

D. WATER (100 points)

D.1 Water

Objective: Increase water efficiency and reduce the burden on municipal supply and treatment systems

<p>D.1.1 Based on the water consumption estimates, does the water consumption for the whole building (gallons/square feet) meet or surpass the requirements set forth in the Energy Policy Act of 1992? (Select the type of fixtures from pull down menu and input the number of people using those fixtures.)</p>	<p>Points are awarded for 1-30% or more water savings for the design case compared to the “base case”. A “base case” is one in which all fixtures are standard fixtures that comply with the Energy Policy Act of 1992. The Green Globes system will calculate this based on the percentage water savings over and above EPACT case.</p> <p>Maximum points = 30 points e.g.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">EPACT PERFORMANCE</th> <th style="text-align: center;">SCORE</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> 5% or more</td> <td style="text-align: center;">10 points</td> </tr> <tr> <td><input type="checkbox"/> 10% or more</td> <td style="text-align: center;">20 points</td> </tr> <tr> <td><input type="checkbox"/> 15% or more</td> <td style="text-align: center;">25 points</td> </tr> <tr> <td><input type="checkbox"/> 20% or more</td> <td style="text-align: center;">30 points</td> </tr> <tr> <td><input type="checkbox"/> 25% or more</td> <td style="text-align: center;">35 points</td> </tr> <tr> <td><input type="checkbox"/> 30% or more</td> <td style="text-align: center;">40 points</td> </tr> </tbody> </table>	EPACT PERFORMANCE	SCORE	<input type="checkbox"/> 5% or more	10 points	<input type="checkbox"/> 10% or more	20 points	<input type="checkbox"/> 15% or more	25 points	<input type="checkbox"/> 20% or more	30 points	<input type="checkbox"/> 25% or more	35 points	<input type="checkbox"/> 30% or more	40 points																
EPACT PERFORMANCE	SCORE																														
<input type="checkbox"/> 5% or more	10 points																														
<input type="checkbox"/> 10% or more	20 points																														
<input type="checkbox"/> 15% or more	25 points																														
<input type="checkbox"/> 20% or more	30 points																														
<input type="checkbox"/> 25% or more	35 points																														
<input type="checkbox"/> 30% or more	40 points																														
<p>For standard building types with normal water fixture usage patterns, input the type of the fixtures in the building and occupant load (number of people) below.</p> <p>Based on the type of fixtures and occupant load entered, using standard values for estimated flow rates, duration of use and daily usage, Green Globes will calculate the estimated water consumption and the savings compared to the requirements of the Energy Policy Act of 1992.</p> <p>For specialized building types using significant quantity of water such as sports facilities or dormitories provide separate input based on the above criteria comparing the actual fixtures installed with the EPAC 1992 requirements.</p>																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Flow Fixtures</th> <th style="text-align: left;">Type of Flow Fixtures (from pull down menu)</th> <th style="text-align: left;">Number of people (regular users using the fixtures)</th> </tr> </thead> <tbody> <tr> <td>Lavatory</td> <td>e.g. Conventional Lavatory</td> <td></td> </tr> <tr> <td>Sink</td> <td>e.g. Low-Flow Kitchen Sink</td> <td></td> </tr> <tr> <td>Shower</td> <td>e.g. Low-Flow Shower</td> <td></td> </tr> <tr> <td>Hand Wash Fountain</td> <td>e.g. Hand Wash Fountain</td> <td></td> </tr> <tr> <th style="text-align: left;">Flush Fixtures</th> <th style="text-align: left;">Type of Flush Fixtures (from pull down menu)</th> <td></td> </tr> <tr> <td>Toilet</td> <td>e.g. Toilet</td> <td></td> </tr> <tr> <td>Male</td> <td></td> <td></td> </tr> <tr> <td>Female</td> <td></td> <td></td> </tr> <tr> <td>Urinals</td> <td>e.g. Waterless Urinal</td> <td></td> </tr> </tbody> </table>	Flow Fixtures	Type of Flow Fixtures (from pull down menu)	Number of people (regular users using the fixtures)	Lavatory	e.g. Conventional Lavatory		Sink	e.g. Low-Flow Kitchen Sink		Shower	e.g. Low-Flow Shower		Hand Wash Fountain	e.g. Hand Wash Fountain		Flush Fixtures	Type of Flush Fixtures (from pull down menu)		Toilet	e.g. Toilet		Male			Female			Urinals	e.g. Waterless Urinal		<p>Provide specification references _____</p>
Flow Fixtures	Type of Flow Fixtures (from pull down menu)	Number of people (regular users using the fixtures)																													
Lavatory	e.g. Conventional Lavatory																														
Sink	e.g. Low-Flow Kitchen Sink																														
Shower	e.g. Low-Flow Shower																														
Hand Wash Fountain	e.g. Hand Wash Fountain																														
Flush Fixtures	Type of Flush Fixtures (from pull down menu)																														
Toilet	e.g. Toilet																														
Male																															
Female																															
Urinals	e.g. Waterless Urinal																														

Verification: Verify by reviewing cut sheets of fixtures installed.

Final verification: Conduct a visual verification.

D.2 Water-conserving features (40 points)

Sub-metering

Objective: Encourage water conservation through ongoing measurement of water consumption.

<p>D.2.1 Is there sub-metering of high-water use operations and/or occupancies with high usage (such as wet-cooling towers, irrigation, commercial kitchens, laundries, laboratories, sports facilities and DHW boilers.) Mark “not applicable” if none of these uses exist.</p>	<p>5 points</p>
<p>Select high-water use operations that are sub-metered.</p> <ul style="list-style-type: none"> • Wet-cooling towers • Irrigation • Commercial kitchens, laundries, laboratories and sports facilities • DHW Boilers 	<p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p>

Verification: Review drawings and specifications to check whether there is sub-metering for high water-use operations and/or tenancies

Final verification: Conduct a visual verification.

Minimal use of water for cooling towers

Objective: Reduce domestic water and sewer requirements.

<p>D.2.2 Where wet cooling towers are used, do they have the following features to minimize the consumption of make-up water? Mark “not applicable” where there are no cooling towers.</p>	
<ul style="list-style-type: none"> • Make up water is from stored rain water source. 	<p>5 points</p>
<ul style="list-style-type: none"> • Automatic control (to shut off the unit when the facility is unoccupied such as at night or on weekends, or to operate it concurrently with chillers). 	<p>2 points</p>
<ul style="list-style-type: none"> • Conductivity probes (to measure the total dissolved solids so as to minimize the blowdown cycle). 	<p>2 points</p>
<ul style="list-style-type: none"> • Automated blowdown systems (so that blowdown is done only as needed, rather than routinely). 	<p>2 points</p>
<ul style="list-style-type: none"> • Delimiters (to reduce drift and evaporation). 	<p>2 points</p>
<ul style="list-style-type: none"> • Water data loggers (to measure water that is not discharged to sewage system, such as water that has evaporated from the cooling tower). 	<p>2 points</p>
<p>Provide references to drawing and specification. _____</p>	

Verification: Where there are wet-cooling towers, review specifications to check that there are:

- automatic control (to shut off the unit when the facility is unoccupied such as at night or on weekends, or to operate it concurrently with chillers).
- automated blowdown (so that blowdown occurs only as needed, rather than routinely.)
- conductivity probes (to measure the total dissolved solids to minimize the blowdown cycle).
- delimiters (to reduce drift and evaporation).
- water data loggers (to measure water that is not discharged to sewage system, such as water that has evaporated from the cooling tower).

Final verification: Conduct a visual verification.

Minimal use of water for irrigation

Objective: Eliminate or reduce the use of potable water required for landscape irrigation

D.2.3 Does the landscaping avoid the need for irrigation altogether OR is non-potable water (e.g. captured rainwater or recycled site water) used for irrigation? Where there is minimal landscaping, i.e. no more than 2% of the site plan, mark “not applicable”.	
• Landscaping avoids the need for irrigation altogether.	10 points
• 100% of the irrigation consists of non-potable water.	6 points
• Irrigation consists of non-potable water, supplemented with potable water as needed.	2 points
Provide references to drawings and specifications. _____	

Verification: Review drawings and specifications to verify that irrigation with potable water is avoided and that there is a system to capture non-potable water for irrigation (such as rain barrels or cistern).

Final verification: Conduct a visual verification.

D.2.4 Where potable water is used for irrigation, is there a water-efficient system that uses the following? Where there is no irrigation using potable water or where there is minimal landscaping, i.e. no more than 2% of the site plan, mark “not applicable.”	
OR	<ul style="list-style-type: none"> • Low-volume, low-angle sprinklers with sprinkler heads that fit the size and shape of the areas to be watered.
	{ 1 point OR
	3 points}
	<ul style="list-style-type: none"> • Drip or sub-surface irrigation, alone or in combination with low-volume, low angle sprinkles with sprinkler heads that fit the size and shape of areas to be watered.
	1 point
	<ul style="list-style-type: none"> • Programmable controllers with adjustable watering scheduling.
	1 point
	<ul style="list-style-type: none"> • Moisture sensors.
	1 point

Verification: Where there is an irrigation system, review site drawings and cut sheets to verify that it includes the following water-conserving features:

- low-volume, low-angle sprinklers with sprinkler heads that fit the size and shape of the areas to be watered.
- Drip irrigation or subsurface sprinklers alone or in combination with low-volume, low angle sprinkles with sprinkler heads that fit the size and shape of areas to be watered.
- programmable controllers with adjustable watering scheduling.
- moisture sensors.

Final verification: Conduct a visual verification.

<p>D.2.5 Do landscape plantings (including lawn turf) have “low supplemental watering requirements” based on local references (e.g. a Local or State Plant Society Native Species Planting List)? <i>Where there is minimal landscaping, i.e. no more than 2% of the site plan, mark “n/a”. Where there are no local or state guidelines, mark “not applicable”.</i></p>	<p>5 points or n/a</p>
<p>Provide the local reference that was used to guide the selection of plants. _____</p> <p>Provide reference to Landscape Plan and specifications. _____</p>	
<p>D.2.6 Does the landscaping avoid lawn?</p>	<p>5 points or n/a</p>
<p>OR</p> <p>D.2.7 Are lawn areas specified only for functional purposes such as a designated picnicking area or playing fields?</p>	<p>1 point or n/a</p>
<p>Provide reference to Landscape Plan and specifications. _____</p> <p>Where there are functional lawn areas, briefly describe their location, size and purpose. _____</p>	

Verification: Review the list of plants specified and compare it to local reference (e.g. a Local Plant Society Guidelines) to verify that they are in the “low” supplemental watering category for the climatic region. Review specifications to verify that lawn areas are designated for functional use such as picnicking or playing fields.

Final verification: Conduct a visual verification.

D.3 Reduce off-site treatment of water (20 points)

Objective: Reduce the burden on municipal water supply and wastewater systems.

<p>D.3.1 Is there a gray water collection, treatment and distribution system? <i>Where there is minimal landscaping, i.e. no more than 10% of the site plan, or where there a low volume of gray water that is generated, or where the climatic conditions are not favorable or where the materials and energy needed for piping and pumping gray water would clearly exceed the environmental benefits, mark “not applicable.”</i></p>	<p>10 points or n/a</p>
<p>Briefly describe the gray water system or describe briefly why a gray water system may not be technically feasible or environmentally preferable. _____</p>	

Verification: Review drawings and diagrams for the gray water system.

Final verification: Conduct a visual verification.

<p>D. 3.2 Are on-site black wastewater treatment system and/or composting toilets specified? <i>Where the use of black-water is minimal, or where the climatic conditions are not favorable or where that the materials and energy needed for piping and pumping clearly exceed the environmental benefits, or where regulations forbid it, mark “not applicable.”</i></p>	<p>10 points or n/a</p>
<p>Briefly describe the on-site black wastewater treatment or describe briefly why a black water system may not be technically feasible or environmentally preferable. _____</p>	

Verification: Review drawings and cut sheets to check that there is an on-site black water treatment system.

Final verification: Conduct a visual verification.