Alberta Infrastructure

Environmental Operations of Alberta Infrastructure Facilities

"The Green Guide"
Second Edition

April 2014

Mission Statement

The Green Guide will assist Alberta Infrastructure's Property Management team in establishing, unifying and maintaining efficient, environmentally friendly building operations within a diverse portfolio. It promotes proven initiatives and strategies that are to be implemented as appropriate, recognizing that Alberta Infrastructure espouses individual leadership, operational competency and social responsibility in building operations.

Recognizing the effect that building operations can have on sustainability, expenditures, environmental health & safety, Alberta Infrastructure has sought to recognize and strive towards implementing environmental best practices that exist within government and industry for commercial building operations.

Environmental Operations of Alberta Infrastructure Facilities establishes general policies and management plans to provide a framework for ecologically friendly building operation. Additionally, this document may define specific best practices for building operation and maintenance that are to be implemented to the extent that they are reasonable given local circumstances and constraints. The practices are to be used with discretion and may be implemented individually, in whole or in part, or combined with existing or new techniques.

The intention is that this document will act as a main reference for the operation of existing buildings while acting as a supplement to “Technical Design Requirements for Alberta Infrastructure Facilities” for the renovation or construction of new and existing buildings. The move to achieve a minimum LEED Silver classification on all new buildings over $2.5 million (Appendix A) provides the foundation upon which new buildings can operate in a sustainable manner.

While many of the strategies described within extend across the Properties Division, specific practices must be adapted on a site-by-site basis as circumstances dictate.

The format of this document closely follows the BOMA Building Environmental Standards program (BOMA BESt), which is comprised of the following six major categories:

1. Energy
2. Water
3. Waste Reduction & Site
4. Emissions & Effluents
5. Indoor Environment
6. Environment Management System

With this document as a foundation, Alberta Infrastructure will become a leader in establishing and maintaining environmentally friendly building operations within a diverse portfolio.

Input to the continual updating of this document is invited. Comments can be directed to:

Dustin Engel
Environmental/Energy Manager
Phone: (403) 592-4018
dustin.engel@gov.ab.ca

Justin Smale
Facilities Environmental/Energy Analyst
Phone: (403) 592-2996
justin.smale@gov.ab.ca

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Section 1.0 Energy Use

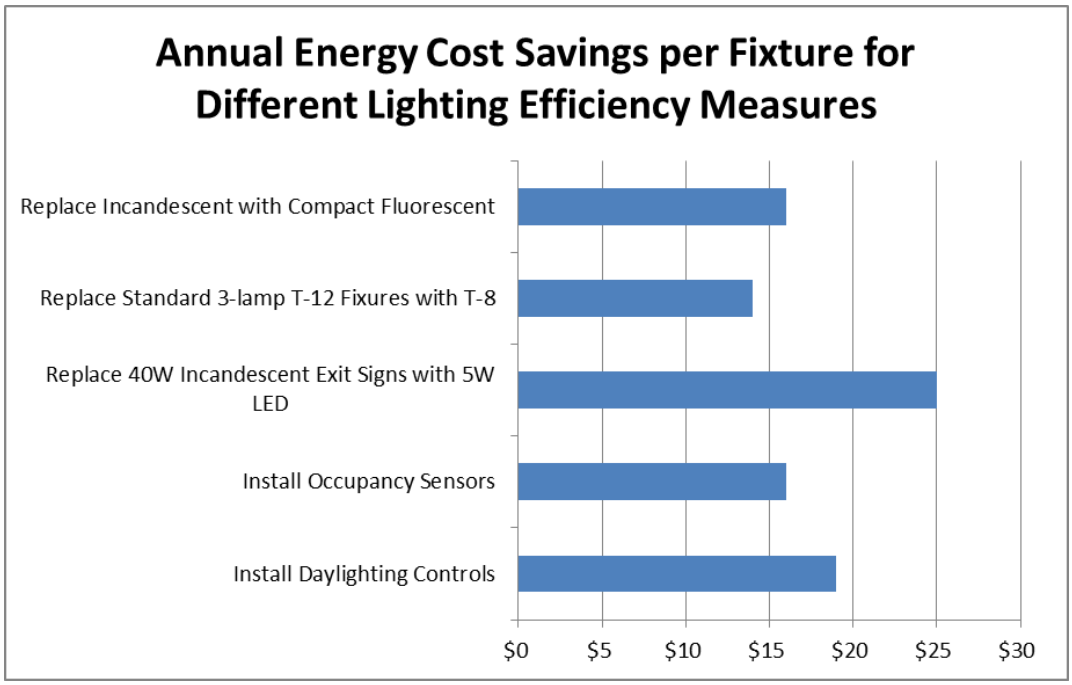
Energy Use Policy

Alberta Infrastructure is committed to reducing harmful emissions to the environment by promoting the use of renewable resources, seeking energy efficient equipment, educating users and managing utilities with the goal of reducing consumption.

Best Practices

1.1 Lighting

Lighting represents an estimated 12% of a commercial building's energy use. Examples of inexpensive lighting upgrades that have shorter payback periods are outlined in the table below:



*Source: Focus on the Electric Bill to Cut Business Expenses in 2011, The Private Business Owner

1.1.1 General Interior Building Areas (Office, Hallway, Lobby, Storage, Kitchen, Washrooms)

1. General open office area lighting should consist of high-efficiency lighting with a lighting level minimally required for the visual task. The required lighting level on desk surface is 500 lux. If required, remove lamps in the over-lit areas. See below for a comparison of lighting options:

Lamp Type	Lumens/Watt	Average Life (hrs)	Instant On	Wattage Range
Incandescent	7-20	750-1,000	Yes	25-200
Halogen	12-21	2,000-6,000	Yes	45-500
Mercury Vapour	26-39	24,000	No	50-1000
Compact Fluorescent	45-55	6,000-10,000	Yes*	14-29
Metal Halide	41-79	10,000-20,000	No	150-1000
Pulse Start Metal Halide	60-74	15,000-30,000	No	100-750
T-12 Fluorescent	62-80	9,000-12,000	Yes	30-75
T-12 High Output Fluorescent	30-70	9,000-12,000	Yes	25-110
T-8 High Output Fluorescent	81	18,000	Yes	86
High Pressure Sodium	66-97	24,000	No	35-1000
T-8 Fluorescent	76-100	15,000-20,000	Yes	25-59

*Requires warm-up to reach full output at cooler temperatures
*Source: University of Wisconsin Extension Factsheet

2. Low efficiency light fixtures should be replaced with fixtures that utilize the highest percentage of light that is cost efficient.

3. Lighting diffusers should be cleaned during bulb replacements to optimize operation.

4. Task lighting and track lighting should be minimized when overhead lighting is on, except in situations where general space lighting is not required. This is due to the fact that when operational, overhead lighting is generally more efficient.

5. Night lighting should be used to minimize the use of full lighting systems during non-operating hours. This practice reduces the number of banked lights turned on in a space at night by having the minimal amount of fixtures wired separately to always be on in order to allow meet safety standards.

6. Use of daylight should be maximized in all areas where it is available considering heating effects. The use of translucent shades for light diffusion and heat control is preferred to solid shading.

1.1.2 High Bay and Exterior Lighting (Warehouses, Shop Areas, Parking Lots, Pedways)

1. High bay lighting should consist of high-efficiency (T8 or T5) fluorescent tubes lowered to the minimally acceptable clearance for ease of light replacement.
2. Where fluorescent lighting is in hard to reach places, LED or Induction Lighting should be used to reduce need to replace bulbs due to the substantially longer bulb life.
3. Mercury vapor lights should not be used due to poor energy efficiency. Lower wattage metal halide lights should be replaced with LED or Induction lights.
4. Light pollution should be considered when replacing or redesigning outdoor lighting, with the aim of minimizing the area lit while not compromising safety (see www.darksky.org/index.php for more information).

1.1.3 Lighting Controls and Placement

1. Lights should be re-wired, particularly during renovations, into banks that correspond to location, activity type, and available daylight to reduce wasted light in unoccupied spaces.
2. Where possible, light banks should be independently controlled via switching systems that are programmable for changes in activity.
3. Where possible, lighting systems should incorporate daylight sensors and dimming technology that lower light output to the minimum level when daylight is available.
4. Photocells, if existent, should be cleaned on a regular basis to maintain optimal efficiency.
5. After hour workers should have the ability to light their immediate working area only, and if over-ride is provided, it should be limited to 2 hours.
6. Occupancy sensors and timers should be incorporated in all ‘high downtime’ areas that use fluorescent tubes such as washrooms, warehouses, shops, kitchens, printing/photocopy rooms, etc.
7. Exterior lighting should be controlled by photo sensors, time clocks, or Building Monitoring and Control Systems (BMCS) and be turned off whenever possible to reduce energy use and light pollution.

1.1.4 Fixtures and Ballasts

1. A lighting and fixture analysis should be performed before renovations with the goal

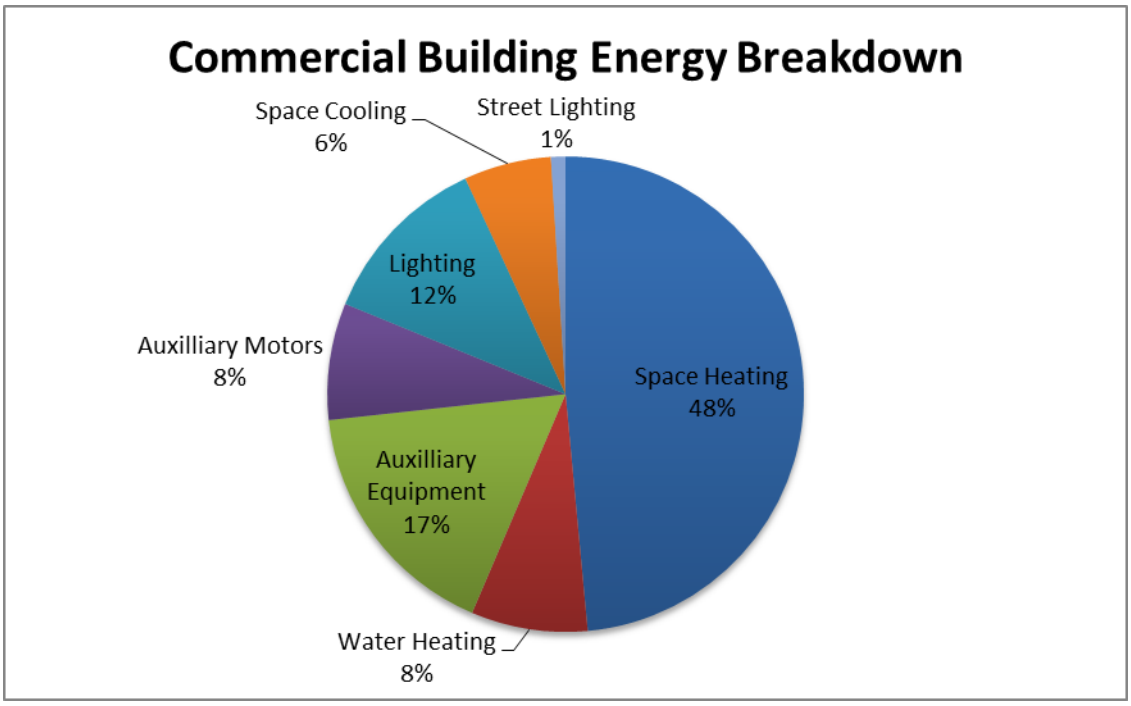
of reducing the number of fixtures while maintaining appropriate lighting levels and distribution. To schedule a lighting analysis, contact:

Stefan Bernath
Energy Coordinator
(780) 422-7432
stefan.bernath@gov.ab.ca

2. Specular (mirror-finish) reflectors should be used to improve efficiency of light fixtures.

3. Incandescent exit signs should be replaced with 3-7 W LED exit signs.

1.2 Benchmarking and Audits



*Source: Energy Use Data Handbook Tables: *Commercial/Institutional Secondary Energy Use by End-Use*, Office of Energy Efficiency, Natural Resources Canada

Energy benchmarking is a key energy management best practice that enables building managers and operators to identify poorly performing building systems, invest strategically in energy efficient upgrades and track the effectiveness of the improvements that are undertaken. Before any major renovation or energy efficiency initiative is undertaken, consider scheduling an energy audit and benchmarking session with:

Dustin Engel
Environmental/Energy Manager
Phone: (403) 592-4018
dustin.engel@gov.ab.ca

Justin Smale
Facilities Environmental/Energy Analyst
Phone: (403) 592-2996
justin.smale@gov.ab.ca

1.3 Heating, Ventilation and Air Conditioning

Since heating, ventilation and air conditioning (HVAC) are the largest users of energy in most buildings, significant gains in energy efficiency can be found when examining the HVAC systems and management practices in existing buildings. Below is a table outlining common systems replacement/upgrade costs accompanied with their expected payback period:

Measure	Energy Savings (% per year)	Cost	Savings (per year)	Payback (years)
Installation of domestic hot water heat exchanger	5	$3,000	$150-$300	6-15
Installation of low-leakage outdoor air dampers on air-handling units	5	$3,000-$5,000	$150-$500	10-15
Replacement of standard motors with energy efficient motors	5-10	$500-$2,000	$200-$500	1-4
Installation of heat recovery system	10	$10,000-$20,000	$1,000-$2,000	10
Installation of variable speed drive on ventilation fans	5-10	$5,000-$10,000	$400-$2,000	5-8
Electronic thermostats		$100/unit	$20-$50/unit	2-5

*Source: Best Practices Guide for School Facility Managers, Office of Energy Efficiency, Natural Resources Canada

1.3.1 Heating

1. When replacing boiler systems, ensure supplier/consultant sizes systems to run at full output in order to maximize efficiency.
2. All boilers and manifolds should be fully insulated to reduce unnecessary heat loss.
3. Consider isolating offline boilers. It is recommended that warm water be run through pipes before restarting.
4. Constant speed pumps should be replaced with variable speed pumps respective to load. If a variable speed pump is installed, it should be controlled by the temperature of the returning water.
5. Condensing boilers should be used only in facilities where the whole heating system was designed for condensing boiler operation. If the heating system was not sized for low temperature heating (50/40 or 60/40 for supply and return water temperature in C) the condensing boilers will not condense the exhaust to extract that extra heat from the returning water.

1.3.2 Ventilation/Cooling

1. High efficiency motors should be installed everywhere cost permitting. Variable speed control should be used for electric motors powering fans.
2. Reduce pressure losses and minimize duct leakage in distribution systems by sealing joints.
3. Ensure outside air dampers are closed when fan is off to reduce outside air leakage back into the building.
4. Washroom exhaust fans should be on occupancy sensors.
5. Variable speed chillers should be considered when replacing existing chillers.
6. Buildings should utilize night cooling to reduce energy required for air conditioning.
7. Dedicated air conditioning units should be installed where year-round air conditioning is required, free cooling should be used during heating season wherever possible.
8. Whenever possible, discontinue the use of water-cooled cooling units in favour of more efficient cooling units such as air-cooled units.

1.3.3 System and Controls

1. Building Monitoring and Control System (BMCS) should be in place with full control

and monitoring of central systems including lighting. System should be regularly checked and calibrated by a consultant specializing in system calibration.

2. Consider occupancy sensors in order to coordinate schedules for maximum off-time while maintaining building needs.
3. Control limits on temperature set-points should be wide (4-5^{O}C) for general occupancy areas.
4. Space set-point should be at 22 ^{O}C or lower for heating; 24^{O}C or higher for cooling.
5. Use of indoor/outdoor reset control for boilers and heating pumps should be in place.
6. Out-of-limit alarms that affect energy efficiency should be investigated immediately.
7. Management reports should be prepared to show deviations from optimal operating conditions in both technical and financial terms. Deviations should be explained and prevented in the future.
8. Carbon dioxide sensors should be incorporated into the BMCS to monitor indoor air quality.
9. Record of pump control and operation should be kept onsite.
10. Where system override is provided, it should be limited to 2 hours.

1.4 Domestic Water

Domestic hot water in Alberta Infrastructure buildings must satisfy client needs, while still maintaining energy efficiency and preventing the occurrence of *Legionella* bacteria in the system.

1. Depending on building type and usage, instantaneous local point of use water heaters could be considered versus central plant heating.
2. Circulation temperatures should be between 55-60 ^{O}C when water heating system is operational to reduce the likelihood of Legionella occurring in the system.
3. Water heating and recirculation pumps should be shut off when building is unoccupied.
4. All heaters, pipe work, flanges, and other fittings should be fully insulated to reduce heat loss from the system.

1.5 Building Envelope

Alberta Infrastructure has the ability to provide facility managers and building operators thermal scans of buildings, which help to identify heat leakage in the building envelope. For more

information, contact:

Gord Gonie
Roofing Inspector
(780) 422-7524
gord.gonie@gov.ab.ca

1 All exterior windows should be double or triple glazed and adequately weather-stripped.

2. All exterior exposed doors should be adequately weather-stripped and insulated.

3. Windows should have a low emissivity rating. Proper solar gaining or solar shielding windows should be chosen depending on building orientation and use.

4. Exterior doors should have a method of minimizing open time through the use of door closers (ie. pneumatic, spring, etc.)

5. Frequently used exterior doors should have an airlock lobby constructed.

6. Regularly used loading docks with large interior/exterior temperature differences in the winter should investigate the potential of using an air curtain to prevent heat loss.

7. Exterior window shades should be considered to prevent unwanted solar gain in the summer.

8. If the roof is being replaced, consider replacing the current roof with a green roof or a roof with a high albedo rating.

1.6 Small Equipment (Task Lights, Computers, Fans, Printers, etc)

1. Equipment selected should be the most appropriate to the application while achieving maximum energy efficiency within its class. Seek “Energy Star” and similarly certified equipment.

2. All equipment should be in standby mode (if applicable) when not in use during the working day and shut off during non-working hours.

3. All vending machines should be de-lamped and controlled by an “energy miser” to slow the cooling compressor when customers are not present.

4. No portable fans or electric space heaters are to be used in offices; minimal usage should exist in other areas.

5. Use of refrigerated water coolers should be discouraged. Alternately, timers should operate coolers during work hours only.

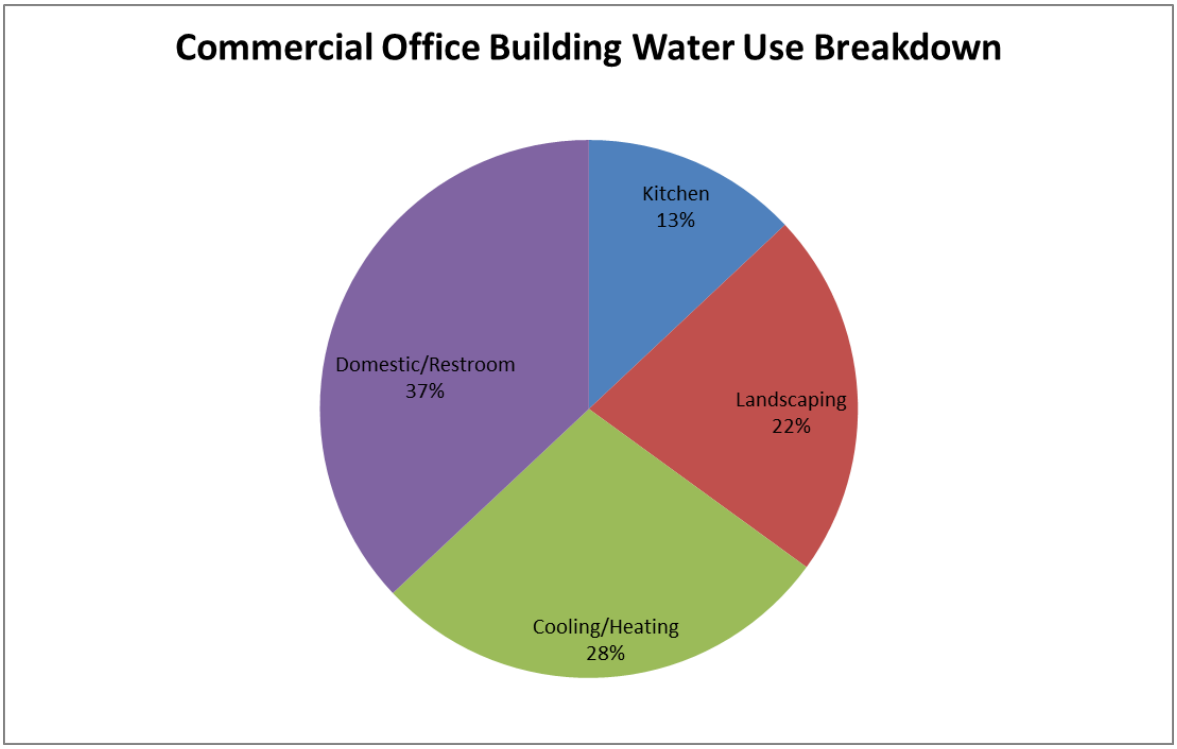
1.7 Energy Monitoring and Metering

1. Major equipment should not be started simultaneously; instead sequence startup of major loads in order to reduce demand use charges.
2. Interval (DIM) meters should be installed with appropriate data collection where possible.
3. Leased areas should have local meters and relevant utility consumption data should be collected wherever feasible and efficient.
4. Real-time energy consumption data should be accessible by local building operators and monitored daily for drastic unexplained changes.
5. A Comprehensive Utilities Management Plan should be in place in order to address responses to various changes within the portfolio and establish strategy for reductions in energy consumption and cost.
6. All consumption data should be retained electronically at both the local and head office level and monitored by appropriate staff.

Section 2.0 Water Use

Water Use Policy

Alberta Infrastructure is committed to reducing water consumption through the use of appropriate water management systems and equipment and by supporting strategies that help both the building owner and tenant use water more efficiently.



*Source: Environmental Protection Agency's "Water Sense" Program

Best Practices

2.1 Domestic Water

1. A formalized, properly utilized reporting system for water leaks should be in place.
2. Daily walk-through checks for leaking appliances and pipes should occur.
3. All timed valves should be coordinated with occupancy hours and sensors.
4. Dry clean, rather than wet clean practices should be in place for sidewalks and parking lots.
5. Caretaking staff should be made aware of water conservation practices.

6. Replace appliances that use “once through cooling” with models that use water more efficiently.

2.1.2 Washroom/Bathroom/Kitchen

1. Fixtures should be replaced with water efficient models as replacement needs dictate. Estimated savings between old fixtures and recommended water efficient fixtures is outlined below:

Fixture	Average Water Use with Traditional Fixture	Average Water Use with a Water Efficient Fixture
Toilet	16.5 L per flush	6.0 L per flush
Dual Flush Toilet	16.5 L per flush	4.3 L per flush
Showerhead	15 L per minute	9.5 L per minute
Faucet Aerator	12.5 L per minute	9.5 L per minute
Dishwasher	40 L per load	22.5 L per load

*Source: City of Calgary “Water Efficient Fixtures” website

2. All urinals and toilets operating on flushometers should have water saving diaphragms installed.
3. Group showers should be equipped with timed shutoff mechanisms.
4. Commercial grade kitchen spray valves should contain auto-off features and a knife edge spray.
5. Garburetors should be removed from kitchen sinks. Organic waste should be disposed through other means.

2.1.3 Mechanical Systems

1. Steam condensate from various systems should be captured and reused.
2. Makeup water should be metered to identify efficiencies.
3. Cooling towers should not be ‘overdriven’ by flowing excess water to the tower-condenser loop.
4. The following maintenance activities should be followed to eliminate the occurrence of legionella in the water systems: using effective drift eliminators, periodical cleaning, and employing a water treatment program with a proper biocide.

2.2 Irrigation

2.2.1 General

1. Use of potable water for irrigation should be minimized. Alternately, use of rainwater should be maximized where possible.
2. Local drought management plans should be in place.
3. Development of rain gardens as a potential method to limit site run-off and irrigation required.

2.2.2 Landscape

1. Landscapes should be graded to ensure minimal runoff and maximum uniform water soak time.
2. Limit turf to necessary areas only. Make use of stone gardens, brick sidewalks, cedar planters, etc. where possible.
3. Proper landscaping procedures should be undertaken (mulching, aeration, etc) to minimize evaporation, reduce runoff and maximize water uptake.

2.2.3 Plant Selection

1. Native grasses and other regionally adapted plants should be used to the maximum extent possible. Some resources for selecting native grasses and plants can be found at:
    - http://www.growerdirect.com/gardening-with-native-alberta-plants
    - http://www.lionsgarden.ca/products/plants-native-to-alberta.html
2. Drought tolerant turf should be used to minimize the need for irrigation.
3. Plants requiring similar moisture levels should be grouped together to make use of zoning.

2.2.4 Irrigation System

1. Computerized automatic irrigation systems should be installed in larger properties if regular watering is required.
2. Timed semi-automatic systems should be used for smaller properties.
3. Rain gauges and weather monitoring should be incorporated into irrigation system to determine water requirement.

4. Water in the morning when temperatures are cooler to minimize evaporation.

5. Drip systems should be used over spray systems for watering flowerbeds and shrubs.

6. Irrigation systems should be properly zoned to differentiate between the differing water requirements of turf, flowerbeds, trees, shrubs, etc.

2.3 Ornamental Structures (Fountains, Pools, etc.)

1. Ornamental structures should be engineered to re-circulate water and minimize required make-up water.

2. Structures should not be operated when traffic and area occupancy is low.

3. Where possible, ornamental structures should use non-potable water sources.

2.4 Water Monitoring and Metering

1. Monthly water consumption data should be collected for all meters onsite.

2. All outdoor irrigation should be metered separately to differentiate it from domestic water use.

3. A local monitoring program for identifying large changes in water consumption should be put in place for identifying leaks, loss of water, and other unexplainable phenomena.

4. All consumption data should be retained electronically at both the local and head office level and monitored by appropriate staff.

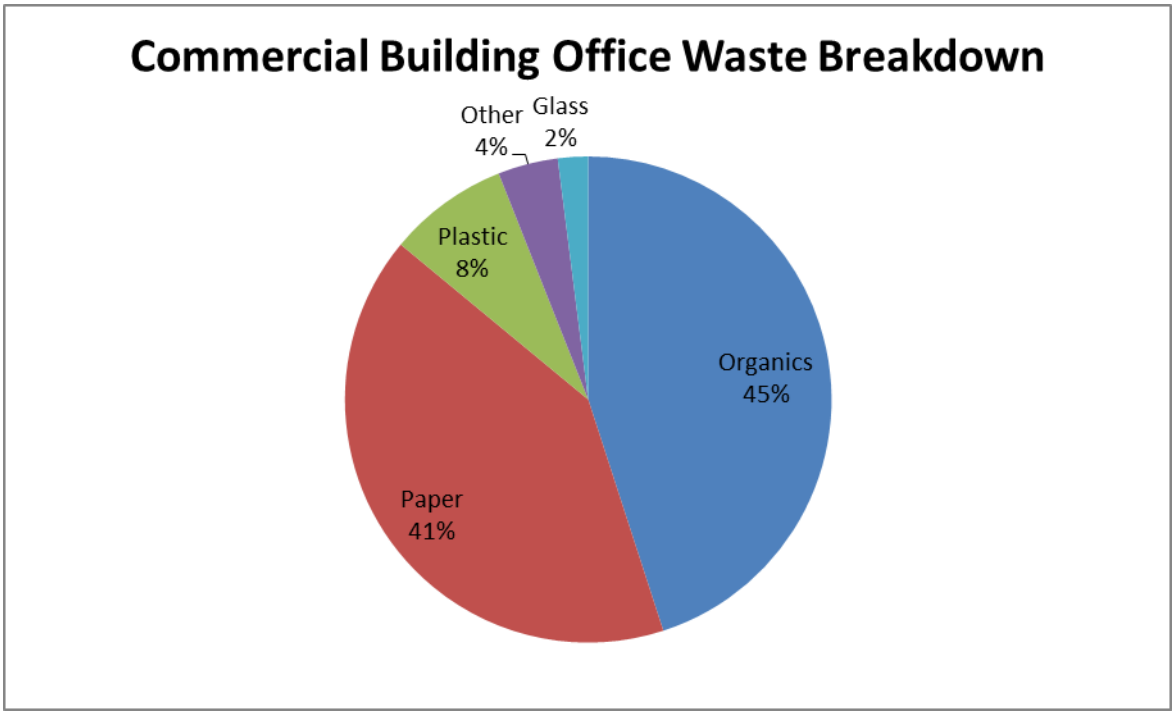
Section 3.0 Waste Reduction

Construction Waste Policy

Alberta Infrastructure is committed to minimizing construction waste that is sent to landfills through finding alternative uses for old materials and enlisting the services of contractors whose practices minimize waste through methods such as salvage and recycling

Recycling Policy

Alberta Infrastructure requires basic recycling programs to be in place in all of its facilities through the use of both local and central programs



Source: Green Calgary "Environmental Tips for Calgary Businesses"

3.1 Construction Waste Management Plan

When maintenance or construction contracts are tendered for work, Basic Master Specification: Section 02221 - Building Demolition (Appendix B.1) will be followed.

Except where otherwise specified, all materials indicated or specified to be permanently removed from the Place of the Work should become the Contractor's property. Infrastructure will maximize to the fullest extent possible, salvage and recycling of such materials, consistent with proper economy and expeditious performance of the Work.

3.2 Site Recycling Management Plan

At a minimum, all Infrastructure buildings must have in place local programs for the recycling of paper fibers, plastics, metals and office consumables. Central programs for the recycling of fluorescent lamps, batteries, furniture, and electronics must be used. Additionally, Infrastructure will provide building users with the information required to fulfill environmental responsibilities and to promote environmental awareness.

3.3 Local Level Recycling Programs

1. All fibers, plastics and metals, and batteries should be collected within appropriately labeled containers.

2. A minimum of one recycling station will exist within each open office area. It is recommended that each office row maintain one recycling station.

3. Office consumables (printer cartridges, toners, etc) should be returned to the supplier or place of purchase for recycling and reuse.

4. Recyclable materials should be disposed of at local depots, through charities, or through recycled material carriers as appropriate.

5. On site composting or organics recycling through a private company should be explored where applicable as a method to reduce organic waste heading to landfills. For information on setting up a composting program, please contact:

Dustin Engel
Environmental/Energy Manager
Phone: (403) 592-4018
dustin.engel@gov.ab.ca

Justin Smale
Facilities Environmental/Energy Analyst
Phone: (403) 592-2996
justin.smale@gov.ab.ca

3.4 Centralized Recycling Programs

1. All fluorescent tube, compact fluorescent, UV, HID, sodium and mercury containing lamps and devices should be recycled as per Infrastructure's "Lamp Recycling Program." For more information, contact:

   Dustin Engel
   Environmental/Energy Manager
   (403)-592-4018
   dustin.engel@gov.ab.ca

2. All batteries should be recycled as per Infrastructure's "Battery Recycling Program". Contact Environment/Energy Manager.

3. All old and unnecessary electronics and furniture are to be deemed surplus and forwarded to Surplus Sales (780-427-3482 Edm.; 403-297-6430 Cal.) for auction or reuse.

Section 4.0 Emissions & Effluents

Hazardous Materials Policy
(excerpt from 'Environmental Policy', Appendix B.2)

Alberta Infrastructure is committed to the safe and environmentally responsible assessment, removal, disposal and management of hazardous materials and contaminated sites.

Materials Selection Policy

Alberta Infrastructure is committed to and supports the use of low environmental impact building materials, equipment and supplies in all of its facilities.

4.1 Hazardous Materials Management Plan

Alberta Infrastructure and its contractors will:

- Promote and exercise the safe and proper handling of hazardous materials associated with Alberta Infrastructure's contracts for the protection of individuals and the environment.
- Manage identified contaminated sites in a manner that will remediate and minimize further contamination to the environment.
- Provide employees with the information, training and support needed to fulfill environmental responsibilities and to promote environmental awareness.
- Conduct reviews to ensure compliance with applicable legislation, regulations and internal environmental standards.
- Verify that consultant's and contractor's work is in compliance with applicable legislation, regulations and internal environmental standards.
- Continually review and improve its environmental management system.
- Conduct an annual review of its environmental objectives and targets.

Alberta Infrastructure has internal resources to help facility mangers and building operators identify and manage hazardous materials. For building specific information or to inquire about a hazardous materials survey, contact:

Colin Wildgrube
Building Environment Manager
(780) 422-7472
colin.wildgrube@gov.ab.ca

4.2 Lead Management

1. All buildings should have a comprehensive lead survey completed anytime renovations occur.

2. Lead Paint Technical Bulletins are provided for general information (Appendix B.2).

4.3 Asbestos Management

1. Asbestos Management Technical Bulletins are provided for general information (Appendix B.3).

2. Basic Master Specification: Section 13281 – Asbestos Control (and related) should be followed when dealing with asbestos (Appendix B.4).

3. All buildings should have a comprehensive asbestos survey completed anytime renovations occur.

4. All asbestos identified within buildings should be removed or encapsulated as soon as possible.

5. All buildings that are being assumed by Alberta Infrastructure should be inspected for and cleared of known asbestos before possession.

4.4 Hazardous Chemical Management

1. All hazardous chemicals are to be properly labeled and stored in locked areas when not in use.

2. All chemicals must have updated MSDS/WHMIS sheets at the local storage site and at a central local office. MSDS/WHMIS sheets must be no older than 3 years.

3. Response plans should exist for handling incidental release of hazardous materials.

4. Basic Master Specification: Section 13286 – Removal and Disposal of PCB Transformers (Appendix B.5) should be followed when dealing with PCB's.

5. Spill kits and spill containment should be in place where hazardous chemicals are stored and used.

4.5 Material Selection Management Plan

Alberta Infrastructure encourages the use of environmentally friendly materials in the construction, renovation, and caretaking of all buildings. This includes supporting products that are produced with minimal impacts to the environment and low or no off gassing carpeting and furnishings. Materials and supplies will have a high recycled content. See Green Cleaning Product Guidelines (Appendix B.6) for more information on caretaking products allowed.

4.5.1 Construction Materials

1. Where options exist with respect to construction materials, materials that have minimal environmental impact while achieving its prime function should be chosen. This includes use of:

    a. Locally produced materials
    b. Materials which have a long lifespan with minimal maintenance
    c. Materials which are produced from renewable resources

2. Contracted services should be encouraged to identify to management any additional product and material changes that would further decrease negative environmental impacts.

4.5.2 Caretaking Materials and Supplies

4.5.2.1 Cleaning Products

1. Cleaning products should be certified under Canada's Environmental Choice Program (administered by Terra Choice as Eco-LogoTM). Where products are not available under the Eco-LogoTM certification, a minimum of U.S. Green Seal Certification will be acceptable.

2. All cleaning products must display the original manufacturer's label exhibiting an appropriate certification, except for local small volume container s that must be appropriately labeled and refer to the original container.

3. Combination disinfectant/cleaners and aerosols are not permitted. Cleaning should precede disinfection at all times.

4. In order to control V.O.C. levels, all hard surface cleaners, including window cleaners and disinfectants should be applied into a microfibre or disposable cloth. They are never to be sprayed onto a surface or object.

5. Due to the unavailability of certified specialty products (ie. floor/baseboard strippers, gum removers, graffiti removers, solvent spot removers,

hydrochloric acid b owl cleaners, caustic drain cleaners, etc.), they are exempt from the requirement of carrying environmental certification. However, use of such products must be reported to:

Lorette Paslow
Custodial Consultant
780-644-5608
lorette.paslow@gov.ab.ca

6. Use of antibacterial/germicidal hand and dish soap should be minimized. Specifically Triclosan and Triclocarbon are not to be present in any soap unless serious health concerns exist.

7. All disinfectants must contain a Drug Identification Number (DIN) as verification for disinfection compliance and bear the appropriate environmental certification.

4.5.2.2 Caretaking Supplies and Equipment

1. All toilet tissue shall have 100% recovered materials and a minimum of 20% post-consumer content.

2. All paper towels shall 100% recovered materials and have a minimum of 40% post-consumer content.

3. All plastic garbage bags & liner s shall have a minimum of 10% recycled content.

4. Microfibre cloths and mops shall be used instead of feather/poly dusters or string mops.

5. Microfibre cloths or a vacuum shall be used to contain and capture dust. Feather/poly dusters of any kind are not recommended.

6. Vacuum cleaners shall be canister or backpack style with a 3- stage filtration system capable of capturing at least 96% of particulates 0.3 micros in size and must operate at less than 70dBA.

7. Entrance matting should extend 10-12 feet from exterior doorways and capture a minimum of 80% of the dirt.

4.6 Office Materials and Supplies

1. Low or no off gassing office furniture and carpet shall be chosen over traditional

furniture and carpet.

2. All office paper shall have a minimum of 30% post-consumer content.

4.7 Ozone Depleting Substances Management Plan

In response to an increasing awareness of the environmentally detrimental effects of certain substances used in commercial facilities, Alberta Infrastructure developed a CFC/Halon Management Strategy in 1994. The strategy is now in its 5th edition and can be found along with an annually updated inventory of existing sources of CFCs and Halons is located on the Environmental Programs SharePoint site.

Section 5.0 Indoor Air Quality

Indoor Air Quality Policy

Alberta Infrastructure is committed to ensure that standard reporting processes and efforts to maintain environmental quality are met.

5.1 Management Plan

Alberta Infrastructure maintains an Indoor Air Quality Guideline (Appendix B.7) that was recently updated in June 2006. This document provides a detailed process to address indoor air quality (IAQ) factors at Government of Alberta occupied facilities with emphasis on proper preventative maintenance routines and an I AQ response process.

The Indoor Air Quality Guideline forms a section of the Mould in Indoor Environments Risk Assessment and Management Program (Appendix B.8) which addresses the need for an effective and efficient method of dealing with mould in indoor environments.

In addition to these programs, specific operational practices and product selection will be implemented to further improve indoor air quality.

Any further concerns regarding Indoor Air Quality should be directed to:

Colin Wildgrube
Building Environment Manager
(780) 422-7472
colin.wildgrube@gov.ab.ca

Section 6.0 Environmental Management

Preventative Maintenance Policy

Alberta Infrastructure is committed to the practice of an effective preventative maintenance program for optimal equipment performance.

Environmental Communications Policy

Alberta Infrastructure is committed to promoting awareness of environmental issues amongst building users.

6.1 Preventative Maintenance Management Plan

Recognizing the effects of poorly performing equipment, Alberta Infrastructure has implemented an extensive Water Treatment Program Manual (Appendix B.9) for a variety of systems and equipment.

Infrastructure's public buildings have building specific preventative maintenance programs that were developed and are monitored by the Technical Services Branch. Other buildings use customized tasks developed by local staff. The intent is for these programs to maintain equipment at optimal operating levels for an extended period of time.

Preventative maintenance programs are available by contacting:

Abdul Alami, Supervisor of Preventative Maintenance
Technical Services Branch
(780) 422-6716
abdul.alami@gov.ab.ca

Maintenance logs are either kept at local building offices or stored within the Facilities Maintenance System (FMS).

6.2 Preventative Maintenance

1. Preventative maintenance programs should be well developed, comprehensive, followed and consistently updated.

2. Preventative maintenance should be scheduled using appropriate cycles.

3. Maintenance tasks should be tracked electronically within an efficient, user-friendly database.

4. The importance of preventative maintenance should be emphasized through education and proper training of building maintenance staff.

6.3 Environmental Communications Management Plan

Alberta Infrastructure recognizes the importance of continued education and increasing awareness regarding environmental issues amongst building users. A public awareness page of environmental information as it relates to Alberta Infrastructure is located at:

http://www.infrastructure.alberta.ca/501.htm

The internal website contains information regarding environmentally friendly operational best practices, a database of potential new technologies, and quarterly updates on environmental news within Infrastructure.

1. Tenant satisfaction surveys should be completed on a yearly basis and should address environmental concerns. A template of such a survey can be found at:

   (https://extranet.infrastructure.alberta.ca/properties/pm/EP/BOMA%20BESt%20Application%20Documents/Forms/AllItems.aspx) – file name "Tenant Satisfaction Survey"

2. Allot a time in each client meeting to address environmental concerns (i.e. energy or water efficiency, waste management, hazardous materials, indoor environment, etc.).

3. Encourage the development of building Green Teams to address environmental issues that are relevant to the building. For support on this item, please contact the Environmental/Energy Manager.

6.4 Environmental Product/Service Procurement

Where feasible, the Property Manager should give special consideration to the environmental performance of products and/or services, with preference given to products that are:

- Certified by a Third-Party such as ENERGY STAR, Eco-Logo or Green Seal;
- Improve energy or water efficiency;
- Reduce Greenhouse Gas emissions;
- Reduce waste or support reuse and recycling; and
- Reduce hazardous waste and/or toxic chemicals.

Acknowledgements

Alberta Infrastructure wishes to acknowledge the following individuals and teams for their support and contribution towards the development of the first and second edition of this document.

First Edition

Management Sponsors
John Enns, Executive Director, South Region
Debra Strutt, Executive Director, North Region

Green Guide Focus Group
Morgan Brady, Maintenance Service Worker
Eugene Drapaka, Operations Supervisor
James Duczynski, Maintenance Service Worker
Ella Ethier, Facilities Manager
James Prosser, Facilities Manager
Kay Risdon, Operations Supervisor
Tony Signorini, Facilities Manager
Jim Tessier, Facilities Manager

Properties Staff
Neil Hindle, Business Information Coordinator
Lorette Paslow, Custodial Consultant
Abdul Alami, Preventative Maintenance Planner
Stefan Bernath, Energy Coordinator
Alvin Law, Environmental / Energy Manager

Alberta Environment
Giselle Beaudry, Waste Reduction Specialist
Jodi Tomchyhyn, Waste Reduction Specialist
Neil Wandler, Pollution Prevention and Conservation Specialist

Building Owners and Managers Association
Bruce MacKenzie, Bruce MacKenzie Management Consultant Inc.
William Partridge, Executive Vice President, BOMA Calgary
Percy Woods, Executive Vice President, BOMA Edmonton

Second Edition

Green Guide Revision Focus Group

Ella Ethier, Facilities Manager
James Prosser, Facilities Manager
Jim Tessier, Facilities Manager
Neil Hindle, Business Information Coordinator
Lorette Paslow, Custodial Consultant
Abdul Alami, Preventative Maintenance Planner
Stefan Bernath, Energy Coordinator
Dustin Engel, Environment/Energy Manager
Justin Smale, Facilities Environmental/Energy Analyst

Appendices

Appendix A
Technical Design Requirements for Alberta Infrastructure Facilities

Appendix B.1
Basic Master Specification: Section 02221 - Building Demolition

Appendix B.2
Lead Paint Technical Bulletins

Appendix B.3
Asbestos Management Technical Bulletins

Appendix B.4
Basic Master Specification: Section 13281 – Asbestos Control

Appendix B.5
Basic Master Specification: Section 13286 – Removal and Disposal of PCB Transformers

Appendix B.6
Green Cleaning Product Guidelines

Appendix B.7
Indoor Air Quality Guideline

Appendix B.8
Water Treatment Program Manual