

Advisory Committee to Address Water Conservation and Alternative Water Supply for the Development Community

Item #	County Department	Department Director	Department Designee	WC/AWS	Existing Regulation	Proposed Language for Recommendation
	DERM	Carlos Espinosa, P.E.	Carlos Hernandez, Chief, Office of Plan Review			
DERM 1	Many citizens are not aware of our limited water resources or where our potable water comes from. To further promote the understanding of the limited nature of our resources and where potable water comes from, establish an annual science project contest among public and private school centered around this idea. Judges for finalist can be a panel of local politicians and engineers/scientist from WASD, DERM, SFWMD, etc.					
DERM 2	Get government facilities with large land areas (e.g., MDC Parks & Recreation, Dade County School Board, Community Colleges and Universities) to be shining examples of landscaping with natives, "Florida Friendly Natives" (Use Bill Sadowski Park as a model.).					
DERM 3	Provide groundcover and other plant types at DERM's Adopt-A-Tree to promote Florida Friendly Natives Landscaping. Create tax incentives to encourage the growing of native plants for canopy.					
DERM 4	Promote Green Building in Miami Dade County. Provide permitting incentives for developers to build green. One incentive can be expedited plans review, similar to the Optional Plan Review (OPR) - but do not charge extra.				Ordinance 05-115	
DERM 5	Require parks to use composting toilets (waterless) equipped with waterless soap dispensers (save water and reduce solid waste). Require all public restrooms to be retrofitted with chemical waste removal instead of water waste removal (like at the MIA). Require installation of waterless soap dispensers next to drinking fountains and bathrooms.					
DERM 6	Promote use of grey water for toilets and other uses discharging to public sanitary sewers.					
DERM 7	Require residential (not only non-residential) to require soil-moisture sensors for sprinkler systems. Encourage rain barrel use (offer free rain barrels).					
DERM 8	Implement use of HET and low-flow fixtures (with DERM inspection) for EQCB variances associated with lot size or sewage loading variances (Currently In Practice)					
DERM 9	Require EPA WaterSense Labeled HET (including dual flush toilets) to be used for SFR and Commercial. Implement a retrofit program to promote use of HET and low-flow fixtures for older homes (provide discount coupons to those that purchase appurtenances that are EPA WaterSense Labeled). Require Point-of-Use tankless water heating for remote hot water use points to reduce "warm-up" water loss.					

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DERM 10					Section 24-43.1(5), Miami-Dade County Environmental Protection Ordinance.	Expand "Factual Data" concept to encourage water conservation.
DERM 11					Section 24-42, Miami-Dade County Environmental Protection Ordinance	Expand section to better identify and consolidate wastewater reuse requirements.
DERM 12						
DERM 13					Chapter 24	Add "non-revenue" water ordinance to Chapter 24, Miami-Dade County Environmental Protection Ordinance.
DERM 14						

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	BCCO		Alvaro Costullueda, P.E. Deputy Director, Bldg. Code Compliance Office			Offer incentives to the public to install 1.6 gallon toilets
BCC 1	Offer incentives to do re-metering in building					
BCC 2	Establish a program to inspect homes and identify equipment that wastes water.					
BCC 3	Establish incentives to remove equipment that wastes water.					
BCC 4	Consider removal of reverse osmosis filters which send to waste up to four gallons of water per every gallon use					
Item #	County Department	Department Director	Department Designee	WC/AWS	Existing Regulation	Proposed Language for Recommendation
	Building Dept.	Charles Danger	Gary L. Perkins		FBC	Washing machine waste to soakage pit - Eliminate waste to treatment plant. Return to aquifer.
BD 1	New source of water, Desalination plants - Salt water to fresh water. Eliminates using existing services of potable water					
BD 2	New technology water saver devices, such as Metlund Demand Systems				FBC	
BD 3	Eliminate potable water irrigation systems thru zero landscaping and irrigation wells.				P & Z	
BD 4	Reservoirs constructed to capture rain water - Saves Biscayne Aquifer water					

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	Public Works	Esther Calas	Antonio Cotarello	<u>Xeriscape or Florida-friendly Ordinance</u>			
PW 1	A viable option for water conservation would be to provide Xeriscape or Florida-friendly landscapes along the public right-of-ways. This translates to providing quality landscapes that conserve water and protect the environment and are adaptable to local weather conditions, preferably native plants. Moreover, Florida State Statute provides for guidelines and mandate on Xeriscape in the listed below sections:						
PW 2	These guidelines should be carefully reviewed so that proper vegetation typical of South Florida is considered.					Title XI Chapter 125 Section 125.568	
						Title XII Chapter 166 Section 166.048	
						Title XXVIII Chapter 373 Section 373.185	
PW 3	The St. John Water Management District developed a model ordinance for landscape and water conservation. In this ordinance Municipalities are encouraged to follow or adopt similar ordinances for water conservation. The model ordinance provides guidelines on how to implement the procedures called for in the said ordinance. This ordinance could be reviewed and adapted to specific conditions in South Florida.						
PW 4	A recommendation could be made for utilizing irrigation wells to draw irrigation water from the groundwater in order to reduce the demand on the water supply system and minimize the waste of drinking water for irrigation. A feasibility analysis would need to be performed to determine the added cost, if any, from using wells and their associated pumping units, electrical ducts, permitting costs, etc.						
PW 5	Another scenario would be to provide recycled water for irrigation to all public and private facilities such as parks, golf courses, etc. This will require the installation of a complete new recycled water distribution network. A complete feasibility analysis would need to be performed by the WASD to determine the overall viability of such network.						
PW 6	<u>Watering Conservation Schedules</u>						
PW 7	Although a Xeriscape plan (mentioned above) includes watering schedules as an essential part of its program, watering schedules play such an important role in water conservation, that warrant being mentioned separately. Currently, the PWD watering schedule is from 7:00 am thru 3:00 pm. During drought periods, this watering schedule could be revised to accommodate water use restriction time tables.						
PW 8	Watering in the early morning hours is recommended by industry professionals for several reasons:						
PW 9	· Early morning watering minimizes water loss due to evaporation and/or wind drift.						

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PW 10	<ul style="list-style-type: none"> Reduces the probability of pathogenic activity as any over spray that contacts foliage and creates a favorable environment for fungal and bacterial development will dry off after sunrise 						
PW 11	<ul style="list-style-type: none"> Allows for continued, necessary watering of the County's Roadway Beautification Inventory during the dry season when trees are likely to be suffering drought stress. 						
PW 12	<p>In the early 1990s, the county developed Permanent Landscaping Watering Restrictions which I understand are under Chapter 32 of the County Code. These restrictions should also be reviewed and updated if deemed necessary.</p>						
PW 13	<u>Drainage</u>						
PW 14	<p>Best Management Practices: Miami-Dade County implemented the use of French Drains as its main Best Management Practice for Drainage in the early 1980s. This type of drainage system replenishes our groundwater by infiltrating stormwater into the surficial aquifer. Furthermore, positive drainage systems discharging stormwater onto surface waters and eventually the bay were prohibited with the implementation of these BMPs. Therefore, the majority of the drainage systems in Miami-Dade County retain stormwater on-site by disposing the stormwater runoff into the aquifer. However, this statement is correct for 90% of the storms affecting our area (storms generating less than 6.5 inches of rainfall in 24-hours).</p>						
PW 15	<p>To capture larger storms (up to the 100-year storm), new development would need to be required Cut and Fill Criteria which requires the set aside of approximately 20 to 30 percent of the land for stormwater management purposes. This Criterion has been successfully implemented in various areas of the county where the canal system does not have the capacity to handle more stormwater runoff from new developments during these storm events.</p>						

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	WASD	John W. Renfrow	Bertha Goldenberg	AWS		
W&S 1	The Department does not want to promote the use of package plants, however, if a developer proposes a project which is larger than one (1) MGD and the Department does not have adequate water supply to meet the demands, then we are willing to consider the following:					
W&S 2	A reverse osmosis plant (brackish or seawater) equal or larger than 1 MGD					
W&S 3	A satellite sewage treatment plant producing irrigation quality reclaimed water (62-610, Part III), larger than 100,000 gallons per day.					
W&S 4	For developments where water supply is available, all developers should consider the installation of purple pipes if the development is within a reuse zone, that is, near a wastewater treatment plant that will be producing reclaimed water, or they are installing a satellite treatment plant.					
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	WASD	John W. Renfrow	Maribel Balbin	WC		
	<u>NEW COMMERCIAL AND INSTITUTIONAL</u>					
1	The following is a list of water saving practices to be used as a guide to achieve additional water savings above current code requirements. These recommendations are targeted at new commercial and institutional construction projects and are based on the following principles:					
2	1. Use waterless technologies where available					
3	2. Maximize use of on-site sources of water					
4	3. Choose equipment that is water and energy efficient					
5	Install automatic shut offs, solenoids and controllers to turn water off when not in use					
6	Install flow restrictors when possible					
7	Eliminate once-through cooling					
	NEW COMMERCIAL INDOOR			WC		
	<u>Plumbing Fixtures and Practices</u>					
	<u>Toilets and Urinals</u>					
1	Toilets and Urinals					
2	Ensure all water closets use no more than 1.3 gallons per flush, high efficiency toilets (HETs) can achieve 20 to 25% water use					
3	Use toilets included the Uniform North American Requirements (UNAR) certified list.					
4	Consider waterless urinals					
5	<u>Faucets</u>					
6	Install hand washing faucets or aerators that use no more than 1.0 gallons per minute					
7	Install sensor controls on hand washing faucets in public restrooms					
8	Install showerheads that use no more than 1.5 gallons per minute					
	<u>Plumbing Design</u>					
	Use tankless water heating or other devices that reduce water wasted waiting for the water to get hot where possible					
9	Post prominent signs in all restrooms and other water using areas listing telephone numbers to promptly report leaks and other plumbing problems.					

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NEW COMMERCIAL						
	<u>Metering and Sub-Metering</u>					
1	Install a separate meter and keep monthly records of all major water-using function such as cooling towers and individual buildings.					
	<u>Heating Ventilation and Air Conditioning Equipment</u>					
2	<u>Cooling Towers</u>					
3	Eliminate all once-through cooling					
4	On cooling towers, install both makeup and blowdown meters					
5	Equip cooling towers with overflow sensors on the overflow pipes to alert the operator to problems that can waste thousands of gallons					
6	All cooling towers should achieve at least (5.0) cycles of concentration					
	<u>Boilers</u>					
7	Equip boilers with makeup meters and conductivity controllers for blowdown control					
8	Reuse or return steam condensate to the boiler wherever possible					
9	Install makeup meters on all recirculating closed water loops used for heating and cooling systems so that leaks in the recirculating					
	<u>Food Service</u>					
	<u>Equipment Selection</u>					
10	Eliminate all water cooled equipment using once-through cooling					
11	All water-cooled equipment should be eliminated unless it uses chilled water or cooling tower loop. This includes ice makers, refrigeration equipment, and ice cream machines.					
	<u>Dishwashing Equipment</u>					
12	Dishwashers should use less than 1.2 gallons per rack for fill-and-dump machines and less than 0.9 gallons per rack for all other types of machines. For under the counter machines, water use should not exceed 1.0 gallons per rack for high-temperature machines and 1.7 gallons per rack for low-temperature machines and 1.7 gallons per rack for low temperature machines.					
13	Pre-rinse spray valves that use 1.6 gallons per minute and have a shut off valve					
14	<u>Food Preparation</u>					
15	Use connectionless steamers. They do not need either a water supply or a wastewater drain.					
16	Select ice machines that use no more than 20 gallons per hundred pounds of ice made.					
NEW COMMERCIAL OUTDOOR				WC		
	<u>Efficient Landscape Irrigation</u>					
1	Water can be conserved through the use of a properly designed and managed landscape irrigation systems, and choice of plant material.					
	<u>Irrigation controllers</u>					
2	· Moisture sensing shut-off switch equipment for automatic irrigation systems to avoid irrigation during periods of sufficient soil moisture. Said equipment shall consist of an automatic mechanical or electronic sensing devise or switch that will override the irrigation cycle of the sprinkler system when adequate rainfall has occurred.					
	<u>Irrigation equipment and design</u>					
3	· Use drip irrigation or microsprinklers for planning beds (once plants are established, irrigation is not usually needed)					
4	· Irrigated areas shall not be less than 4 feet wide, except when next to contiguous property or using micro or drip irrigation.					
5	· Create hydrozoned areas, with beds and turf watered separately					
6	(plant beds may not need irrigation after plants are established)					
7	· Design systems to maintain manufacturer-recommended pressure to prevent misting and unnecessary pipe wear					

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	<u>Soil</u>					
8	· Terrace any area that exceeds a 3.1 slope					
9	· Do not add soil on top of tree roots					
	<u>Mulch</u>					
10	· Use organic, preferably locally derived mulch, such as pine bark, dyed landscape mulch, or enviromulch. Avoid cypress mulch which encourages deforestation of natural areas.					
11	· Limit use of rock mulch due to increased heat and reflection					
12	· Mulch should be 3-4 inches deep over the root zone and several inches away from the base of plants					
	<u>Plant Selection</u>					
13	· Use low-maintenance (drought tolerant) species. The Extension Service's Florida Yards and Neighborhoods Program list these in a publication for South Florida. http://miami-dade.ifas.ufl.edu/programs/fyn/publications/dtpl.htm					
14	· Plant selection should be based on the plant's adaptability to the existing conditions present at the landscaped area and native plant communities. Select plants that are drought and freeze tolerant.					
15	· For areas with limited soil space such as parking lots, use naturally small stature trees or use palms. Information for small stature trees for restricted spaces, such as narrow swales and limited space residential lots where canopy and roots can become problem can be found at http://miami-dade.ufl.edu/programs/urbanhort/publications/PDF/Samll%20Trees%20for%20Miami-Dade.pdf					
16	· Xeriscape or Florida-friendly landscape principles should be applied. These principles conserve water and protect the environment and include efficient irrigation, practical use of turf, appropriate use of mulches, and proper maintenance.					
RESIDENTIAL NEW INDOOR				WC		
These requirements are intended to provide water-efficient housing options and help prevent water leaks.						
1	All toilets high efficiency toilets (HET) 1.2 gpf - (UNAR - WaterSense certified)					
2	Showerheads - 1.5 gpm					
3	Faucets - 1.0 gpm (WaterSense certified)					
4	Energy Star dishwasher using 6.5 gallons per cycle or less (WaterSense labeled)					
5	Energy Star washing machine with water factor less than 7.5 (WaterSense label)					
6	Appliances equipped with Leak Detection shut-off valve					
7	Water heater equipped with leak detection shut-off valve					
8	Water heater with recirculating system					
9	Point of use on kitchen sink or dishwasher					
10	Insulate all water lines in attic or floor joists					
11	Heated water lines are insulated					

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16	· Xeriscape or Florida-friendly landscape principles should be applied. These principles conserve water and protect the environment and include efficient irrigation, practical use of turf, appropriate use of mulches, and proper maintenance.				373.185 F.S.	