

# GREEN GLOBES QUESTIONNAIRE - Large Office Building

## BASIC INFORMATION

Is this a sample project to test the software?

- Yes, this is a sample to test the software  
 No, we intend to do a full assessment on this building

Who is the project leader?

What is the name of the building?

What is the street address?

City?

State?

Choose a State

Zip Code?

What type of building is this?

Tip: You may classify this building as a Large Office Building (20,000+ gross square feet) or a Small Office Building (between 500 and 20,000 gross square feet).

Select

(exact year)

When was the building constructed?

Tip: Specify year of construction OR choose an era.

- prior to 1960  
 prior to 1989  
 after 1990

What is the gross floor area of the building (in square feet)?

Tip: The gross floor area for the purposes of the assessment is the total heated floor area within the perimeter of the exterior walls of the building, including common, mechanical and structural support areas, and excludes unheated parking garage areas.

How many stories are there?

Is there underground parking?

- Yes  No

The building has numerous tenants

The main tenants are:

Who are the main tenants?

  

Who is the owner of the building?

Who is the building manager?

Tip: Provide the name and the company of the manager.

Building description?

Tip: Provide a short building description describing also any additional innovative energy and environmental measures.

## ENERGY

### Energy Consumption

The Energy Star Rating for this

- Individual Office Building is:  
 Healthcare Campus is:  
 No ES rating

Tip: For buildings forming a part of a Healthcare campus rated by Energy Star, please check the box for Healthcare campus ES rating, enter the campus ES rating, and campus energy consumption data. Please complete the relevant Energy Star survey information regarding occupancy, number of PC's, open hours and % heated and % cooled for the individual building only.

Does the building have individual metering installed and functional or a plan to install an individual building meter within the next 12 calendar months?  
 Tip: In the event of campus ES rating, 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 credits based on the HC campus ES rating, individual building energy consumption data and/or ES rating must be entered to calculate and award energy performance credits.

- Installed more than 1 year ago
- Installed within the last year
- Plan to Install within the next year
- None/Other

Please supply the following data in order that an Energy Star® energy target may be established:

How many people work in this facility during normal operating hours?  
 Tip: Indicates 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.

Number of PCs  
 Tip: Indicates the total number of personal computers and servers in this space.

How many hours per week is the facility open?  
 Tip: 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.

% Heated  
 Tip: The percent of gross floor area that is heated.

% Air-Conditioned  
 Tip: The percent of gross floor area that is air conditioned.

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

Month Year  
 Select Select

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.

What was the building's total energy bill for the 12 month period specified?  
 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.

\$

What was the total energy consumption for each non-renewable fuel type, in total or by month, for the 12 month period specified?  
 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.

Gas month 1:	cu. ft.		Cost \$	
Gas month 2:	cu. ft.		Cost \$	
Gas month 3:	cu. ft.		Cost \$	
Gas month 4:	cu. ft.		Cost \$	
Gas month 5:	cu. ft.		Cost \$	
Gas month 6:	cu. ft.		Cost \$	
Gas month 7:	cu. ft.		Cost \$	
Gas month 8:	cu. ft.		Cost \$	
Gas month 9:	cu. ft.		Cost \$	
Gas month 10:	cu. ft.		Cost \$	
Gas month 11:	cu. ft.		Cost \$	
Gas month 12:	cu. ft.		Cost \$	

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Electricity month 1:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 2:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 3:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 4:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 5:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 6:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 7:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 8:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 9:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 10:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 11:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>
Electricity month 12:	kWh.	<input type="text"/>	Cost \$	<input type="text"/>

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Propane month 1:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 2:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 3:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 4:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 5:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 6:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 7:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 8:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 9:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 10:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 11:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Propane month 12:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>

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Oil month 1:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 2:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 3:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 4:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 5:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 6:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 7:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 8:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 9:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>

Oil month 10:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 11:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>
Oil month 12:	Gal.	<input type="text"/>	Cost \$	<input type="text"/>

Steam month 1:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 2:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 3:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 4:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 5:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 6:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 7:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 8:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 9:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 10:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 11:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>
Steam month 12:	lbs.	<input type="text"/>	Cost \$	<input type="text"/>

Chilled Water month 1:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 2:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 3:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 4:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 5:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 6:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 7:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 8:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 9:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 10:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 11:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>
Chilled Water month 12:	MBTU*	<input type="text"/>	Cost \$	<input type="text"/>

\*MBTU stands for one million BTUs, which can also be expressed as one decatherm (10 therms).

### Lighting

Does the building incorporate any of the following high-efficiency lighting features:

Tip: Choose as many as apply.

- compact fluorescents?  
 Tip: Compact fluorescents are suitable replacement for incandescent lighting, combining small size with a high level of performance.
  Yes  No
- T8 or T5 fluorescent lamps?  
 Tip: T8 or T5 fluorescent lamps are suitable for general lighting, are highly efficient and produce warmer colours than traditional cool white fluorescents.
  Yes  No

<ul style="list-style-type: none"> <li>• exit signs with light-emitting diodes (LEDs)? Tip: LED exit signs consume very little electricity, and have a long life.</li> </ul>	<input type="radio"/> Yes <input type="radio"/> No
<ul style="list-style-type: none"> <li>• use of high-intensity fluorescent fixtures? Tip: Where there are no high levels of light required over large areas, or where changing lamps is not difficult mark "not applicable".</li> </ul>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
<ul style="list-style-type: none"> <li>• task lighting? Tip: Task lighting (e.g. desk lamps) concentrate light in specific areas rather than brightly lighting an entire room.</li> </ul>	<input type="radio"/> Yes <input type="radio"/> No
<ul style="list-style-type: none"> <li>• installation of automated lighting controls? Tip: These include lighting management software, digital addressable lighting interface (DALI), occupancy controls, daylight sensors or automatic dimmers.</li> </ul>	<input type="radio"/> Yes <input type="radio"/> No
<p>What percentage of all lighting in the facility is "high efficiency lighting"?</p> <p>Tip: Estimate the percentage either by floor area of occupied space or by numbers of lights.</p>	<input type="radio"/> 75 - 100 <input type="radio"/> 50 - 75 <input type="radio"/> 1 - 50 <input type="radio"/> none
<b>Boilers</b>	
<p>Are the boilers 20 years old or more?</p> <p>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 "not applicable".</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A (no boilers)
<p>What percentage of boilers in the facility are high-efficiency?</p> <p>Tip: These incorporate sealed combustion 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 "not applicable".</p>	<input type="radio"/> 50 - 100 <input type="radio"/> 25 - 49 <input type="radio"/> < 25 <input type="radio"/> N/A (no boilers)
<p>Do the boilers have automatic vent dampers?</p> <p>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 "not applicable"</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A (no boilers)
<b>Controls</b>	
<p>Is temperature setback and weather compensation implemented?</p> <p>Tip: These refer to adjustments to the building temperature based on occupancy and outside temperatures, to reduce heating or cooling requirements.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Does the building have building automation systems (BAS)?</p> <p>Tip: These systems optimize the start-up and performance of HVAC equipment, improve the interaction of mechanical subsystems, increase occupant comfort, lower energy use and provide off-site building control. Partial BAS can consist of items such as snow and ice sensing controls that operate garage ramp heaters or domestic hot water system (DHW) controls.</p>	<input type="radio"/> Full Tip: There is full BAS. <input type="radio"/> Partial Tip: There is a partial BAS. <input type="radio"/> None Tip: There is no BAS.
<b>Hot Water</b>	
<p>Does the building have high-efficiency water heating equipment?</p> <p>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.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Are there hot water saving devices?</p> <p>Tip: Devices that reduce the rate and duration of water-flow in faucets can lower hot water costs.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Are hot water temperatures maintained between 120° and 130° F?</p> <p>Tip: Measure temperatures at the taps.</p>	<input type="radio"/> Yes <input type="radio"/> No
<b>Other Energy Efficiency Features</b>	
<p>Are there other energy efficiency measures such as:</p> <ul style="list-style-type: none"> <li>* Percentage of chillers in the facility that are high-efficiency? Tip: High efficiency chillers are typically rated at full-load efficiency in the range of 0.46 - 0.65 kW/ton compared to old CFC-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 "not applicable".</li> </ul>	<input type="radio"/> 50 - 100 <input type="radio"/> 25 - 49 <input type="radio"/> < 25 <input type="radio"/> N/A (no chillers)
<ul style="list-style-type: none"> <li>* Variable speed drives? 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.</li> </ul>	<input type="radio"/> Yes <input type="radio"/> No

<p>* Combined heat and power (CHP) plants?  <b>Tip:</b> 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.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Energy recovery ventilation systems?  <b>Tip:</b> Energy recovery ventilation systems reclaim waste energy from the exhaust air stream and use that heat to condition the incoming fresh air.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Are other energy-saving systems or measures being used?  <b>Tip:</b> 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.            Description: <input type="text"/></p>	<input type="radio"/> Yes <input type="radio"/> No
<b>Green Energy</b>	
<p>Is "green electricity" purchased?  <b>Tip:</b> Many energy retailers now offer energy produced from certified solar, water, wind and recovery technologies.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Does the building utilize any of the following renewable on-site energy sources:  <b>Tip:</b> Renewable energy sources do not deplete natural resources.</p>	
<p>* Active Solar?  <b>Tip:</b> This is generally used to increase the temperature of large volumes of water or air in commercial and industrial buildings.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Wind?  <b>Tip:</b> Wind turbines are generally used in stand-alone or wind farm applications to generate electricity.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Photo Voltaic?  <b>Tip:</b> Photovoltaics generate electricity. They are most effective when used during the day, avoiding the need for battery or other storage systems.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Ground Source?  <b>Tip:</b> 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.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Bio-mass?  <b>Tip:</b> 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.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>What percentage of the building's total energy use is supplied by these renewable sources?  <b>Tip:</b> Enter percentage of total annual energy requirements supplied from above sources.</p>	<input type="radio"/> > 10% <input type="radio"/> < 10% <input type="radio"/> 0%
<b>Envelope</b>	
<p>Has the current performance and condition of the building envelope been assessed in terms of:  <b>Tip:</b> 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 issues of relative humidity temperature and interior pressure.</p>	
<p>* condensation?  <b>Tip:</b> Consider the differences in temperature on the inner surface of the building and the water vapour condensation on the surface of thermal bridges-the mould and mildew control points.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* moist air transfer?  <b>Tip:</b> Consider the envelope permeability and the ability of materials to withstand, without deterioration, periods of freezing and thawing.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* air flow?  <b>Tip:</b> Consider the air pressure differences and air-leakage characteristics of the envelope.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* heat transfer?  <b>Tip:</b> Assess the thermal resistance and quantity of heat transferred through of the envelope.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Are there energy-efficient windows and doors?  <b>Tip:</b> Energy-efficient windows consist of, at minimum, double-glazed, low - e windowpanes with frames spacers that have high thermal integrity. High performance weatherstripping on doors and windows also increases their thermal performance.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Does the building have appropriate shading or reflective film installed to reduce the cooling load?  <b>Tip:</b> 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.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Has the building envelope been air-sealed in the following areas:  <b>Tip:</b> 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 draft and cold and those in upper levels complain of over-heating.</p>	
<p>* The top part of the building?  <b>Tip:</b> Exterior openings and roof-to-wall connections of mechanical penthouse and floors in the upper part of the building.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* The bottom part of the building?  <b>Tip:</b> 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.</p>	<input type="radio"/> Yes <input type="radio"/> No

\* Vertical shafts and elevators?

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

Yes  No

Does the insulation of the walls comply with the recommendation of the building condition report?

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 "not applicable".

Yes  No  
 N/A

Does the insulation of the roof comply with the recommendation of the building condition report?

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 "not applicable".

Yes  No  
 N/A

## Energy Policy

Is there an energy policy endorsed by senior management?

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.

Yes  
\* there is a formal energy management policy  
 No  
\* there is no energy management policy  
 Other  
\* there is no formal (documented) energy management policy, but management operates with a view to avoiding excessive energy use

## Energy Audit

Has the building had an energy audit within the past three years that included recommendations with costs, savings and a payback period?

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

Yes  No

Which of the following systems were audited:

Tip: If no audit was done, mark "no" or "n/a".

\* lighting system?

Yes  No

\* heating plant?

Yes  No

\* cooling plant?

Yes  No  N/A

\* domestic hot water system?

Yes  No

\* HVAC distribution system?

Yes  No  N/A

\* major equipment?

Yes  No

\* appliances?

Yes  No

\* building envelope?

Yes  No

\* solar and renewable resource potential?

Yes  No  N/A

## Energy Management, Monitoring and Targeting

Is there a energy management (reduction) plan to address issues raised in the energy audit?

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

Yes  No

Is energy use being monitored?

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.

Yes  No

Are energy usage targets set?

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

Yes  No

Is there evidence of movement towards these energy targets over time?

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

Yes  No

Have steps been taken to analyze and reduce peak energy demand?

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 a weekend-day for each season. Finding measures to flatten the load profile makes the facility more attractive to power vendors.

Yes  No

## Energy Training

Is the building staff, including new employees, sufficiently trained to design and implement an energy efficiency improvement program?

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

Yes  No

<b>building's operations.</b>	
<b>Financial Resources</b>	
Are there financial resources to improve the energy efficiency of the building or is the building participating in a program for energy efficiency upgrades? Tip: This could be an energy efficiency improvement budget or participation in a program that provides financial assistance for energy upgrades.	<input type="radio"/> Yes <input type="radio"/> No
<b>Sub-metering</b>	
Does the building have tenants' sub-metering? Tip: Submetering not only encourages energy conservation by tenants; it also enables the owner to charge them fairly. If there is only one tenant, mark "not applicable".	<input type="radio"/> 50 - 100% <input type="radio"/> 25 - 49% <input type="radio"/> 1 - 24% <input type="radio"/> None <input type="radio"/> N/A
Does the building have sub-metering of major energy uses (e.g. lighting, hot water, motors etc.)? Tip: This is critical to managing energy for it makes it possible to establish the building-load profile and demand structure.	<input type="radio"/> Yes <input type="radio"/> No
<b>Operating Manual</b>	
Is there a readily available operating manual covering standard control settings and operating instructions for all services equipment that may affect the energy consumption? 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.	<input type="radio"/> Yes <input type="radio"/> No
<b>Maintenance Schedules</b>	
Does the regular mechanical systems maintenance schedule include: Tip: The maintenance schedules should be documented and records maintained.	
• measurement of boiler efficiency? Tip: If there are no boilers, mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• checks on the correct operation of ventilation and cooling controls? Tip: If there is no HVAC, mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• checking of temperature, humidity and fresh air controls to ensure they are set correctly and are responding as intended?	<input type="radio"/> Yes <input type="radio"/> No
• identification and investigation of all occurrences of excess energy use?	<input type="radio"/> Yes <input type="radio"/> No
• checking of air supply grilles to ensure they are not blocked and are delivering fresh air as required?	<input type="radio"/> Yes <input type="radio"/> No
• checks for refrigerant leaks? Tip: If there is no central cooling plant, mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• checks on air-handling units, cooling towers and boilers? Tip: If there is no air handling unit, mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• replacement of filters? Tip: If there is no air handling unit, mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• cleaning and sterilizing of wet regions in the air conditioning system and checking for accumulation of dirt? Tip: If there is no air handling unit, mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Is there a preventive maintenance program for building systems, which takes into account their lifecycle? Tip: Preventive 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.	<input type="radio"/> Yes <input type="radio"/> No
<b>Public Transportation</b>	
Does the building have access to public transport within 0.3 miles? 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.	<input type="radio"/> Yes <input type="radio"/> No
Is there service at least every 15 minutes during rush hour? Tip: Commuters expect public transport service at least every 15 minutes during rush-hour periods.	<input type="radio"/> Yes <input type="radio"/> No
<b>Cycling Facilities</b>	
Are there bike racks sheltered from rain? Tip: Providing bicycle facilities for min 5% of occupants at destinations encourages cycling to work.	<input type="radio"/> Yes



No

Are there changing facilities and showers for staff?

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 5% of occupants.

Yes

No

Other Measures

Are there other measures to reduce car dependency (e.g. car-pooling, purchase of transit passes)?

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

Yes

No

Describe:

# WATER

## Water Consumption

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

Month  Year

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.

What was the building's total water bill for the 12 month period specified?

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

\$

What was the total water consumption, in total or by month, for the 12 month period specified?

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

Water month 1:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 2:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 3:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 4:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 5:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 6:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 7:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 8:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 9:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 10:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 11:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>
Water month 12:	cu. ft. <input type="text"/>	Cost \$ <input type="text"/>

## Water Conserving Features

Are there the following water-conserving fixtures:

- \* low flow toilets that use less than 1.5 GPF?  Yes  No
- \* ultra low flush urinals that use less than 1.0 GPF?  Yes  No
- \* automatic valve controls and/or proximity detectors?  Yes  No
- \* low flow or laminar flow faucets (2.2 GPM)?  Yes  No
- \* other water-saving features?  Yes  No

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

Describe:

Does the landscaping minimize the need for irrigation?  
 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 "not applicable".

Yes  No  N/A

Are other sources of water used for irrigation such as:

\* Rainwater?

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 "not applicable".

Yes  No  N/A

\* Graywater?

Tip: Gray water 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 "not applicable".

Yes  No  N/A

Does the building use once-through water-cooled units?

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

Yes  No

### Water Management

Is there a written policy intended to minimize water use, and encourage water conservation?

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.

Yes  No

Is water consumption being monitored?

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

Yes  No

Has a water audit been done within the last three years?

Tip: The water audit report must include:

- | Water billing analysis with benchmarking observations
- | A summary of major water-consuming systems in the buildings
- | A list of potential water conservation opportunities based on walk-through audit of the facility

Yes  No

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

Are there water-reduction targets?

Tip: Water targets should be established in gallons/ft<sup>2</sup>, or as a percentage reduction in gallons/person.

Yes  No

Are there regular procedures for checking and fixing leaks?

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 early in the morning.

Yes  No

## RESOURCES

### Facilities for Storing and Handling Recyclable Materials

Are there separate storage/handling facilities for used paper products, glass, metal and plastic?

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

Yes  
 No

Are there collection points for sorting paper, glass, metal and plastic near the areas where waste is generated?

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

Yes  
 No

Is there a composting program in place?

Tip: Composting may be done on-site or at a special centralized facility.

Yes  
 No

### Waste Reduction Workplan

Has a waste audit been done within the last three years?

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.

Yes  
 No

<p>Is regular monitoring of waste conducted?  <b>Tip:</b> This is done by recording the weight or volume of garbage that is leaving the building.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>What is the current diversion rate?  <b>Tip:</b> Diversion rate is used by commercial contractors to report the rate at which non-hazardous solid waste is diverted from entering a disposal facility.</p>	<input type="radio"/> >85% <input type="radio"/> >75% <input type="radio"/> >50% <input type="radio"/> Unknown
<p>Are there waste-reduction targets?  <b>Tip:</b> 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).</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Is there a construction, renovation and demolition waste management policy?  <b>Tip:</b> 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 minimal 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.</p>	<input type="radio"/> Yes <input type="radio"/> No

### Site Pollution

<p>Is the building site free of contamination?</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
<p>If the site is known to be free of contamination, which of the following is this based on:  <b>Tip:</b> There should be evidence that the site is free of contamination; or that it has been remediated to an acceptable level.</p>	
<p>* Document Search?  <b>Tip:</b> 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).</p>	
<p>* Phase 1 Environmental Assessment?  <b>Tip:</b> A Phase 1 Environmental Site Assessment has been conducted that proves the site to be free of contamination.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Confirmation Phase 2 clean site or Phase 3 Clean Up Report?  <b>Tip:</b> The site was once contaminated, but has been remediated to an acceptable level, as indicated by a Phase 3 Cleanup Report.</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>If the site is known to be contaminated are efforts being made to clean it up?  <b>Tip:</b> If the site is known to be uncontaminated, mark "not applicable".</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A

### Site Enhancement

<p>Are there indications that the site has been enhanced, such as an increase of indigenous species, the re-establishment of vegetation corridors or the implementation of erosion-control measures?  <b>Tip:</b> 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 area, mark this "not applicable".</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
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## EMISSIONS, EFFLUENTS AND POLLUTION CONTROLS

### Boiler Emissions

<p>What percentage of the building's boilers have low NOx emission rates?  <b>Tip:</b> 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 "not applicable".</p>	<input type="radio"/> None <input type="radio"/> 25% <input type="radio"/> 50% <input type="radio"/> 75% <input type="radio"/> 100% <input type="radio"/> N/A
<p>Are records kept of cleaning of burners, monitoring of controls, and analysis of flue gas?  <b>Tip:</b> The maintenance should take place once or twice per year. If there are no boilers, mark "not applicable".</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A

### Refrigerants

Select applicable  
 R11  
**Tip:** R11 (CFC 11), ODP = 1.0, GWP =

1500

R12

Tip: R12 (CFC 12), ODP = 1.0, GWP = 4500

R22

Tip: R22 (HCFC22), ODP = 0.05, GWP = 510

HCFC123

Tip: HCFC123, ODP = 0.014, GWP = 29

HFC134

Tip: HFC134, ODP = 0, GWP = 420

Other

Tip: Other refrigerants with an ODP of 0

N/A

Tip: The building does not use any refrigerants

What type of refrigerant is used for most of the cooling in the building chiller system?

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 "not applicable".

Are there automatic refrigerant leak detectors?

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 "not applicable".

Yes  No  
 N/A

Is the system capable of pumping down all the refrigerant into a suitable container?

Tip: Recovery can be to a system receiver or to a certified recycling or recovery machine. Refrigerant recovery should take place prior to opening equipment for maintenance, service, repair or disposal. It should be done according to procedures set out in the Air-Conditioning and Refrigeration Institute (ARI) Standard 740, "Refrigerant Recovery/Recycling Equipment". If there are no ODS, mark "not applicable".

Yes  No  
 N/A

### Management of Ozone Depleting Refrigerants

Does the management program for ODS include:

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

\* inventory of refrigerants and records?

Yes  No  
 N/A

\* maintenance reports, loss reports, and leak test results?

Yes  No  
 N/A

\* operational staff training?

Yes  No  
 N/A

\* periodic leak testing?

Yes  No  
 N/A

Is there a phase-out plan for ozone-depleting refrigerants?

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

Yes  No  
 N/A

Is there a maintenance contract for the cooling system with a certified contractor?

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

Yes  No  
 N/A

### Halons

Are there halon fire-protection systems in the building?

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.

Yes  No

### Waste Water Effluents

Are floor drains protected in areas where chemicals are stored?

Tip: At a minimum, there should be containment of chemicals used in building operations, such as oils, solvents, rust

Yes  No

inhibitors, biocides and pesticides. This can consist of plastic trays to store the materials.

Are roof drains connected to sanitary or combined sewers? Tip: Disconnecting roof drains from sanitary or combined sewers avoids unnecessarily loading the community wastewater treatment facilities.	<input type="radio"/> Yes <input type="radio"/> No
Are storm management measures implemented to reduce water run-off from roofs and hard surfaces, such as parking areas? 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 "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Are there procedures in place to ensure that glycol discharges from the flushing of cooling coils are minimized or eliminated? Tip: Used glycol and water from cooling towers should be tested to ensure that they meet local sewer-use by-laws before being discharged into the drain system. Ethylene glycol, used as an anti-corrosion agent, and freezing point depressant in air conditioning systems, is toxic to humans and animals. Mark "not applicable" only if glycol is not being used.	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A

### Asbestos

Is the building was completed at a time when asbestos was used in construction (up to 1975), is there an up-to-date inventory based on an asbestos survey, that includes records of locations and the condition of all asbestos? Tip: If there is no asbestos in the building mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Is there any friable asbestos in the building that has not been encapsulated (i.e. Is there any possibility that asbestos fibers could become air-borne)? 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 "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Is there a documented asbestos management plan that includes precautions to be taken during repairs and renovations? Tip: If the building was completed after 1981, mark "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A

### Radon

Is the building located outside a high risk area or has a radon survey been done which indicates levels below 4 pCi/L? 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.	<input type="radio"/> Yes <input type="radio"/> No
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### PCBs

Are there any PCBs present in the building? 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 1980 mark, "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Is there a PCB management plan that 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? Tip: If there are no PCBs mark "not applicable". Mark "yes" only if the plan contains <u>all</u> of the above elements.	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Are there procedures in place to ensure that any PCB containing materials are safely stored, regular inspection of storage sites is conducted by designated persons and spill response includes training for staff? Tip: If there are no PCBs mark "not applicable". Mark "yes" only if there are procedures for <u>all</u> of the above.	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A

### Storage Tanks

Are there any above-ground or under-ground storage tanks? Tip: Most tank systems are used for storing heating fuel, but they are also used to store fuel for electric generators and vehicles; solvents, lubricants and other petrochemicals; and other hazardous substances, such as corrosive or noxious chemicals.	<input type="radio"/> Yes <input type="radio"/> No
Is there a storage tank management plan, which ensures legal compliance and includes the following operation and maintenance procedures: Tip: Choose as many procedures as apply. If there are no storage tanks mark "not applicable".	
• tank system registration and annual reporting as required under US EPA Regulations? 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 "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• inventory control? Tip: Establishing an inventory of tank systems is the first step in preparing tank management plan.	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• tank upgrading and replacement schedule? Tip: The components that are subject to upgrade are leak detection, secondary containment, corrosion protection, overflow protection and spill containment. Mark "non-applicable" if the tanks were already replaced or upgraded.	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
• system testing?	<input type="radio"/> Yes <input type="radio"/> No

- Tip: Tank systems can be tested for leaks as part of the tank management plan.  N/A
- filling, transferring operations and spill protection?  
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.  Yes  No  
 N/A
  - emergency preparedness?  
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.  Yes  No  
 N/A
  - record keeping?  
Tip: All inspections and maintenance, alterations and upgrading should be documented.  Yes  No  
 N/A
  - tank closure, abandonment or removal?  
Tip: A storage tank system must be properly decommissioned when replaced or taken out of service.  Yes  No  
 N/A

### Drinking Water (lead and bacteria)

- Is the drinking water safe?  
Tip: There should be evidence of test results for lead and other contaminants, including bacteria. If necessary, bottled drinking water should be provided.  Yes  No

### HCS Program

- Are MSDSs, spill clean-up kits, and safety equipment such as eye-wash stations located in an accessible place near the chemical storage areas?  
Tip: Material Safety Data Sheets (MSDS) contain information about the properties and safe handling of each hazardous product.  Yes  No
- Are the MSDSs less than 3 years old?  
Tip: Data sheets should not be more than 3 years old.  Yes  No
- Are HCS labels present on regulated products?  
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.  Yes  No

### Health & Safety and Management of Hazardous Products

- Are chemicals and hazardous materials stored under appropriate conditions in secure locations?  
Tip: Chemicals used in buildings that are classified as hazardous include oils, biocides, solvents, insecticides, pesticides and herbicides. They should be stored in rooms with proper ventilation, controlled temperatures, drain protection and adequate shelf space. Containers should be capped to avoid possible spills and fumes, properly labeled and kept in securely locked areas.  Yes  No
- Is education and training provided for the person responsible for the management of chemicals and for staff who may be required to work with them?  
Tip: HCS/WHMIS education refers to the instruction of workers in general information as how HCS works and the hazards of certain chemicals, where as training refers to the instruction in site-specific information such as work and emergency procedures.  Yes  No
- Is there a designated person responsible for managing hazardous materials?  
Tip: The designated person should be responsible for: (1) advising workers of potential and actual hazards (2) ensuring that workers use prescribed protective equipment devices, and (3) taking every reasonable precaution for the protection of workers.  Yes  No
- Are there inventory and records of the hazardous materials/waste, including their removal and disposal?  
Tip: The inventory must identify the hazardous waste streams, the operations in the building that produce them, how and where the hazardous waste is handled and stored, and who is responsible for it. The records should show that the organization tracks the hazardous waste from the facility through a provincially licensed or certified carrier to a waste disposal facility that is also licensed or certified by the province to accept hazardous waste.  Yes  No
- Is there a Health and Safety Committee that meets regularly and carries out regular inspections of the property?  
Tip: Inspections should cover ventilation, spill containment and clean-up provisions as well as compatibility of the hazardous materials that are being stored together, and security of access. The committee should include representatives from the tenants as well as management and should meet on a regular basis to deal with health and safety issues. If a Health and Safety Committee is not required by regulation (i.e. if there are fewer than 20 people), mark as "not applicable".  Yes  No  
 N/A

### Pesticides

- Are there suitable measures to ensure that food or food waste is well contained and that there are no unprotected openings, to minimize access by rodents?  
Tip: One way to minimize pesticides usage indoors is through the planned elimination of sources of food and pest habitats.  Yes  No
- Do landscaping practices minimize the use of pesticides, herbicides, fertilizer and petroleum-based products?  
Tip: Pesticide refers to insecticides, herbicides, fungicides, rodenticides, disinfectants, anti-foulants and plant growth  Yes  No



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".	<input type="radio"/> N/A
Do pest control contracts require that the staff be licensed and use integrated pesticide management methods? Tip: The contract should require that records be 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 applications in locations that they use. If there is no landscaping, mark as "not applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A

## INDOOR ENVIRONMENT

Ventilation System	
Are air intakes located far from sources of pollution such as parking areas, bus stops, cooling towers or stagnant water? 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 pollution.	<input type="radio"/> Yes <input type="radio"/> No
Are air intakes located at least 30 ft. away from building exhaust outlets? 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.	<input type="radio"/> Yes <input type="radio"/> No
Are outdoor air intakes checked regularly to ensure that the openings are protected and free from obstruction? Tip: Check that the grilles on the fresh-air supply inlets are free from obstruction by leaves, snow, insects and pigeon droppings.	<input type="radio"/> Yes <input type="radio"/> No
Is there free-standing water which cannot drain away in the condensate drip trays? 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 "non-applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Are there signs of corrosion, loose material (such as damaged filter bags) or sound attenuation material in the air-handling unit (AHU)? 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 "non-applicable".	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
Are measured CO <sub>2</sub> levels less than 850 ppm (assuming outdoor levels 400 ppm)? Tip: Measure CO <sub>2</sub> concentration using a Draeger pump or CO <sub>2</sub> data logger. Be sure to take enough readings to establish a representative profile for a wide range of spaces in the building.	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Is there permanent carbon dioxide monitoring or are there sensors to maintain pre-set levels of carbon dioxide? Tip: Monitoring should be located in areas with high occupant densities and at the ends of the longest runs of the distribution ductwork. CO <sub>2</sub> 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.	<input type="radio"/> Yes <input type="radio"/> No
Do the occupants have personal control over the ventilation rates in the area in which they work, either through hybrid system (operable windows) or personalized HVAC controls? Tip: Personal controls refer to 4-6 workstations or less.	<input type="radio"/> Yes <input type="radio"/> No
Filtration System	
Are filters able to remove particles from incoming air (Efficiency Grade between 60% and 85% Dust Spot or a Minimum Efficiency Reporting Value (MERV) of 8)? Tip: The efficiency of filters is usually indicated on filter packages.	<input type="radio"/> Yes <input type="radio"/> No
Are manometers fitted to indicate when filters should be changed? Tip: A manometer, which measures the pressure drop across the filters, indicates when these need cleaning or replacing. Manometers connected to BAS give even better warning.	<input type="radio"/> Yes <input type="radio"/> No
Is there easy access for cleaning and inspecting filters? Tip: Easy access makes it easier to visually check whether air is bypassing the filters and to determine whether they are properly installed.	<input type="radio"/> Yes <input type="radio"/> No
Do the filters fit snugly within the filter supports? Tip: Verify that there is a snug fit, that the filters are the right size and that they are installed in the correct direction.	<input type="radio"/> Yes <input type="radio"/> No
Humidification System	
What type of humidification system does the building use? 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 "not applicable".	<input type="radio"/> Steam <input type="radio"/> Spray <input type="radio"/> N/A
If steam humidification is used, is clean steam rather than treated boiler water utilized?	<input type="radio"/> Yes

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 "not applicable".

No  
 N/A

If spray humidification is used, is the system rigorously maintained and free of rust, algae, or loose contaminants of any kind?  
Tip: Verify that there are **documented** maintenance procedures and records. If no spray humidification is used, mark "not applicable".

Yes  
 No  
 N/A

### Cooling Towers

Are the cooling towers located away from fresh air intakes and flue outlets?

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

Yes  
 No  
 N/A

Are there drift eliminators?

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 "not applicable".

Yes  
 No  
 N/A

Is there a program of regular maintenance and cleaning of the cooling towers that includes monthly inspection for evidence of mold or slime?

Tip: There should be at least monthly inspections of cooling towers that include checking for evidence of slime or mould (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 "not applicable".

Yes  
 No  
 N/A

### Parking and Receiving

Are enclosed parking areas mechanically ventilated?

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 or partially open garages, which are typically above-grade, may not need mechanical ventilation. If there are no enclosed parking areas, mark "not applicable".

Yes  
 No  
 N/A

Are there measures to prevent intake of exhaust fumes from the loading dock and parking areas?

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 is no loading dock nor parking areas, mark "not applicable".

Yes  
 No  
 N/A

Is there carbon monoxide monitoring in garages and near boilers?

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

Yes  
 No  
 N/A

### Control of Pollutants at Source

Have there been observations or complaints of any of the following symptoms of mold or excess moisture:

Tip: Check for visual or odour 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.

\* Stained ceilings or walls?

Yes  
 No

\* Musty odors?

Yes  
 No

\* Damp or musty carpets?

Yes  
 No

Do large printing rooms, cafeteria, kitchens, chemical storage and washrooms have effective local exhaust?

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. Test the exhaust effectiveness with chemical smoke or light tissue paper.

Yes  
 No

Are there documented measures to control pollutants at source in areas such as washrooms, kitchens, printing areas, chemical storage and general storage areas?

Tip: Measures to reduce pollution at source should be documented and maintenance records kept, otherwise they may be implemented in a haphazard fashion. For example, in washrooms that are not frequently used, toilets should be flushed 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.

Yes  
 No

Does the contract with the cleaning contractors specifically state that they are to use environmentally preferable cleaning materials?

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.

Yes  
 No



<p>Is smoking permitted in the building?  <b>Tip: Banning smoking is the most effective way to avoid environmental tobacco smoke - a source of irritation and a known carcinogen.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>If smoking is permitted, is there a designated smoking area that will prevent contamination of smoke to the rest of the building?  <b>Tip: A smoking room should be maintained under negative pressure, with a dedicated exhaust system.</b></p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
<p>Is there a checklist of items connected to IAQ that must be discussed with architects, engineers, contractors, and other professionals prior to renovations and repairs?  <b>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 dust and hazardous materials.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<b>IAQ Management</b>	
<p>Does building management have in place a documented means for addressing tenants/occupant concerns regarding indoor air quality (such as a complaint form and incident log)?  <b>Tip: Building management must have in place a documented means for addressing tenants/occupant concerns regarding indoor air quality.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Has the building had an IAQ audit in the past year?  <b>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 of the factors that could influence the building's IAQ.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Are there procedures for maintaining good IAQ that include:  <b>Tip: Building management must have heating, ventilation and air conditioning (HVAC) procedures and a preventive maintenance program in place.</b></p>	
<p>* HVAC operations?  <b>Tip: There should be daily, weekly and monthly schedules.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Housekeeping procedures?  <b>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.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Preventive maintenance?  <b>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 of air handling units, fan motors and belts, air humidification, controls and cooling towers.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Procedures for unscheduled maintenance?  <b>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.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Is building management sufficiently trained to implement an IAQ program to address tenant concerns?  <b>Tip: The training should be adequate to enable staff to identify, prevent, and solve IAQ problems.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Are the following being monitored continuously:  <b>Tip: The building should conform to ASHRAE 55-2004 for thermal comfort.</b></p>	
<p>* Temperature?</p>	<input type="radio"/> Yes <input type="radio"/> No
<p>* Humidity?</p>	<input type="radio"/> Yes <input type="radio"/> No
<b>Lighting Features</b>	
<p>Are high frequency ballasts fitted to luminaires?  <b>Tip: Electronic ballasts help prevent eyestrain and headaches which are often associated with the flicker produced by standard magnetic ballasts. In addition they can result in 10 to 15% energy reduction compared to conventional ballasts.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Are there controllable internal or external blinds and do light fixtures prevent glare at Visual Display Terminals?  <b>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.</b></p>	<input type="radio"/> Yes <input type="radio"/> No
<p>Do lighting levels meet IES guidelines of 50-75 footcandles (500-800 lux) for office space?  <b>Tip: To measure lighting levels, use an illuminance light meter. General (ambient) lighting - the most common type of office lighting - can be provided by indirect lighting from the luminaires that bounces off the ceiling or walls, direct lighting that shines directly from the luminaire to the task, or a combination of both. Lower lighting levels with no glare are often better to view the computer screens.</b></p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
<p>Is individually controlled task lighting provided?  <b>Tip: This is lighting which shines directly from the luminaire to the task. It includes desk and table lights.</b></p>	<input type="radio"/> Yes <input type="radio"/> No

Does the floor plan of the building potentially allow for 80% of a typical working area to have access to day-lighting or are approximately 40% of workstations within 22 ft. from the windows?  Yes  No  
Tip: Although tenants may erect barriers that prevent daylight from penetrating in the area, consider whether the building plan could allow easy access to daylight.

Are there good lighting controls (One control for no more than 4 workstations)?  Yes  No  
Tip: Each control should be for no more than four workstations, assuming 70 ft<sup>2</sup> per workspace.

#### Lighting Management

Is there a planned schedule of cleaning light fixtures?  Yes  No  
Tip: Cleaning luminaires can increase light output and quality, resulting in the need for fewer lamps and significant energy savings over the life of the facility. Recommended cleaning intervals for luminaires in offices are one or two times a year.

Is there a group-relamping program?  Yes  No  
Tip: Lamps that are changed before they burn out produce greater light output, resulting in better quality light, the need for fewer lamps and corresponding energy savings.

#### Noise

Is it easy, in open office areas, to engage in a conversation using a normal voice, understand a phone conversation, and have a private conversation using lowered voices?  Yes  No  
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.

Is there sufficient acoustic privacy?  Yes  No  
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.

## ENVIRONMENTAL MANAGEMENT SYSTEM

#### Environmental Management System (EMS) Documentation

Does building management have a written environmental policy?  Yes  No  
Tip: The 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 senior management.

Are there stated goals and targets documented in the policy manual with respect to each of the following?  
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.

<input type="checkbox"/>	Energy conservation?
<input type="checkbox"/>	Water conservation?
<input type="checkbox"/>	Waste reduction and recycling?
<input type="checkbox"/>	Environmental purchasing?
<input type="checkbox"/>	Reduction in use and proper handling of hazardous products?
<input type="checkbox"/>	Training and education?

Are there action plans to improve the environmental and energy performance of the building?  Yes  No  
Tip: The action plans should outline implementation strategies, timelines, training and resources needed to achieve stated targets. They should be reviewed, revised and updated on a regular, scheduled basis.

#### Environmental Purchasing

Does building management have a written environmental-purchasing plan?  Yes  No  
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.

Is there a list of preferred products used in housekeeping and building maintenance?  Yes  No  
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.

Does the purchasing policy include the requirement for purchasing energy saving equipment?  Yes  No  
Tip: The policy should include the requirement that any purchases of appliances and HVAC should involve consulting EnergyStar.

Are MSDSs reviewed by staff who purchase hazardous products?  Yes  No  
Tip: Those responsible for purchasing should ensure that up-to-date Material Safety Data Sheets (MSDS) for controlled products are reviewed and are available to employees. They should not be dated more than 3 years previous to the receiving date.

### Emergency Response

Are procedures documented and staff trained to deal with and obtain prompt assistance for emergencies such as fire, spills, power failures and illness?  Yes  No

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.

Do the emergency plans refer to all applicable legislation regarding emergency procedures, reporting and record-keeping?  Yes  No

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.

Is there equipment on-site to deal with environmental emergencies?  Yes  No  
Tip: The environmental emergency response plan should require that equipment such as spill control kits, absorbents, and personal protection equipment be on-site for quick and easy access.

Are there contingency plans for both short-term and long-term power failures?  Yes  No  
Tip: Planning for power failures should address the following elements: communication to tenants; security; provision of emergency power and water; and, if necessary, evacuation.

Is there a site map showing the location of environmentally significant features?  Yes  No  
Tip: Site plans should identify environmentally significant features such as hazardous waste storage rooms, PCB-containing equipment, sanitary and storm sewer lines, CFC equipment, storage tanks as well as emergency equipment.

### Tenant Awareness

Is there a communications strategy with tenants regarding environmental initiatives and practices in their building and to respond to tenant concerns?  Yes  No

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.

Are there communications to tenants on the environmental measures that they can implement in the building to contribute to:

\* Energy conservation?  Yes  No  
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).

\* Waste reduction and recycling?  Yes  No  
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.

\* Proper handling, storage and disposal of toxic products?  Yes  No  
Tip: This can include newsletters, postings on bulletin boards, signage, memos or participation in events that promote responsible environmental stewardship.

Has a tenant satisfaction survey been completed in the last 3 years?  Yes  No  
Tip: Tenant satisfaction survey enables property managers to prioritise efforts and maximise the performance of their assets.

If you need assistance, please contact Customer Service: 1-503-274-0448 | [info@thegbi.org](mailto:info@thegbi.org)