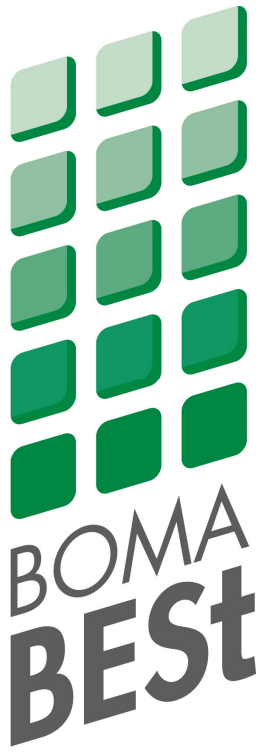


Building Environmental Standards



Guide to the Best Practices

June 2009

Revision 1.0

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Introduction

All buildings certified to any level of BOMA BEST must meet the Best Practices. The Best Practices questions come up first in online version of the questionnaire, and then are highlighted throughout the full length questionnaire.

The purpose of this guide is to identify the Best Practices, and to provide additional guidance as to what BOMA's third-party verifiers expect to see during the on-site verification. The format of this guide first lays out the best practices in the format that they appear in the online questionnaire. There is a question and a pop-up tip provided for each best practice throughout the online BOMA BEST assessment. The *Guidelines* section provides additional information to more clearly identify the expectations. In some cases, examples are also provided.

BOMA BEST – The Best Practices

1. Energy	
1A	<p>Has the building had an energy audit within the past three years that included recommendations with costs, savings and a payback period?</p> <p><i>Buildings must have an energy audit or an acceptable equivalent. See guidelines for further details.</i></p> <p><i>The energy audit or acceptable equivalent must be available for review.</i></p>
1B	<p>Is there a written energy management (reduction) plan to address issues raised in the energy audit?</p> <p><i>An energy management plan must be documented to demonstrate that management will be addressing energy issues in an effort to conserve energy.</i></p> <p><i>The plan must be available for review.</i></p>
1C	<p>Is there a preventative maintenance program for HVAC (heating, ventilating, air conditioning)?</p> <p><i>A preventative maintenance program must be in place and documented.</i></p> <p><i>Maintenance records and schedules must be available for review.</i></p>
2. Water	
2A	<p>Is there a written policy intended to minimize water use, and encourage water conservation?</p> <p><i>The policy must be documented and communicated throughout the organization.</i></p> <p><i>The policy must be available for review, and management must be able to demonstrate how the policy is communicated and used.</i></p>
2B	<p>Has a water audit been done within the last three years?</p> <p><i>The building must have a water audit.</i></p> <p><i>The water audit must be available for review.</i></p>
3. Waste Reduction	

3A	<p>Is there a recycling program that incorporates the recycling of office paper, newspaper, cardboard, bottles, plastic and cans, for tenants, shoppers and operations at the site, to the extent that local infrastructure is available to accommodate these materials?</p> <p><i>A recycling program must be available and visible at the building.</i></p> <p><i>The applicant's organization should provide its waste reduction plan and disposal/recycling rates, including a list of materials collected for reuse or recycling and contacts for associated contractors and organization.</i></p>
3B	<p>Is there a written policy intended to minimize construction waste being sent to landfill?</p> <p><i>A written policy must be in place, and available for review by BOMA.</i></p> <p><i>A sample specification must also be available for review.</i></p>
4. Emissions and Effluents	
4A	<p>Is there a documented management plan for Ozone Depleting Substances that includes:</p> <ul style="list-style-type: none"> • inventory of refrigerants and records • maintenance reports, loss reports, and leak test results • operational staff training • periodic leak testing? <p><i>The management plan for ODS must include all of the above and be available for review.</i></p>
4B	<p>Is there a phase-out plan for ozone-depleting refrigerants?</p> <p><i>The applicant's organization should have its ODS Reduction & Elimination Plan available for review.</i></p>
4C	<p>Has a hazardous building materials survey been completed and has an inventory of these materials been maintained?</p> <p><i>The applicant's organization should have its hazardous materials survey available for review.</i></p>
4D	<p>Is a hazardous products (hazardous chemicals) management plan in place?</p> <p><i>The applicant's organization should have its controlled products management plan available for review.</i></p>
5. Indoor Environment	
5A	<p>Does building management have in place a documented means for addressing tenant/occupant concerns regarding indoor air quality (such as a complaint form and incident log)?</p>
6. Environmental Management System	
6A	<p>Does building management have a written policy for the selection of building materials that attempts to reduce any potential negative impact on the environment?</p> <p><i>The applicant's organization should have its building materials policy available for review.</i></p>
6B	<p>Is there a well-understood system for communicating with tenants/occupants regarding environmental issues, initiatives and practices in their building?</p> <p><i>The applicant's organization should have evidence of past and current communication practices.</i></p>

Best Practices Guidelines

1 Energy

1A ENERGY AUDITS AND ACCEPTABLE EQUIVALENTS

The **energy audit** report must have the following information:

1. Owner/manager information
 - a. Building name and address
 - b. Date of energy study completion
2. Building description
3. Utility billing analysis with benchmarking observations (i.e., a comparison of building performance indices such as MJ/m²/yr or kWh/ft²/yr for each energy source).
4. Summary of major equipment and type of lighting systems in the building
5. List of potential energy conservation opportunities based on a walk-through audit of the facility.

The Energy Audit may be completed by 'in-house' technical staff provided the audit and report meets the minimum standard of practice (outlined above), or it can be performed by a third party consultant (i.e., professional engineer or other appropriate energy consultant).

Equivalencies are suitable for properties with any of the following three situations:

- I. Buildings less than three years old
- II. Over 75% of total energy consumption purchased directly by tenants
- III. Energy audit is less than 5 years old

I. Energy Study Report

Buildings that have been occupied for less than three years may utilize an energy study report that was prepared during the design of the building in lieu of a post-construction energy audit report. This report must have shown simulated energy consumption for different design scenarios, and identify which options were chosen for the actual construction. Applicants must be able to demonstrate that these energy-reduction features were incorporated in the building.

II. Energy Communications Plan

For buildings for which 75% or more of the building's energy is purchased directly by tenants (e.g. most light industrial buildings), applicants may prepare an energy communication plan in lieu of an energy audit report.

This communication plan must document means of encouraging energy conservation initiatives by tenants. For example, the plan could include:

- providing walk through energy audit services;
- delivery of “energy conservation tips” brochures to each tenant;
- energy conservation seminars for tenants
- “turn it off stickers
- Posters

The communication plan and evidence of implementation should be available for review. Evidence of implementation may include agendas and notes from any meetings, copies of marketing materials used, copies of communication between tenants and the landlord, copies of energy reviews or audits done of tenant spaces etc. This evidence can be provided in hard copy or electronic copy.

It is recommended that the landlord review their own energy use regularly, even if it is a small portion of the overall site energy usage, such as parking lot lighting. In addition, it is strongly encouraged that tenant energy use information be reviewed with the tenants to support them in energy conservation efforts.

III. Energy Update Report

For buildings which have had an energy audit report completed more than three years ago, but less than five years ago, an energy update report will be acceptable. This report must identify which conservation measures have been implemented since the time of the original report.

1B ENERGY MANAGEMENT PLAN

Management’s documented plan for implementing energy conservation strategies should take the general form illustrated in the table below. More detailed information is also encouraged.

Sample Energy Implementation Plan

No.	Proposed Energy Conservation Measure	Budget	Implement in Fiscal Year	Responsible Person
1				
2				

1C PREVENTATIVE MAINTENANCE PROGRAM

The preventative maintenance program should include both review and corrective actions, particularly those relating to indoor air quality, as follows:

1. Every Five Years:
 - a. Total quantity of outdoor air measured at minimum damper position, compared to total occupant requirements, based on published standards such as ASHRAE
2. Annually:
 - a. Outdoor air intakes – obstructions, bird droppings, standing water, proximity to cooling towers, trash compactors, exhausts and other pollutant sources
 - b. Minimum outdoor air damper setting
 - c. Coil drain pans – cleanliness, presence of microbial growth, proper draining
 - d. Minimum VAV box settings
 - e. Duct and terminal coil cleanliness
 - f. Duct insulation liner – cleanliness, adhesion, coating
 - g. Ceiling plenum cleanliness (if used as a return air plenum)
 - h. Controls – ensuring continuous fan operation during occupancy, and correct positioning of dampers and VAV box valves
 - i. Fire dampers – open
 - j. Boiler combustion air – clear; sized per code requirement
 - k. Cooling towers – water treatment functioning as intended
3. Semi-annually:
 - a. Floor and equipment drain traps – properly sealed
 - b. Air quality measurements in select occupied areas of the building
4. Quarterly:
 - a. Operation of outdoor damper actuators
5. Monthly:
 - a. Air filter loading
 - b. Standing water in air handling units (esp. cooling coils)
 - c. Air handling unit interior cleanliness

It is also suggested that HVAC systems be re-commissioned every five years.

2 Water

2A WATER POLICY

A water policy should express the commitments to reduction of demand for water and for the establishment of goals and strategies to reduce water consumption.

2B WATER AUDITS AND ACCEPTABLE EQUIVALENTS

The water audit report must have the following information:

- Owner/manager information
- Building name and address
- Date of water study completion
- Building description
- Water billing analysis with benchmarking observations
- Summary of major water-consuming systems in the building
- List of potential water conservation opportunities based on walk-through audit of facility

The Water Audit may be performed by a third party consultant (i.e., professional engineer or other appropriate water consultant) or completed by an 'in-house' technical staff provided the audit and report meets the minimum standard of practice. The water audit report may be incorporated into the energy audit report.

An audit should provide recommendations for maintenance procedures that may need to be revised, and identify water-using equipment that should be upgraded. It is suggested that cooling systems using domestic water be converted to use either ground or air heat dissipation for condensing circuits. Water meters should be installed for the building as a whole, as well as for tenants with large water consumption potential (e.g. restaurants).

Equivalencies are suitable for properties with any of the following three situations:

- I. Buildings less than three years old
- II. Over 75% of total water consumption purchased directly by tenants
- III. Water audit is less than 5 years old

I. Water Study Report

Buildings that have been occupied for less than three years may utilize a water study report that was prepared during the design of the building in lieu of a post-construction

water audit report. This report must have shown simulated water consumption for different design scenarios, and identify which options were chosen for the actual construction. Applicants must be able to demonstrate that these water reduction features were incorporated in the building.

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The communication plan and evidence of implementation should be available for review. Evidence of implementation may include agendas and notes from any meetings, copies of marketing materials used, copies of communication between tenants and the landlord, copies of water reviews or audits done of tenant spaces etc. This evidence can be provided in hard copy or electronic copy.

It is recommended that the landlord review their own water use regularly, even if it is a small portion of the overall site water usage, such as irrigation of a small land area. In addition, it is strongly encouraged that tenant water use information be reviewed with the tenants to support them in water conservation efforts.

III. Water Update Report

For buildings which have had a water audit report completed more than three years ago, but less than five years ago, a water update report will be acceptable. This report must identify which conservation measures have been implemented since the time of the original report.

3 Waste Reduction

3A RECYCLING PROGRAM

Program participants are encouraged to implement programs that reduce the volumes of waste generated through reduced consumption of packaging and non-durable goods, as well as the reuse of materials and products.

Recycling programs should strive to achieve high diversion rates of standard fibre and container streams, as well as target additional wastes such as toner cartridges, fluorescent lamps and electronic equipment. Composting of organic material, either on site or through an off-site contractor, should also be considered.

Equivalencies are suitable for the following situations:

- I. Tenants control waste management (e.g. light industrial, retail plazas)
- II. No facilities are available in the region for recycling.

I. **Confirm Tenant Recycling**

Where tenants are directly managing their own waste removal, as is often the case in light industrial and retail plazas, the property manager should confirm that the tenant is making a reasonable effort to recycle materials.

In the absence of tenant recycling, the property manager should make an effort to provide recycling facilities. For example, in retail plazas, each individual tenant may produce such a small volume of recyclables that it is not cost-effective for them to recycle by themselves. However, the property manager could provide a common recycling area for tenants as a value-added service. The property manager should be able to provide demonstrate that this is available or at a minimum, that efforts have been made to offer this service.

II. **Confirm the Lack of Facilities**

Where facilities and infrastructure is not available for recycling, the property manager should provide a letter from their local municipality, provincial government or other appropriate body confirming that no facilities are available.

3B CONSTRUCTION WASTE POLICY AND SAMPLE SPECIFICATION

The construction waste policy should clearly identify the commitment to reducing construction waste sent for disposal, and the applicant should be able to demonstrate how the policy is communicated to tenants and other appropriate stakeholders.

It is suggested that construction waste specifications address recycling of corrugated cardboard, metals, concrete block, clean dimensional wood, plastic, glass, gypsum board and carpet. The sample specification available for review could be documentation in a recent renovation contract that specifies which materials are expected to be diverted. Also, given that renovation is often for fit-outs of tenant space, materials should be specified in tenant design guidelines.

4 Emissions and Effluents

4A MANAGEMENT PLAN FOR OZONE DEPLETING SUBSTANCES

ODS includes CFCs, HCFCs, halons and others used in refrigerants, fire extinguishing systems and chemicals (sterilants and solvents) used at the property. A plan to use HCFCs such as refrigerant R-123 is acceptable under this program as an interim refrigerant until a viable substitute with zero ozone depletion potential becomes available.

Applicants may opt to implement the elements of their ODS management plan using in-house staff or using third-party contractors. Personnel performing any work related to ODS should be appropriately trained to manage the associated risks. Applicants should refer to the federal regulations with regards to phasing out of all ODS by 2030.

4B PHASE-OUT OF OZONE DEPLETING REFRIGERANTS

Federal regulations under CEPA will phase out CFCs completely in all refrigeration and chillers by 2030. Canada's Strategy to Accelerate the Phase-Out of CFC and Halon Uses and to Dispose of the Surplus Stocks (Phase-Out Strategy) is part of the on-going process to fulfill Canada's commitment to protect the earth's ozone layer.

Applicants should be able to demonstrate how they will phase out ozone depleting refrigerants in accordance with the federal Phase-Out Strategy.

4C HAZARDOUS BUILDING MATERIALS SURVEY

The hazardous building materials survey should indicate if asbestos-containing materials (eg: insulation coverings, putties and caulking, older equipment), polychlorinated biphenyls (PCBs) (eg: old fluorescent lighting ballasts), lead (eg: lead paint, batteries), mercury (eg: thermostats, lighting lamps) or pesticides are present in the facility.

A current inventory of hazardous material present at the facility should include both building-related hazardous materials and use-related products and chemicals.

4D HAZARDOUS PRODUCTS MANAGEMENT PLAN

A hazardous building materials plan should indicate how these materials are to be handled by workers and any plans for their removal and disposal.

A hazardous chemicals management plan should indicate how controlled products are received at the facility, how they are to be used (to limit exposure to building occupants and workers) and how they are to be disposed of. The management plan should also include Workplace Hazardous Materials Information System (WHMIS) sheets for all hazardous materials identified in the inventory.

5 Indoor Environment

5A INDOOR ENVIRONMENT

- Refer to occupational health and safety regulations that may be in effect in your jurisdiction.
- Tenant communications systems that would address indoor air quality among other potential issues are acceptable.
- It is suggested that the building manager develop standards and specifications for controlling indoor air quality during construction activities. Remedial procedures for water damage are also suggested to reduce the risk of moulds.
- Take an integrated approach to IAQ, and involve service technicians, building operators, consulting professionals and tenants.
- An indoor air quality survey (with measurements of key IAQ indicators) can be very helpful in documenting past conditions should complaints arise.
- Ensure diffusers and grilles are adequately distributing supply air.

6 Environmental Management System

6A POLICY ON SELECTION OF BUILDING MATERIALS

While building managers cannot dictate every element of tenant construction, they can take the lead in environmentally friendly construction practices in their common area renovation and construction projects.

- Consider the following criteria in materials selection...
- Required quantity. Certain products result in excessive scrap material because of sizing needs.
- Reused materials. Salvage durable products during demolition.
- Recycled content of (new) product.
- Ability to recycle product when no longer in use.
- Renewable materials.
- Life-cycle and maintenance requirements.
- Impact on local environment (eg: off gassing potential).

Applicants should be able to demonstrate that the policy is actually implemented and put into practice in projects.

6B TENANT COMMUNICATIONS

The key aspects of effective communication are frequency, accuracy, comprehensiveness and inclusiveness. To ensure building occupants work together with building owners to achieve environmental goals, there must be frequent communication. The more comprehensive the information provided, and the broader the audience included, the better the chance that change will occur.

Possible communication techniques include the following:

1. For initial environmental program development:
 - a) Management–Tenant task force
2. For initial program launch:
 - a) Announcement letter to each tenant
 - b) Tenant meetings
 - c) Education program, explaining the benefits for green operation to the occupants and the environment
3. For relaying management's activities and results:
 - a) Posted and/or distributed notices of audit results, new programs and policies
 - b) Electronic mail of the same
 - c) Building web site
4. For new tenants/occupants:
 - a) Modifications to lease agreement
 - b) Continuing education program
 - c) Tenant handbook