include a scheduled program for monitoring, cleaning and replacing HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interior air handling units, fan motors and belts, air humidification, controls and cooling towers.

- **5.7.3.4: Procedures for unscheduled maintenance. 2 points**

Tool Tip: Procedures for unscheduled maintenance should be documented in the event of equipment failures which may require the prolonged deactivation or modification of the building's HVAC equipment.

Tool Tip: Building management must have heating, ventilation, and air conditioning (HVAC) procedures and a preventive maintenance program in place.

5.7.4

Train building management sufficiently to implement an IAQ program and address tenant concerns.
4 points

Tool Tip: The training should be adequate to enable staff to identify, prevent, and solve IAQ problems.

5.7.5

Continuously monitor the following: **Max 4 points**

- **5.7.5.1: Temperature. 2 points**

- **5.7.5.2: Humidity. 2 points**

Tool Tip: The building should conform to ASHRAE 55 for thermal comfort

5.8 Lighting Features (25 points)

5.8.1

Leave blank for Green Globes Multifamily Performance Plus for Existing Buildings.

5.8.2

Prevent glare at Visual Display Terminal with controllable internal or external blinds and light fixtures.

5 points

Tool Tip: Internal shading devices limit the glare resulting from solar radiation. They should be adjustable to allow occupants to regulate the amount of direct light entering their space. The cut-off angle of downward light should reduce glare on VDT screens.

5.8.3

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

5.8.4

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

5.8.5

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

5.8.6

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

5.9 Lighting Management (N/A)

5.9.1

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

5.9.2

Mark N/A for Green Globes Multifamily Performance Plus for Existing Buildings.

5.10 Noise (10 points)

5.10.1

Ensure that it is easy, in open areas, to engage in a conversation using a normal voice, understand a phone conversation, and have a private conversation using lowered voices. **5 points**

Tool Tip: To measure sound levels, use an integrated sound-level meter with 'A' weighting. The readings should be no more than 50 dB LAeq,T.

5.10.2

Provide sufficient acoustic privacy. **5 points**

Tool Tip: In open offices, speech should be heard but not generally understood in adjacent work stations, and it should be possible to have a private conversation using lowered voices. In enclosed offices, it should be possible to maintain confidentiality using normal voice levels

6.0 ENVIRONMENTAL MANAGEMENT SYSTEM - Total Points: 100/1000

6.1 Environmental Management System (EMS) Documentation (30 points)

6.1.1

Provide building management with a written environmental policy. **10 points**

Tool Tip: This policy should be a public document that is easily accessible to staff and tenants. It should express a commitment to:

- comply with relevant laws or other requirements;
- continuous improvement; and
- pollution prevention.
- It should also be signed by building management.

6.1.2

Document stated goals and specific targets in the environmental policy with respect to the following:

Max 10 points

- **6.1.2.1:** Energy conservation. **2 points**
- **6.1.2.2:** Water conservation. **1 point**
- **6.1.2.3:** Waste reduction and recycling. **2 points**
- **6.1.2.4:** Environmental purchasing. **1 point**
- **6.1.2.5:** Reduction in use and proper handling of hazardous products. **2 points**
- **6.1.2.6:** Training and education. **2 points**

Tool Tip: Goals and specific targets to improve or maintain the facility's environmental performance should be documented as part of the "environmental vision" for the building.

6.1.3

Develop action plans to improve the environmental and energy performance of the building. **10 points**

Tool Tip: The action plans should outline implementation strategies, timelines, training, and resources needed to achieve stated targets. They should be reviewed, revised and update on a regular, scheduled basis.

6.2 Environmental Purchasing (25 points)

6.2.1

Develop a written environmental-purchasing plan that includes the following. **6 points**

Tool Tip: The environmental purchasing plan should: assign responsibilities; ensure that those who do purchasing have adequate training; refer to products used by in-house staff; stipulate requirements for cleaning contractors; and provide education to tenants.

6.2.2

Provide a list of preferred used in housekeeping and building maintenance. **7 points**

Tool Tip: Staff need a list of feasible environmentally friendly substitutes and their suppliers. Because products are frequently discontinued and new products introduced to the market, the list should be regularly reviewed and updated.

6.2.3

Include in the purchasing policy the requirement for purchasing energy saving equipment. **6 points**

Tool Tip: The policy should include the requirement that any purchases of appliances and HVAC should involve consulting EnergyStar.

6.2.4

Have Staff who purchase hazardous products review Material Safety Data Sheets (MSDSs). **6 points**

Tool Tip: Those responsible for purchasing should ensure that up-to-date MSDSs for controlled products are reviewed and are available to employees. The MSDSs should not be dated more than 3 years previous to the receiving date.

6.3 Emergency Response (20 points)

6.3.1

Document procedures and train staff to deal with and obtain prompt assistance for emergencies such as fire, spills, power failures, and illness. **5 points**

Tool Tip: Procedures must be detailed for quick and effective action in the event of an emergency. They should include up-to-date contacts to obtain assistance promptly and to report the emergency. There should also be a protocol to assess the risks of re-occupying a building in the case of evacuation.

6.3.2

Refer to all applicable legislation regarding emergency procedures, reporting, and record-keeping in the emergency plans. **5 points**

Tool Tip: The emergency response plan must ensure compliance with applicable regulations. A first step is to define accountability with respect to permits, record-keeping, and reporting.

6.3.3

Install equipment on site to deal with environmental emergencies. **4 points**

Tool Tip: The environmental emergency response plan should require that equipment such as spill control kits, absorbents, and personal protection equipment be onsite for quick and easy access.

6.3.4

Develop a contingency plan for both short-term and long-term power failures. **3 points**

Tool Tip: Planning for power failures should address the following elements:

- communication to tenants
- security
- provision of emergency power and water
- evacuation

6.3.5

Identify environmentally significant features on a site map. **3 points**

Tool Tip: Site plans should identify environmental significant features such as:

- hazardous waste storage rooms,
- PCB-containing equipment,
- sanitary and storm sewer lines,
- CFC equipment,
- storage tanks
- emergency equipment

6.4 Tenant Awareness (25 points)

6.4.1

Implement a strategy to communicate with tenants regarding environmental initiatives and practices in the building and to respond to tenant concerns. **10 points**

Tool Tip: Building management must have in place a well-understood system for communicating with tenants/occupants on environmental issues specific to the building. Tenants should be provided with information and should have a forum or hotline to discuss the environmental concerns and to coordinate their activities.

6.4.2

Communicate to tenants about the environmental measures that they can implement in the building to contribute to: **Max 9 points**

- **6.4.2.1: Energy conservation. 3 points**

Tool Tip: An inexpensive way to reduce energy costs is by developing energy efficiency procedures and personal habits. Provide information to occupants on energy use and means of saving energy (such as information on turning off lights in unoccupied spaces, after normal office hours and the correct use of blinds).

- **6.4.2.2: Waste reduction and recycling. 3 points**

Tool Tip: This can include promotional materials such as brochures and newsletters to keep tenants informed about how they can reduce the amount of waste being sent to landfill through such things as recycling and composting.

- **6.4.2.3: Proper handling, storage, and disposal of toxic products. 3 points**

Tool Tip: This can include newsletters, postings on bulletin boards, signage, memos, or participation responsible for environmental stewardship.

6.4.4

Complete a tenant satisfaction survey within the last 3 years. **6 points**

Tool Tip: A staff satisfaction survey enables managers to prioritize efforts and maximize the performance of their assets.

Contact Us

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