



# Water Efficiency

## Compiled Comments

|         |  |   |            |
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| General |  | Reframe landscape so that it is an integral part of the stormwater treatment system rather than being considered “decoration” only.   | A. Paul    |
| General |  | Irrigation should be part of the stormwater treatment system, same as landscape (plants, soil, hydrology). No planting should be designed that requires potable irrigation to sustain it.   | A. Paul    |
| General |  | LEED still using 1992 standards, too old to measure as a baseline? Do we need to find a new baseline?   | All        |
| General |  | Should the 20% prerequisite be increased to a higher percentage?  | All        |
| General |  | Overarching Comment – Suggest Re-organizing document to consider other sections implications and applications and their impact (INTEGRATE SECTIONS) : <ul style="list-style-type: none"> <li>• Storm-water and Water Treatment need to be considered in Water Efficiency?</li> <li>• Pull Landscaping from Water Efficiency and Put into Sustainable Site (as it relates to storm water)?</li> <li>• Audit where the water goes after it leaves the meter</li> <li>• Glycol is a huge factor although not specific to Water it affects all sections – Merge this concept with effective use (infiltration and subsurface wetlands)</li> </ul> | All        |
| General |  | Review “points” as allocated between options to insure proper weighting versus simply accepting LEED allocations.   | S. Howards |
| General |  | Perhaps a negative point system should be introduced to offset the points awarded for green technology that may have a negative environmental impact on another section. For instance, by-products that need to be disposed of during fabrication or maintenance of this green technology. The question needs to be asked if the production, implementation and/or maintenance of a green technology has a negative environmental cost and how can it be weighed.   | D. Izewski |
| General |  | Follow-up on Alternative Technologies to Glycol that would have less impact on water  | All        |

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|         |  | efficiency/processing/etc. Ex. Beet Juice, Urea, Alcohol. Would need to follow-up/ investigate safety/liability aspects of all alternates! Team also questioned use of Gray Water to dilute glycol and incorporating plants/landscaping acting as filtration systems.   |                               |
| General |  | Water is generally “head-end” metered but very little measures exist that track where water is being used. Increase measures at point of use (e.g. Site/Area/Building Sub-metering). Innovative measures – Where could a project add technology to measure rates of consumption, rates of return for storm, waste water etc. Measures create awareness – awareness creates opportunity to improve!  | All                           |
| General |  | Best Available Technology needs to be listed<br>- Airports should be pushed in this direction instead<br>- It is an opportunity to point out LEED’s weaknesses  | All                           |
| General |  | There needs to be a distinction between high volume passenger traffic areas and office facilities   | All                           |
| General |  | Waterless Urinals<br>- In trials of various versions the low flow tech was the best<br>- With the waterless there were issues with the maintenance- no one wanted to change the filter<br>- They still need some water and the cartridges end up weekly in the landfills  | All                           |
| General |  | Blowout Fixtures - Most do not know what it is anymore  | All                           |
| General |  | Water Use Reduction - suggest “dry fixtures” could be a greater maintenance issue/problem; water is still used to clean them daily; filters require constant changing, a task that may be avoided by maintenance staff, and creates a landfill issue due to chemical/by-product.  | All                           |
| 2.1     |  | One area that has not been discussed for water use savings is leak detection. One idea is to develop an overall metering program at the airport that would allow you to track water use. Then if the actual use was much higher than the expected use, an investigation of the problem could be made to find a leak.<br><br>Integrate or reference need to have soil monitoring for moisture and gray water concentration relative to plant tolerances, etc. as means to detect leaks in pipes or | T. Thornton<br><br>S. Howards |

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|            |   | identify over-saturation from irrigation instead reliance on manual or timer devices where traditional irrigation systems cannot be reduced or replaced with gray water application.   |             |
| 2.1        |   | In Design Guidelines, SDM should provide links to best available technology for fixtures, fittings, etc. Update annually or as often as practical.   | All         |
| 2.1        |   | Gray Water – Need further evaluation on use of gray water for sanitary/flushing. Point was made that cost of flushing with clean water may be cheaper than the cost to treat waste stream using less than clean water options (i.e. requires more time/more energy to process). Plumbing and Safety and Health Codes would have to be factored into this discussion (Notion of Recapture and Re-use vs. Safety and Liability). Not enough time to evaluate this item!? | All         |
| 2.1        |   | Need to examine Best Available Technology for Urinals and Toilets to determine appropriate starting point and implications of using non-Federal based standard.  | All (PPT)   |
| 2.1        |   | Recognize problems associated with waterless (maintenance and waste created by filters; disposal issue/landfill item?)   | All (PPT)   |
| 2.1<br>2.2 |   | Irrigation should be considered as part of overall water reclamation and treatment program and such systems should include methods for monitoring soil moisture and leak detection to ensure appropriate delivery  | All (PPT)   |
| 2.2.2      |   | Consider allowing permanent irrigation if found to be preferable method for utilizing graywater or non-potable water.  | S. Howards  |
| 2.1<br>2.2 |   | Variances for non-native vegetation should be approved when they yield environmental benefits (i.e. green roofs or re-entrainment)   | All (PPT)   |
| 2.2.1      |   | Design Recommendations-Bullet 2-Remove native vegetation and replace with Utilize vegetation found in sustainable airport landscaping spec.,   | T. Guerrant |
| 2.2.1      | 4 | Under “Design Recommendations,” the second bullet regarding the use of native plants: Native plants often are not suitable for un-irrigated thin (extensive) green roofs because green roof media is not similar to ground soil. Perhaps this provision could be restricted to on-ground landscaping.  | M. Muroff   |
| 2.2.1      | 4 | Under Design Recommendations I would put: Use vegetated swales and depressions to reduce runoff in landside locations.   | T. Thornton |
| 2.2.1      |   | Current Practices – T-901 and Specs 02920 & 02905 are referenced. Provide these in   | D. Izewski  |

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|       |   | an appendix.  |             |
| 2.2.1 |   | Design Recommendations – “Coordinate these areas with irrigation the plan”. Should this read coordinate these areas with the irrigation plan?   | D. Izewski  |
| 2.2.2 | 5 | Under Design Recommendations I would put: Use vegetated swales and depressions to reduce runoff in non-airside locations.   | T. Thornton |
| 2.2.2 | 5 | Under “SUBMITTALS: TECHNOLOGY/STRATEGY,” note that “indigenous” plants often are not suitable for un-irrigated thin (extensive) green roofs because green roof media is not similar to ground soil. Perhaps this provision could be restricted to on-ground landscaping.                              | M. Muroff   |
| 2.2.2 | 5 | Under “SUBMITTALS: TECHNOLOGY/STRATEGY, Design Recommendations – second bullet,” “native vegetation” often is not suitable for un-irrigated thin (extensive) green roofs because green roof media is not similar to ground soil. Perhaps this provision could be restricted to on-ground landscaping. | M. Muroff   |
| 2.2.2 |   | Design Recommendations-Bullet 2-Remove native vegetation and replace with Utilize vegetation found in sustainable airport landscaping spec., ....   | T. Guerrant |
| 2.3   |   | Design Recommendations – Design bioretention and biofiltration areas to collect and treat stormwater runoff, particularly in parking lots. Use recessed landscape islands instead of raised.  | D. Izewski  |
| 2.3   |   | Evaluate the use of rain harvest scuppers and use of underdrain sump pump water for non potable use. I am not sure if the storm water on the airside can be used for non-potable applications without first treating it because of the deicing chemicals.   | T. Thornton |
| 2.3   |   | If feasible, encourage reuse of wastewater from aircraft washing for washing of additional aircraft   | K. Westlake |
| 2.3   |   | Expand concept of Waste Water beyond the Building   | All (PPT)   |

# CASE STUDY SUGGESTIONS

Walter Seedlock:

- Obtain copy of MWAA Study on BTU Distribution – MWAA Study tracks breakdown of BTU’s which are pumped from treatment facility to adjacent acreage of plants. Primarily focused on “Fugitive Glycol” (i.e. residual glycol that falls off plane – not the sprayed on de-icing operation at the gate).

Steve Howards:

- FLL Protecting Water Quality and Reducing Water Use
- PHL Bioretention/Water Reintrainment
- Portland Green Street Program

Jim Janssen:

- University of Illinois research on ice melt using corn byproducts, Dr. Munir Cheryan’s work:  
<https://netfiles.uiuc.edu/mcheryan/www/cma.htm>

From All:

- 31 Tannery Example
  - Waste treatment facilities become power plants
  - The building track the consumption of everything for easy viewing; water, gas, electricity, solar, etc.
  - The extra energy is used to power a Prius
- Question of the availability of a urinals vs. toilets in a passenger facilities usage and cost comparison
  - Potential that USGBC has a study

- Morristown Wastewater Treatment Facility
  - <http://www.noveda.com/en/>
- Cal Poly San Luis Obispo Water Conservation Best Practices