



BUILDING EXTERIOR & HARDSCAPE MANAGEMENT PLAN

This Environmental Building Operating Plans are intended for property managers to streamline environmental procedures within existing building operations. The plan provided herein covers building exterior and hardscape management. This plan is a requirement for LEED for Existing Buildings: Operations and Maintenance (LEED-EBOM) Sustainable Sites credit 2. LEED-EBOM is a green building rating system developed and administered by the U.S. Green Building Council (USGBC). All policies and plans must meet the LEED-EBOM prerequisite and credit requirements.

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1. INTRODUCTION

This plan establishes the best management practices for maintaining building exterior and hardscapes. These best management practices mitigate the negative environmental impacts that operations and maintenance have on the building's environs while simultaneously providing an optimal environment for employees, tenants and visitors.

Through the Building Exterior and Hardscape Management Plan, 2500 City West ensures that exterior maintenance efforts support the following key concerns:

- *Energy Efficiency* – Minimizing the environmental impact by choosing energy-efficient equipment, products, services, and practices
- *Water Conservation* – Reducing the use of potable water and contributing to the preservation of natural water supplies
- *Outdoor Air Quality* – Eliminating or managing volatile organic compounds and toxic off-gassing to maintain a healthy work environment
- *Improved Live/Work Environment* – Providing a safe, comfortable, pedestrian friendly and accessible live/work environment for employees and building occupants
- *Bottom Line Improvements* – Environmentally responsible practices will cut operational costs by minimizing energy and water usage

The plan is based on the requirements of the LEED-EB O&M Reference Guide as excerpted from the August 2008 edition:



LEED-EB O&M Requirements:

SSc2 Building Exterior & Hardscape Management Plan (1 point)

Employ an environmentally-sensitive, low-impact building exterior and hardscape management plan that helps preserve surrounding ecological integrity. The plan must employ best management practices that significantly reduce the use of harmful chemicals, energy waste, water waste, air pollution, solid waste and/or chemical runoff (e.g., gasoline, oil, antifreeze, salts) compared to standard practices. The plan must address all of the following operational elements that occur on the building and grounds, as applicable:

- *Maintenance equipment*
- *Snow and ice removal*
- *Cleaning of building exterior*
- *Paints and sealants used on building exterior and*
- *Cleaning of sidewalks, pavement and other hardscape*

2. SCOPE AND GOALS

SCOPE

This plan provides guidelines for maintaining the performance of the building exterior and hardscape at the 2500 City West located at 2500 City West, Houston, Texas. This plan covers the entire building exterior and hardscape at the project site.

GOALS

The goal of the Environmental Building Plan for Building Exterior and Hardscape is to encourage environmentally sensitive building exterior and hardscape management practices that provide a clean, well-maintained and safe building exterior.

- To minimize the impact of site management practices on the local ecosystem
- To reduce the exposure of building occupants and maintenance personnel to potentially hazardous chemical, biological, and particle contaminants.

The Plan addresses environmental best practices for:

- Maintenance equipment
- Snow and ice removal
- Cleaning of building exterior
- Paints and sealants used on the building exterior
- Cleaning of sidewalks, pavement and other hardscapes.

If exterior cleaning and/or maintenance are contracted to a service provider, that provider is responsible for carrying out their services in accordance with this policy without exception.

Thomas Properties Group expects 100% implementation of the plan immediately with exception of maintenance equipment. Non compliant equipment shall be phased out as soon as it's economically feasible with a 5-year deadline. All new equipment purchases should comply with requirements outlined on this plan.

3. RESPONSIBLE PARTIES

The Property Manager (Brandi Stacy), along with another responsible party, i.e. the Chief Engineer (Fernando Olivares, Chief Engineer), and the property management team, are responsible for informing all building personnel, vendors and tenants of this exterior maintenance plan. Moreover, the Property Manager and Fernando Olivares, Chief Engineer will be responsible for implementing the practices set forth in this document in order to ensure that the standards specified within are upheld. The Property Manager and Fernando Olivares, Chief Engineer may delegate certain duties relating to building exterior and hardscape management to staff but will bear ultimate responsibility for the effective implementation of the policy.



The property management and engineering team will be responsible for maintaining the onsite log of activity relating to work performed with maintenance equipment, snow and ice removal, cleaning building exterior and hardscapes (including window washing), and any paints or sealants used on the building exterior and hardscapes.

Contact Information for Responsible Party:	
Name:	Brandi Stacy
Job Title:	Property Manager
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Email:	bstacy@tpgre.com
Date of assignment:	2.1.2011

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4. GUIDANCE FOR RESOURCES AND IMPLEMENTATION

A. EXTERIOR MAINTENANCE EQUIPMENT

Generally, manual methods of grounds management, electric equipment, or equipment with noise and emission controls shall be used in lieu of fossil fuel powered machinery, whenever possible. This practice will reduce soil compaction, and noise and air pollution produced by gas-powered equipment.

PERFORMANCE METRICS

The practices listed below shall be implemented to the extent noted in the table. When less than complete adoption occurs, the performance metrics indicated will be used to gauge performance against the implementation target.

Maintenance Equipment	Performance Metric	Implementation Target
Uses electric power	Percentage of applicable pieces of equipment	20%>
New equipment will be lower-impact alternatives (e.g., electric powered or low-decibel blowers)	Percentage of applicable pieces of equipment	100%
When blowers are needed, they must be used before 8:00 a.m.	Yes or No	100%
Mulching mower	Percentage of mower equipment	20%>
Uses low-smoke oil	Percentage of applicable pieces of equipment	20%>
Manual spring cleanup	n/a	100%
Manual weekly weeding	n/a	100%



Manual pruning	n/a	100%
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PRACTICES TO OPTIMIZE SITE MAINTENANCE EQUIPMENT

- Manual equipment will be used whenever practical. Mechanical equipment (particularly those with fossil fuels) are to be reduced to minimum levels. Low-impact/manual equipment shall be used wherever possible, when possible, to minimum levels to maintain safety and surfaces. If it is necessary to utilize power equipment, maintenance personnel will make every attempt to utilize equipment that generates lower emissions and produces less noise. Corded electric and mobile battery-operated exterior maintenance equipment are examples of such equipment. In those instances where the use of equipment that runs on fossil fuels is necessary, lower-emitting products will be selected whenever possible.
- When new equipment is needed, replace conventional equipment with lower-impact alternatives (e.g., electric-powered or low-decibel blowers), or use alternative approaches, such as hand raking of leaves, where feasible, to abate the impacts. Choose equipment designed to minimize or recycle waste, such as mulching mowers.
- Low-smoke oil shall be used in all maintenance equipment.
- For equipment with two-cycle engines, models with advanced design features—such as direct fuel- injection engines and exhaust power valves—shall be used to reduce emissions, improve fuel efficiency, and decrease oil consumption compared to conventional two-cycle engines.
- Mulching mowers shall be used on turf areas and shall return clippings back into the lawn to recycle nutrients.
- Weekly, the shrub and tree beds shall be hand-weeded.
- Shrubs and ornamental trees shall be manually pruned.
- During the annual site cleanup in the spring, maintenance personnel shall manually prune winter-killed plants; sweep parking lot curbs, turf areas, and corners manually or with low decibel equipment; and rake turf areas to remove debris as necessary. Manual landscape maintenance reduces the need for powered machinery and the demand for fossil fuels.
- All mowers shall receive new blades annually, and belts, bearings, and bushings shall be inspected on a yearly basis and changed as needed. Regular maintenance enhances the efficiency of equipment, thereby conserving energy and fuel and minimizing entire equipment replacements.
- Weekly, the contractor shall change the oil and filters on all equipment. All used oil shall be recycled.
- If the amount of landscape debris is too numerous to be collected by broom(s) or rake(s), an electric or gas powered leaf blower may be used and is to be used prior to 8:00 a.m. This practice will minimize sound disturbance and to provide a debris free safe surface to walk on. After 8:00 a.m., broom(s) or rake(s) are to be used unless an extraordinary amount of landscape debris has collected.

B. SNOW AND ICE REMOVAL

Some chemicals used for snow and ice removal, such as calcium chloride and sodium chloride, are toxic to vegetation and local aquatic ecosystems. 2500 City West shall implement snow and ice removal practices that minimize the amount of chemicals used and therefore prevent ecological damage.

PERFORMANCE METRICS

The practices listed below shall be implemented to the extent noted in the table. Where less than complete adoption occurs, the performance metrics indicated will be used to gauge performance against the implementation target.



Site Management Products/Materials	Performance Metric	Implementation Target
Non-calcium chloride or sodium chloride deicing chemicals	n/a	Complete adoption
Anti-icing measures	n/a	Complete adoption

PRACTICES TO OPTIMIZE SNOW REMOVAL

If it does snow, the following snow removal plan shall apply. Plan for snowfall as applicable per region.

- Deicing chemicals shall be used on parking lots and roadways only as necessary. To protect vegetation and receiving waterways, the minimum amount of deicer that is effective shall be used. Application rates shall be tailored to match actual conditions based on pavement temperature, precipitation, and beginning concentrations of the deicer.
- Environmentally preferred deicing products shall be used for routine applications. Pre-approved products include those primarily comprised of:
 - potassium acetate
 - potassium chloride
 - magnesium chloride.
- Deicing agents other than those listed above shall be submitted for review and approval by the Property Manager prior to use.
- Sodium chloride and calcium chloride deicing products *shall not* be used unless 2500 City West grants written permission prior to application.
- Sidewalks and parking lots shall always be plowed prior to the application of deicing agents—to limit the amount of chemicals needed and reduce the potential for harmful runoff.
- When possible, anti-icing measures (preemptively applying deicer before a storm) shall be performed, thereby significantly reducing the overall need for deicing chemicals.
- Maintenance staff will assess all walkways, sidewalks and entryways in order to identify critical, high-traffic routes. Whenever possible, maintenance personnel will not remove snow from non-essential and seldom-used walkways and entryways. Such a policy is intended to reduce the amount of maintenance required for the upkeep of these non-critical areas. For heavily travelled areas or for those areas which are required to be maintained during winter months by state or town/city statutes and ordinances, maintenance staff will use manual labor to remove snow. When snow falls during the overnight and early morning hours, if possible, maintenance staff will shovel before the normal opening and operating hours of the facility. When snow falls during regular operating hours, snow removal will take place frequently in order to lessen the possibility of snow compacting caused by pedestrians, cars and other traffic. Compacted snow will make removal more difficult and will increase the chance that ice will form.
- Mechanical fossil-fuel-driven equipment is not used at 2500 City West for snow/ice removal.
- To the greatest extent possible, maintenance staff will tailor their de-icing practices according to the type of precipitation. If a dry, powdery snow that can be completely removed is predicted, staff will not apply a de-icing agent. However, if a wet and heavy snow or a slushy mix is forecast, staff will apply a de-icing agent to all paths and around all entryways before precipitation begins in order to maximize its effectiveness. By applying the de-icing agent before a heavy, wet snowfall, maintenance personnel can ensure that snow and ice can be more easily removed.
- For larger areas in need of snow removal and de-icing such as paved courtyards, the maintenance staff will follow the procedure described above. De-icing agents can introduce harmful chemical pollutants into the environment. Maintenance staff will use magnesium and potassium chloride ice-melting products instead of the more commonly utilized sodium and calcium chloride products. Magnesium and potassium chloride de-icing agents are not only less harmful to vegetation, but are also less damaging to exterior walkways and interior flooring.



Maintenance staff will use a spreader to uniformly disperse the chemical de-icing compounds and to ensure that the correct amount of agent is used. Sand may also be used in less critical areas, especially during the shoulder seasons when natural ice melt occurs more quickly. Liquid de-icing agents will only be used in areas that are especially important to prevent ice from forming or where the use of an ice-melting chemical is not possible.

C. CLEANING OF BUILDING EXTERIOR

Exterior building cleaning and maintenance activities shall be performed to minimize the environmental impact of chemical pollutants. Toxic exterior maintenance products shall be eliminated and replaced with eco-friendly cleaners.

PERFORMANCE METRICS

The practices listed below shall be implemented to the extent noted in the table. When less than complete adoption occurs, the performance metrics indicated will be used to gauge performance against the implementation target.

Building Cleaning and Maintenance Activity	Performance Metric	Implementation Target
IEQ Sustainable Cleaning Products Compliant Chemicals/Cleaning Products	Percentage of applicable chemicals purchased based on cost	20%>

PRACTICES TO OPTIMIZE BUILDING EXTERIOR CLEANING

- Manual cleaning will be the standard for exterior building and hardscape cleaning and maintenance. Pressure washing will be used only after manual methods have failed to deliver positive results. Wherever possible, cleaning agents as well as any solvents utilized for the maintenance of the exterior hardscape, will be Green Seal certified and/or approved by EPA's Environmentally Preferred Purchasing (EPP) program.
- Window descaling (lime and calcium deposit removal) will be handled in the same fashion as window cleaning; low-VOC and low-toxicity agents will be used and sparingly so. If pressure washing is utilized to remove scale from the exterior of the building, whether from windows or from the façade, maintenance staff will make every effort to reduce water consumption by employing low-flow nozzle heads. Best management practices call for the use of chemicals, equipment and procedures which minimize the use of harmful chemicals, energy waste, water waste, air pollution, solid waste and/or chemical runoff.
- Suppliers shall provide Material Safety Data Sheets (MSDS) and Technical Bulletins for all exterior maintenance products. In case of emergency, each MSDS shall be easily accessible for reference.
- Prior to use onsite, all products shall be submitted to the Property Manager for review and approval.
- Window washing shall be performed with a Green Seal–certified glass and window cleaning product or an Environmental Choice Ecologo–certified dishwashing liquid soap. Other cleaning products used onsite shall qualify as “low environmental impact” products and shall comply with applicable Green Seal or Environmental Choice standards.
- Product types not covered by Green Seal or Environmental Choice shall comply with the California Code of Regulations maximum allowable VOC levels for the appropriate cleaning product category. This requirement will limit the opportunities for environmental exposure to harmful chemicals.
- Cleaning and maintenance personnel shall be properly trained in the use, maintenance, and disposal of exterior cleaning chemicals and equipment.



More specifically, cleaning products shall meet one of the following requirements:

Cleaning products shall meet one or more of the following standards for the appropriate category:

1. Green Seal GS-37, for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes
2. Environmental Choice CCD-110, for cleaning and decreasing compounds
3. Environmental Choice CCD-146, for hard surface cleaners
4. Environmental Choice CCD-148, for carpet and upholstery care.

Disinfectants, metal polish, floor finishes, strippers or other products not addressed by the above standards meet one or more of the following standards for the appropriate category:

1. Green Seal GS-40, for industrial and institutional floor care products
2. Environmental Choice CCD-112, for digestion additives for cleaning and odor control
3. Environmental Choice CCD-113, for drain or grease traps additives
4. Environmental Choice CCD-115, for odor control additives
5. Environmental Choice CCD-147, for hard floor care
6. California Code of Regulations maximum allowable VOC levels for the specific product category

Disposable janitorial paper products and trash bags meet the minimum requirements of one or more of the following programs for the applicable product category:

1. US EPA Comprehensive Procurement Guidelines for Janitorial Paper and Plastic Trash Can Liners
2. Plastic Trash Can Liners no thicker than 0.70 mils (17.78 microns)
3. Green Seal GS-09, for paper towels and napkins
4. Green Seal GS-01, for tissue paper
5. Environmental Choice CCD-082, for toilet tissue
6. Environmental Choice CCD-086, for hand towels
7. Janitorial paper products derived from rapidly renewable resources or made from tree-free fibers

D. PAINTS AND SEALANTS USED ON BUILDING EXTERIOR

All exterior paints and sealants shall be low-VOC, environmentally friendly products.

PERFORMANCE METRICS

This Plan shall govern all components of exterior painting and sealing at the project building. The practices identified in this Plan shall be wholly adopted and used in 100% of building exterior painting and sealing activities at 2500 City West.

Painting or Sealing Products	Performance Metric	Implementation Target
SCAQMD Rule #1168: Compliant Paints and Sealants	Percentage of applicable products purchased, based on cost	100%

PRACTICES TO OPTIMIZE THE USE OF ENVIRONMENTALLY PREFERRED PAINTS AND SEALANTS

- Maintenance personnel will also reduce the use of toxic and high-VOC exterior sealants, paints and stains to the greatest extent possible. Paints and sealants must comply with the VOC content limits of South Coast Air Quality Management District (SCAQMD) Rule #1168, listed in the table



below and that do not exceed the limit of Green Seal's Standard GS-11¹ requirements.

- If leaking occurs in exterior sections of the building and/or hardscape, contracted maintenance personnel will select waterproofing methodologies and products that reduce the occurrence of harmful chemical emissions. Waterborne, low-toxicity, low-VOC, liquid rubber and asphalt emulsion waterproofing applications will be employed whenever possible.
- Exterior painters will be trained in procedures that reduce chemical emissions and water consumption (needed for post painting clean-up).
- Sealants and fillers used shall meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51². Any time sealants, paints or stains are required for the exterior of the building, products which meet these criteria will be specified whenever possible. Not only will this reduce harmful chemical emissions into the environment, but it will also help to protect the health of the maintenance personnel.
- The property shall incorporate VOC limits for paints and sealants in contractor bid documents to ensure that external entities working onsite follow the requirements.

Architectural Applications	VOC Limit [g/L less water]	Specialty Applications	VOC Limit [g/L less water]
Indoor carpet adhesives	50	PVC welding	510
Carpet pad adhesives	50	CPVC welding	490
Wood flooring Adhesives	100	ABS welding	325
Rubber floor adhesives	60	Plastic cement welding	250
Subfloor adhesives	50	Adhesive primer for plastic	550
Ceramic tile adhesives	65	Contact adhesive	80
VCT and asphalt adhesives	50	Special purpose contact adhesive	250
Drywall and panel adhesives	50	Structural wood member adhesive	140
Cove base adhesives	50	Sheet applied rubber lining operations	850
Multipurpose construction adhesives	70	Top and trim adhesive	250
Structural glazing adhesives	100		
Substrate Specific Applications	VOC Limit [g/L less water]	Sealants	VOC Limit [g/L less water]
Metal-to-metal	30	Architectural	250
Plastic foams	50	Non-membrane roof	300
Porous materials (except wood)	50	Roadway	250
Wood	30	Single-ply roof membrane	450
Fiberglass	80	Other	420
Sealant Primers	VOC Limit [g/L less water]		
Architectural non-porous	250		
Architectural porous	775		
Other	750		

¹ GS-11 Green Seal™ Environmental Standard for Paints and Coatings:
http://www.greenseal.org/certification/standards/paints_and_coatings.pdf

² Bay Area Air Quality Management District Regulation 8, Rule 51
<http://www.baaqmd.gov/dst/regulations/rg0851.pdf>



E. CLEANING OF SIDEWALKS, PAVEMENT AND OTHER HARDSCAPE

Hardscape maintenance shall be performed in a manner that minimizes the environmental impact of power equipment and cleaning chemicals.

PERFORMANCE METRICS

The practices listed below shall be implemented to the extent noted in the table. Where less than complete adoption occurs, the performance metrics indicated will be used to measure performance against the implementation target.

Site Management Products/Materials	Performance Metric	Implementation Target
Power washing equipment with water reclamation	<n/a>	Complete adoption
EQc3.4–3.6: Compliant Chemicals	Percent of applicable chemicals purchased based on cost	20%>

PRACTICES TO OPTIMIZE HARDSCAPE MAINTENANCE

- Hardscape cleaning is primarily performed with electric power sweepers and manual tools to maintain the walkways, pavement, and other hardscapes. The limited use of gas-powered equipment conserves fossil fuels and minimizes greenhouse gas emissions.
- Chemical use for hardscape maintenance shall be minimal and, when necessary, should be based on products or practices that conserve water and utilize biodegradable, low-impact cleaning products. Environmentally safe cleaners prevent harmful chemical runoff and water pollution.
- When applicable, the minimum amount of cleaning product that is effective shall be used on the hardscape and shall meet the requirements of IEQc3.4–3.6: Green Cleaning, Sustainable Cleaning Products and Materials.
- Manual cleaning will be the standard for hardscape maintenance. Pressure washing will be used only after manual methods have failed to deliver positive results. Wherever possible, cleaning agents, as well as any solvents utilized for the maintenance of the exterior hardscape, will be Green Seal certified and/or approved by EPA's Environmentally Preferred Purchasing (EPP) program.
- Should stone or brick repair and maintenance be required on or around the building exterior, the party responsible for such service will strive to use reclaimed stone and brick wherever possible. Moreover, the environmental impact of the mortar and joint compounds used to repaint exteriors will be considered when undertaking repairs.

5. PERFORMANCE MEASUREMENT

All documentation relating to the tasks required by this Exterior Building and Hardscape Management Plan will be kept on TPG's SharePoint Sustainability site for purposes of LEED-EB O&M (re)certification.

A detailed log of actions taken in compliance with this policy will be maintained. The building has established performance metrics for compliancy based on "product cost", "frequency of use" and or "volume" as appropriate for each category to access how actual outcomes and required sustainability performance for each component of this plan will be measured and tracked over time. On an annual basis the management team will calculate the total product and labor dollars spent on building exterior and hardscape management during the previous year. The management team will also access the portion of this expenditure that is attributable to conventional exterior and hardscape management (dollars spent on gasoline, conventional deicer, non –compliant cleaning chemicals and equipment and/or non-compliant paints and sealants.)



All operations and maintenance personnel involved in exterior building and hardscape management will have access to this log. Additionally, a list of cleaning products, deicers, maintenance sealers, adhesives, paints, and equipment used onsite will be maintained.

Property managers are required to identify on the log description if the activity being described does not comply with policy and an explanation of measures being taken to achieve compliance. The compliance report shown on this plan shall be filled out on an annual basis for verification against the established compliance targets.

Percentage of Compliance shall be determined using the performance metrics for each component of the plan and shall be logged in the Exterior Management Plan Log. Full plan compliance is achieved when each performance metric for each component is achieved (where applicable). Documentation demonstrating that the project building uses environmentally preferred practices to a significant degree (at least 20% of the time for each category during the performance period) for all operational elements of the plan will be verified through the Exterior Management Plan Log (see item 9). The goal is complete plan adoption.

- *At least 20% of all annual exterior maintenance equipment shall meet the sustainability criteria outlined by this plan.*
- *At least 20% of all annual snow and ice removal shall meet the sustainability criteria outlined by this plan. (Consider completed if N/A in your region)*
- *At least 20% of all annual exterior cleaning shall meet the sustainability criteria outlined by this plan.*
- *At least 20% of all annual paint and sealants shall meet the sustainability criteria outlined by this plan.*
- *At least 20% of all annual expenditures related to sidewalks, pavement and other hardscape shall meet the sustainability criteria outlined on this plan.*

6. ENVIRONMENTAL BENEFITS OF IMPLEMENTED BEST PRACTICES

Topics	Best Management Practices	Environmental Benefit Compared to Standard Practice
HARDSCAPE MAINTENANCE	Manual cleaning will be used when possible. Pressure washing will be used if manual methods are not sufficient to deliver positive results.	Manual cleaning reduces external noise. The limited use of powered equipment conserves fossil fuels and minimizes greenhouse gas emissions.
	When applicable, the minimum amount of cleaning products that is effective shall be used on the hardscape and shall meet the requirements of IEQ: Green Cleaning – Sustainable Cleaning Products and Materials.	Limiting the amount of chemicals used on site protects vegetation and receiving waterways. Additionally, environmentally safe cleaners prevent harmful chemical runoff and water pollution.
	Should stone or brick repair and maintenance be required on or around the building exterior, the party responsible for such service will strive to use reclaimed stone and brick wherever possible. Moreover,	Using reclaimed stone and brick will help prevent extraction of raw natural resources and preserve limited landfill space.



	the environmental impact of the mortar and joint compounds used to repoint exteriors will be considered when undertaking repairs.	
BUILDING EXTERIOR CLEANING	Manual cleaning will be used when possible. Pressure washing will be used if manual methods are not sufficient to deliver positive results.	Manual cleaning reduces external noise. The limited use of powered equipment conserves fossil fuels and minimizes greenhouse gas emissions.
	Low-toxicity and low-VOC, and biodegradable window-washing agents will be used. The cleaning agents will be portion controlled. Proper training and protective clothing will be used for maintenance personnel.	Clothing and training will reduce chemical exposure and reduce the occurrence of accidents.
	Window descaling will use low-VOC and low-toxicity agents. If pressure washing is utilized to remove scale from the exterior of the building, maintenance staff will reduce water consumption by employing low-flow nozzle heads.	Environmentally safe cleaners prevent harmful chemical runoff and water pollution. Using low-flow nozzle heads will help avoid overwatering the plants and save water.
PAINTS AND SEALANTS	If leaking occurs in exterior sections of the building and/or hardscape, contracted maintenance personnel will select waterproofing methodologies and products that reduce the occurrence of harmful chemical emissions.	These requirements will limit the opportunities for environmental exposure to harmful chemicals.
	<p>Paints that are used shall have a VOC content less than the current VOC content limits of SCAQM 1168. Exterior painters will be trained in procedures that reduce chemical emissions and water consumption (needed for post painting clean-up).</p> <p>Sealants and filters shall meet or exceed the requirements of BAAQMD Reg 8 Rule 51.</p>	This measure will limit the opportunities for environmental exposure to harmful chemicals. VOCs contribute to the formation smog as well as directly affecting the respiratory health of people. Selecting low-VOC products reduces or eliminates air pollutants.
GENERAL MAINTENANCE EQUIPMENT	Manual equipment will be used whenever practical. Low emitting equipment will be selected whenever possible	Manual equipment will reduce emissions and produce less noise.
	When a gas powered leaf blower is necessary, it will be	Determining when powered equipment will be used greatly



	used prior to 8:00 a.m.	minimizes external noise.
SNOW REMOVAL PLAN AND EQUIPMENT	Whenever possible, maintenance personnel will not remove snow from non-essential and seldom-used walkways and entryways.	This practice significantly reducing the overall need for deicing chemicals, minimizing the risk of harmful chemical runoff into ground water and local waterways.
	Mechanical fossil fuel driven equipment is not used for snow/ice removal.	Fossil fuels contribute to greenhouse gases and adversely affect the environment. This practice will reduce emissions.
DE-ICING PLAN AND EQUIPMENT	Maintenance staff will avoid de-icing by evaluating the type of precipitation. If de-icing is needed, it will be applied before precipitation.	Applying de-icing agents before precipitation will increase the likelihood of snow and ice being removed, thus making the building grounds a safer environment.

7. QUALITY ASSURANCE / QUALITY CONTROL PROCESSES

The party(s) responsible shall periodically evaluate the success of the Plan. This evaluation may include producing and providing a report on an annual basis to senior management. Whenever possible, the annual reports shall include an evaluation of the performance, safety, cost and environmental/public health benefits achieved as a result of its implementation.

Prior to implementation, service providers involved in the building's Plan shall submit all proposed pest management activities to the responsible parties, listed in this plan. Upon reviewing proposed activities, the responsible parties shall determine if they meet the criteria of the Plan and approve or deny action.

The responsible parties, listed in this plan, shall regularly communicate with all service providers, and conduct regular site inspections and evaluations to ensure that the Plan is in place and functioning as intended. In addition to ongoing quality control measures, Brandi Stacy will review all practices and products prior to contract renewal (typically annually) to identify opportunities for improvement and expansion of environmentally-friendly practices.

The Property Manager is to provide an annual Environmental Sustainability Report to the Vice President of Property Operations (Wayne Hendrickson) at the end of the first quarter detailing the previous year's environmental achievements. This annual document is to be saved on the SharePoint Sustainability Site under the respective property and credit folder. Since LEED-EBOM requires ongoing monitoring, it is important to include subcontractor specifications and reports, photographs, and a written description of any findings concerning any of the activities found herein.

8. RESOURCES AND REFERENCES

Green seal: An independent nonprofit organization that provides a catalog of environmentally responsible products including cleaners and adhesives: <http://www.greenseal.org>

EPA's Environmentally Preferable Purchasing program: EPP is used by the federal government and other industries to streamline the purchase of environmentally friendly products and equipment: <http://www.epa.gov/epp>

Minnesota Winter Parking Lot and Sidewalk Maintenance Manual: <http://www.co.mchenry.il.us/common/countyDpt/WaterRes/PDFDocs/ReccommendedOutlineforParkingLotandSidewalkAntiandDe-Icing12-31-2007.pdf>

The Pennsylvania Green Building Operations and Maintenance Manual: http://www.dgs.state.pa.us/dgs/lib/dgs/green_bldg/greenbuildingbook.pdf



9. SAMPLE EXTERIOR MANAGEMENT PLAN LOG / REPORT

EXTERIOR & HARDSCAPE MANAGEMENT LOG

A. EXTERIOR MAINTENANCE EQUIPMENT						
#	Date	Performing Party	Maintenance Equipment	Compliance Metric	Comments	Percentage of compliance
			Uses electric power			% of applicable pieces of equipment or frequency of use
			New equipment will be lower-impact alternatives (e.g., electric powered or low-decibel blowers)			% of applicable pieces of equipment or frequency of use
			When blowers are needed, they must be used before 8:00 a.m.			Yes or No
			Mulching mower			% of applicable pieces of equipment or frequency of use
			Uses low-smoke oil			% of applicable pieces of equipment or frequency of use
			Manual spring cleanup	n/a		
			Manual weekly weeding	n/a		
			Manual pruning	n/a		
			Pressure Washer			% of applicable pieces of equipment or frequency of use
			Snow Blower			% of applicable pieces of equipment or frequency of use
			Brooms			% of applicable pieces of equipment or frequency of use
			Rakes			% of applicable pieces of equipment or frequency of use
			Spreaders			% of applicable pieces of equipment or frequency of use
* The plan requires 20% minimum compliance for each category of the plan.						TOTAL

B. SNOW AND ICE REMOVAL						
#	Date	Performing Party	Site Management Products/Materials	Compliance Metric	Comments	Percentage of compliance
			Non-calcium chloride or sodium chloride deicing chemicals	n/a		
			Anti-icing measures	n/a		
* The plan requires 20% minimum compliance for each category of the plan.						TOTAL

C. CLEANING OF BUILDING EXTERIOR						
#	Date	Performing Party	Building Cleaning and Maintenance Activity	Compliance Metric	Comments	Percentage of compliance
			IEQ Sustainable Cleaning Products Compliant Chemicals/Cleaning Products	GS-37		Percentage of applicable chemicals purchased based on cost
* The plan requires 20% minimum compliance for each category of the plan.						TOTAL

D. PAINTS AND SEALANTS USED ON BUILD						
#	Date	Performing Party	Painting or Sealing Products	Compliance Metric	Comments	Percentage of compliance
			S/CAQMD Rule #1168: Compliant Paints and Sealants			Percentage of applicable products purchased, based on cost
* The plan requires 20% minimum compliance for each category of the plan.						TOTAL

E. CLEANING OF SIDEWALKS, PAVEMENT AND OTHER HARDSCAPE						
#	Date	Performing Party	Site Management Products/Materials	Compliance Metric	Comments	Percentage of compliance
			Power washing equipment with water reclamation			<n/a>
			EQc3.4-3.6: Compliant Chemicals			Percent of applicable chemicals purchased based on cost
* The plan requires 20% minimum compliance for each category of the plan.						TOTAL