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Conservation Programs

SFWMD Water Conservation Expo

Teddy Lhoutellier

UM Water Conservation Program

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What we are doing:

- Our Programs
- Our Campuses
- Net Zero Water building Project

UM is taking action!

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Green

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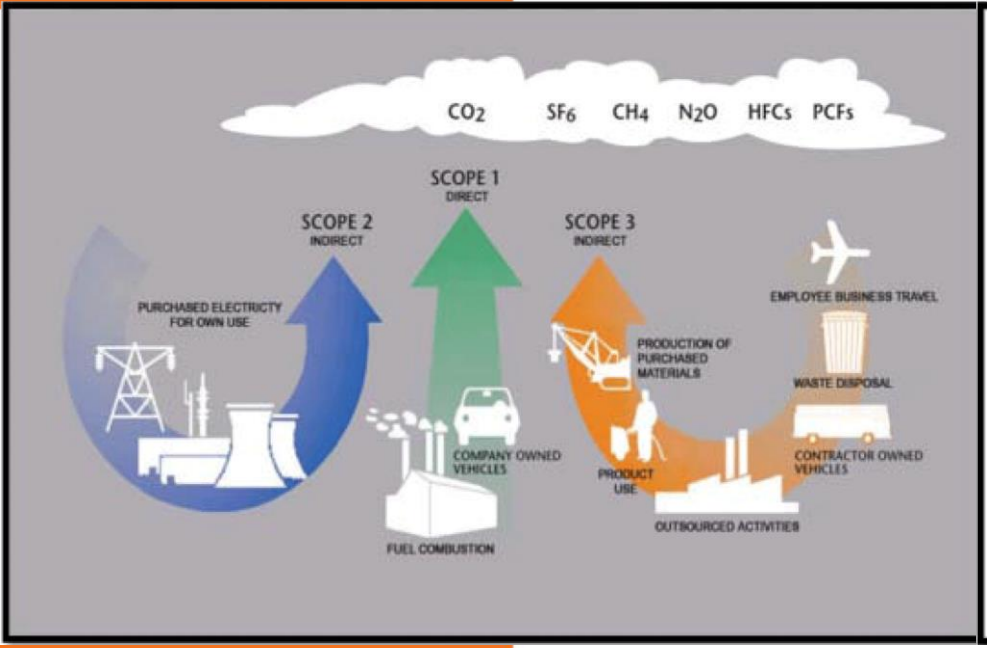
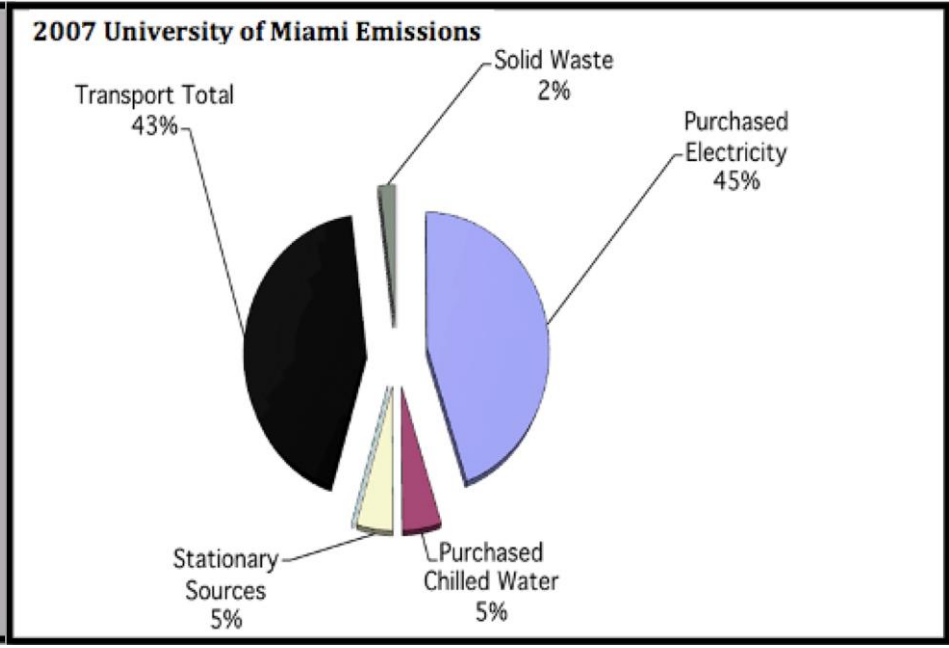
UM President signed the President's Climate Commitment!



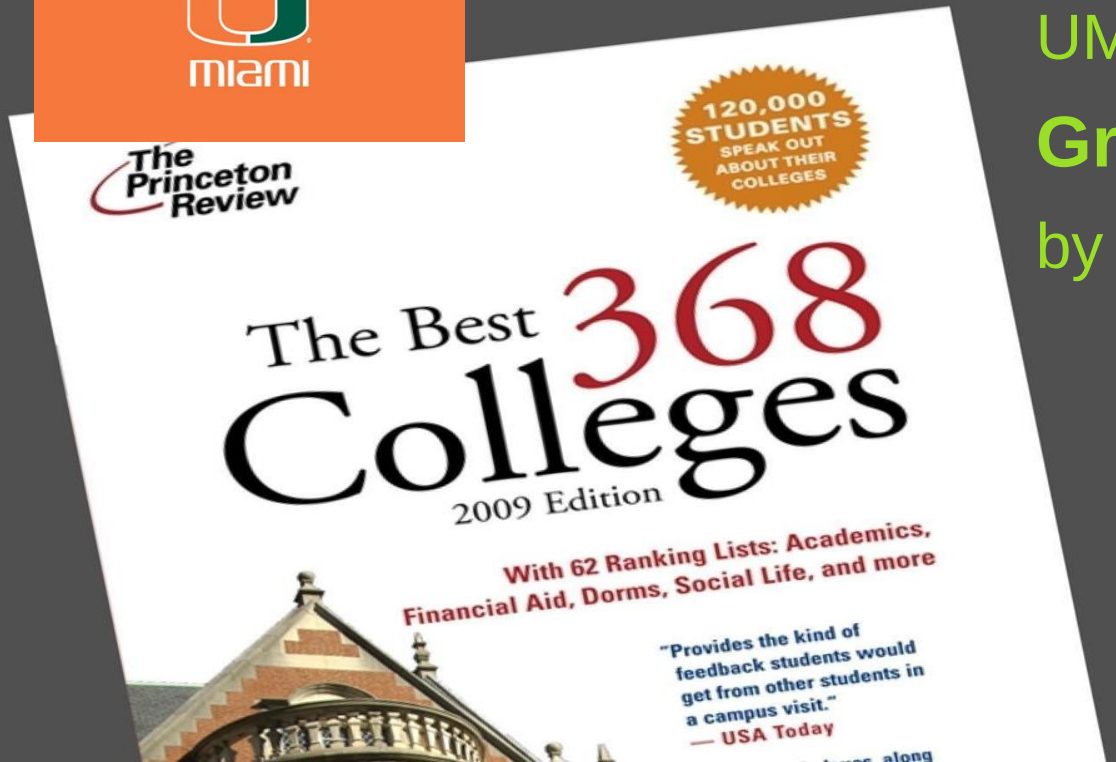


Try it

Our Carbon Footprint

Goal for UM: to reduce greenhouse gas emissions to 20 % of 2005 levels by the year 2020 > HOW?

How Is Our Campus Doing?



UM is the recipient of the

Green University Award

by **The Princeton Review Green Rating**

Behavioral Changes: Education campaigns

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Green Office Program and U Conserve:

- Early detection of leakage and broken irrigation heads

Green Building Educational program:

- Learning about Stormwater management

Behavioral Changes: Education campaigns (cont.)

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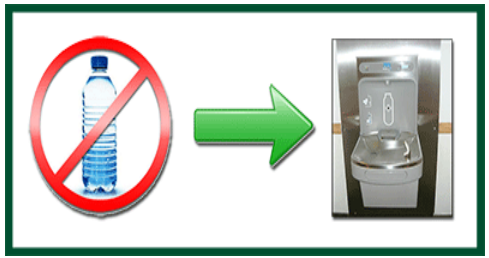
Take back the Tap Campaign :

- Investment in new automatic water filling stations
- 1 reusable bottle for every freshman

Goal:

- Reduce plastic waste
- Bring awareness about the impact of overpumping in certain regions of the country



Campus Locations

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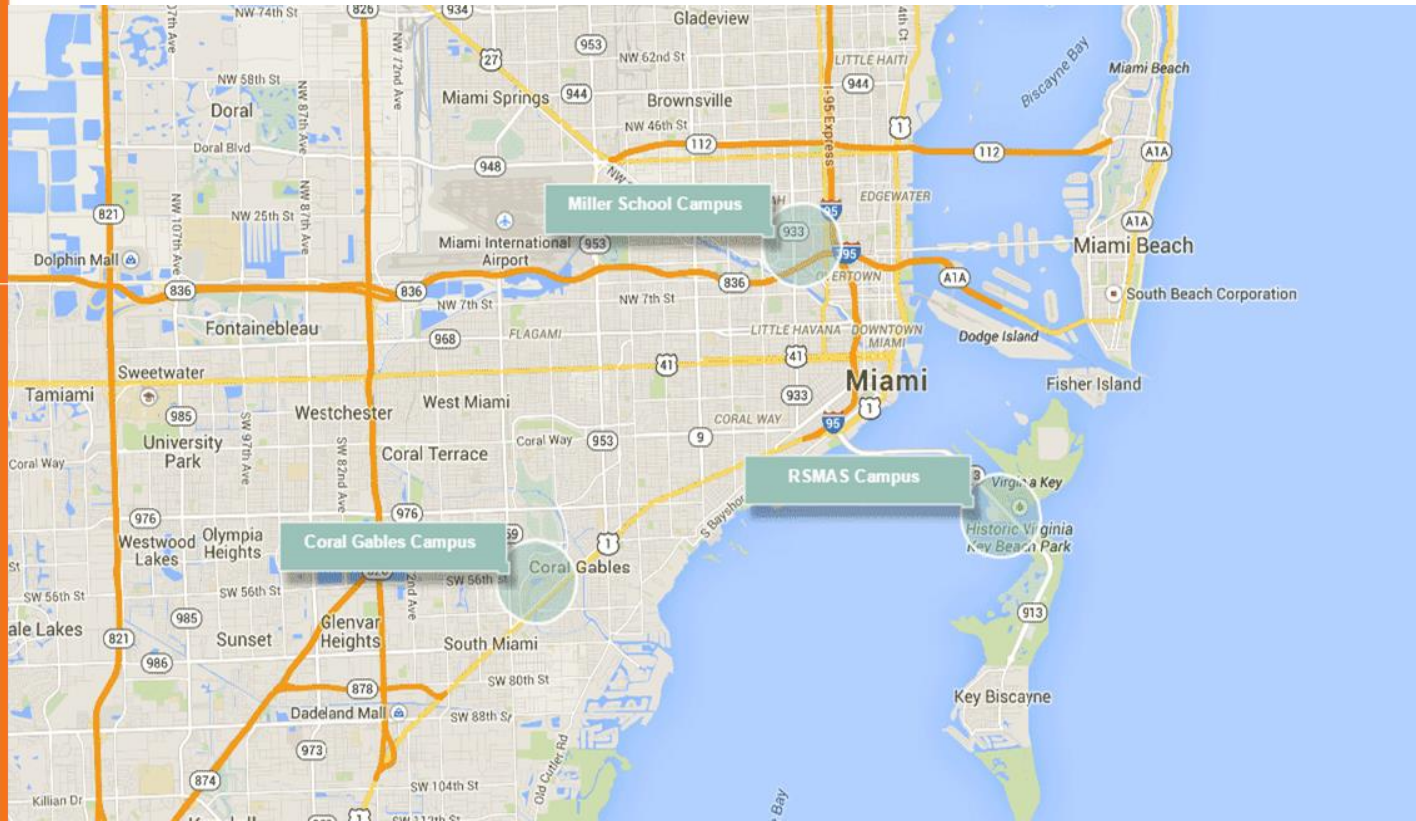


Coral Gables Campus

260 acres

125 buildings - lavish vegetation

4,500 students in student housing

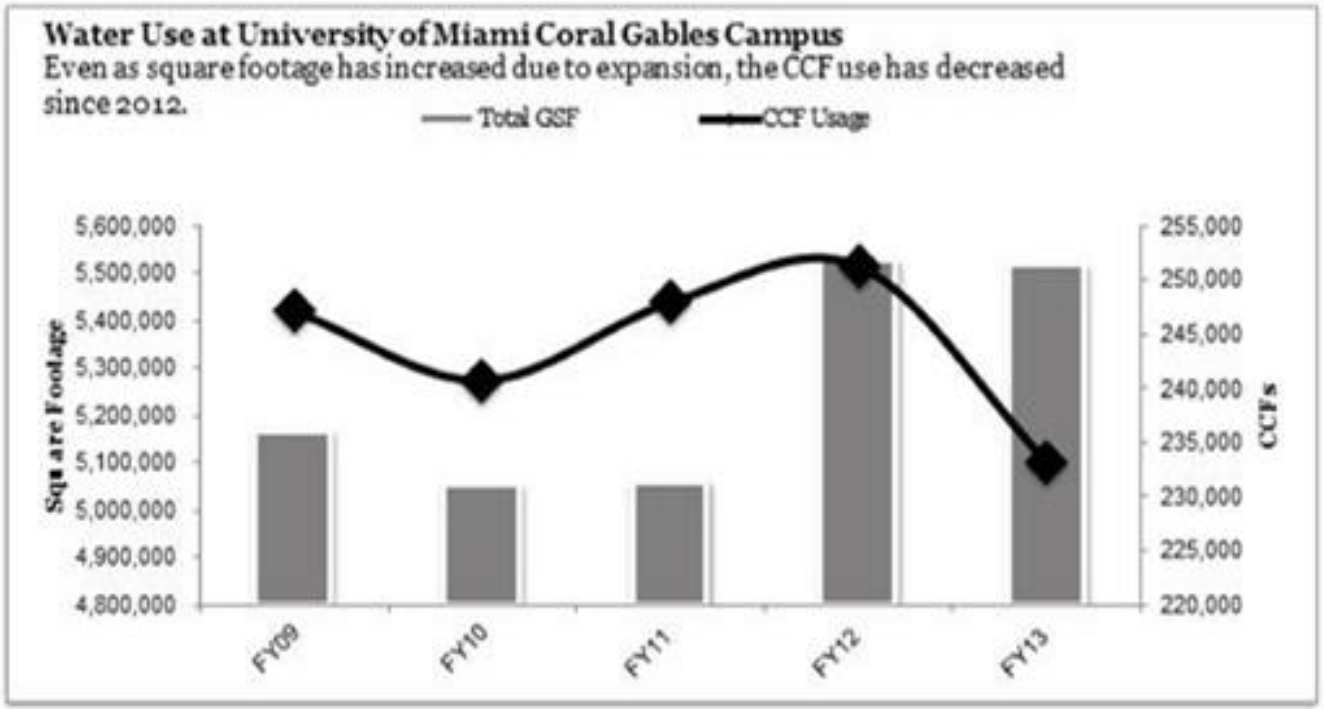
=

5 dorm buildings + apartments

More than 15,000 enrolled students

New buildings since 2008 are all LEED certified

Coral Gables Campus Water Footprint



Coral Gables Water Efficiency Improvements

Indoor:

- The replacement of all resident halls and apartments shower heads to low flow models.
- An ongoing aggressive leak detection program to prevent excessive water consumption.
- An ongoing replacement program of urinals and toilets to low flow models.
- Water efficient washing machines in our Residences

Coral Gables Water Efficiency Improvements

Outdoor:

- An ongoing conversion of campus irrigation systems to well water in lieu of domestic water usage.
- The installation of timer setting controls on the campus irrigation systems.
- Native landscaping guidelines for new planting on campus (Tree Campus USA)

Coral Gables - Future Water Conservation

NEW Frost School of Music Building

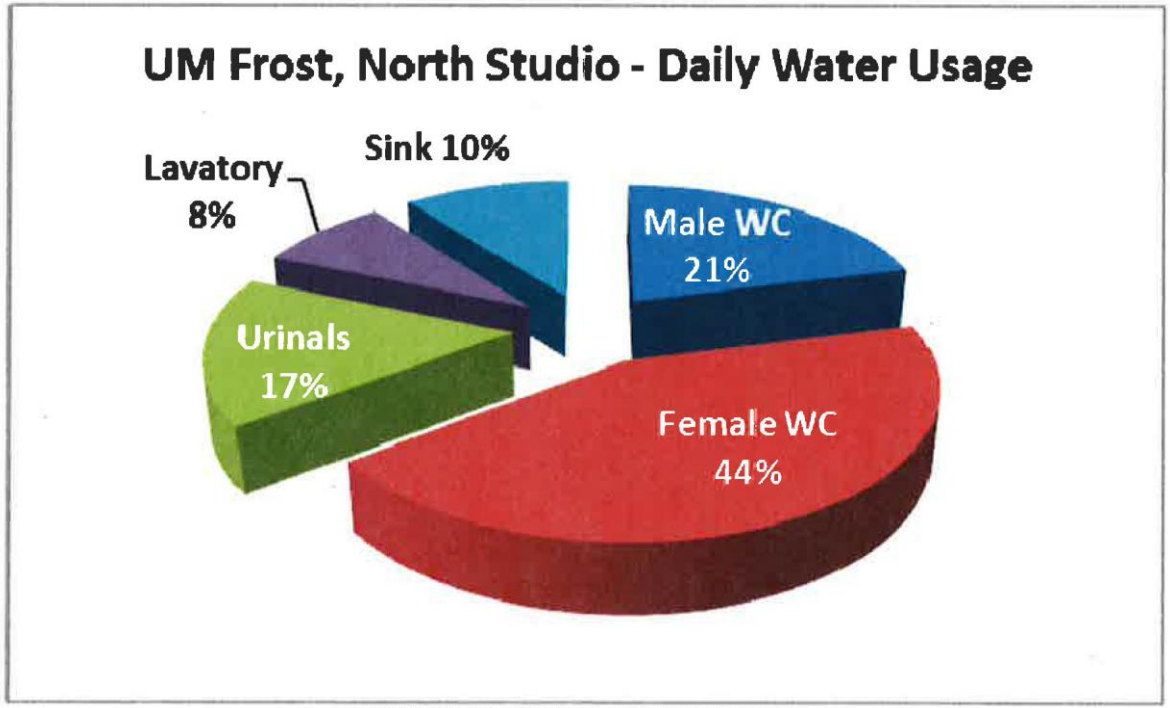
- Rainwater collected will be treated, along with condensate water, to be **added as makeup water** for our renovated chilled water plant **reducing our consumption by 35-40%.**

The water plant serves nearly half of our buildings, using an average of **100,000 gallons of water a day**.

2 cooling towers to be added to accommodate future growth of load

Coral Gables - Future Water Conservation

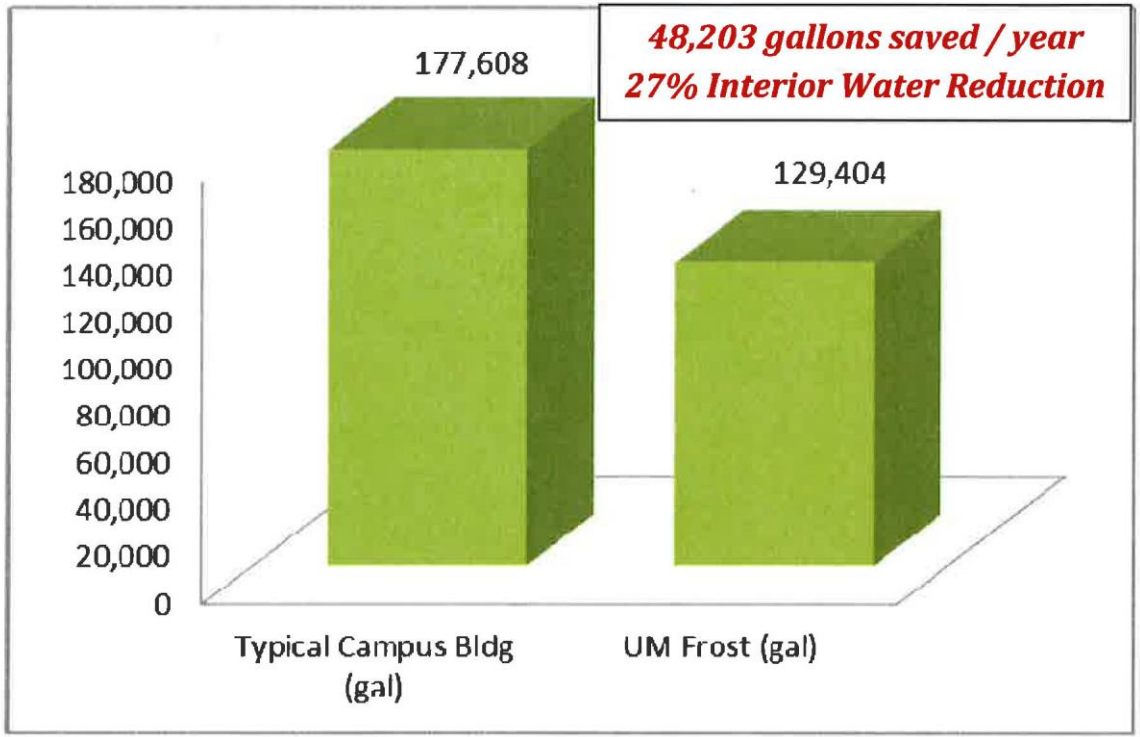
NEW Frost School of Music Building



DAILY WATER USAGE - NORTH STUDIO

Coral Gables - Future Water Conservation

NEW Frost School of Music Building



ANNUAL WATER CONSUMPTION – NORTH + SOUTH STUDIOS

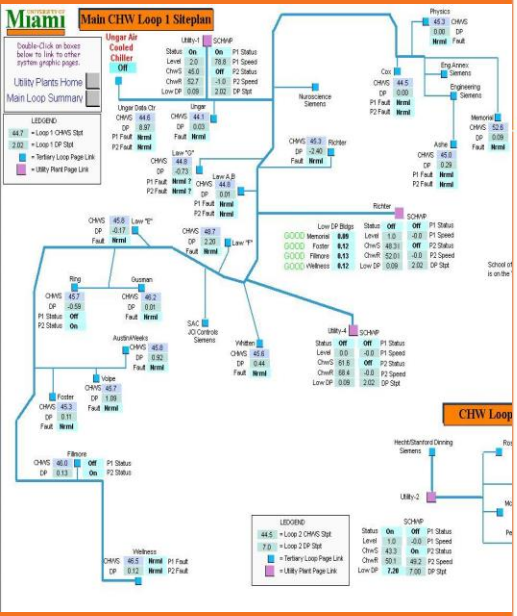
Coral Gables - Future Water Conservation

NEW Frost School of Music Building

- Use of High efficiency fixtures, waterless urinals and occupant sensors will **reduce potable water use by 20%**

- Use of Efficient Irrigation techniques, drought resistant plants and captured rainwater **will reduce potable water use for landscaping by 50%**

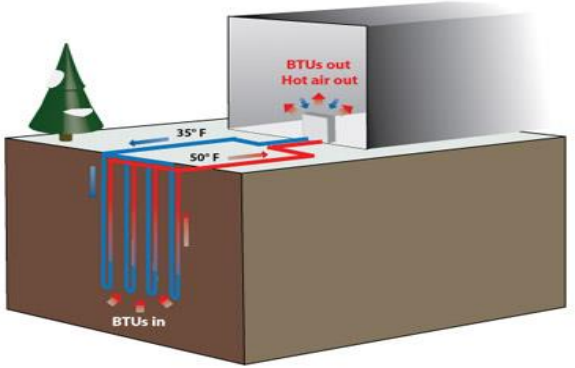
Possible projects at Coral Gables



> **Geothermal heat Exchanger** for the new U Health Center

- 200 ft well, closed loop

> Utility # 3 chilled water plant in Coral Gables will use **rainwater, condensate and possibly treated grey water for makeup water**



RSMAS Campus

NEW: 75,000 sqft Marine Technology and Life Sciences

Seawater Research Complex

18 acres - research facilities

New Building is LEED Certified

- Efficient irrigation
- Waterless urinals
- Sensors and high efficiency fixtures

RSMAS Campus

Replaced chiller plant in 2008 to increase cooling efficiency.

Closed loop system:

- **90% of condensate** water is recirculated in the system as makeup water for the cooling towers.

- Submeters have been installed to measure percentage of condensate in the mix. We anticipate generating an average of 300 gallons per day or **10% of the demand**

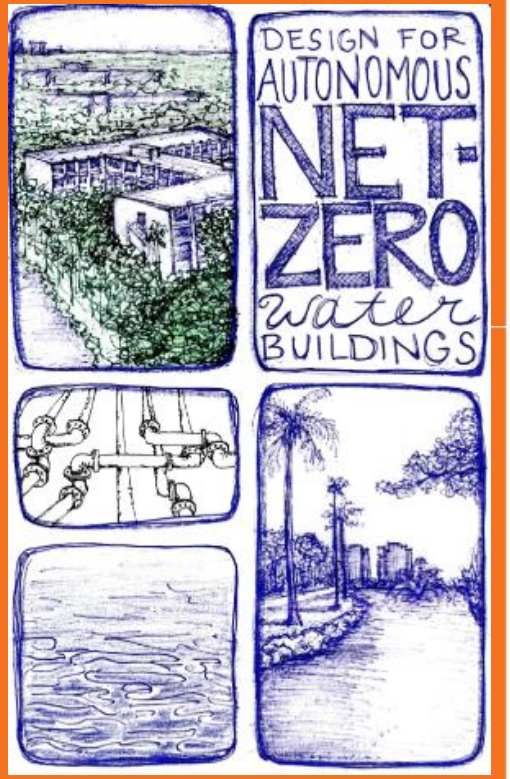
Medical Campus

3 Hospitals on 68 acres

31 buildings all connected to a **49,000 SF Central Energy Plant**, designed to provide for 20,000 tons of chilled water

Efficiency upgrades:

- low-flow water closets
- sensor activated fixtures



NET ZERO WATER BUILDING

Decentralized, off grid water treatment system

GOALS:

1 - **Save energy** normally used for conveyance

2 - Alleviate water restrictions and the need for future desalination. Desalination to drinking water standards is energy intensive when impurities in treated wastewater in S. Florida currently meet **87 of the 93 numerical drinking water standards** on average without further treatment

NET ZERO WATER BUILDING

GOALS:

3 - Alleviate the need to treat for **pesticides and toxic chemicals** in regions that use surface water as their main source of Drinking water supply.

4 - Allow treatment to focus on permanently destroying the **pharmaceuticals** and **cleaning chemicals** that go down our drains, removing them from the environment where they cause endocrine disruption in animals and humans

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NET ZERO WATER BUILDING

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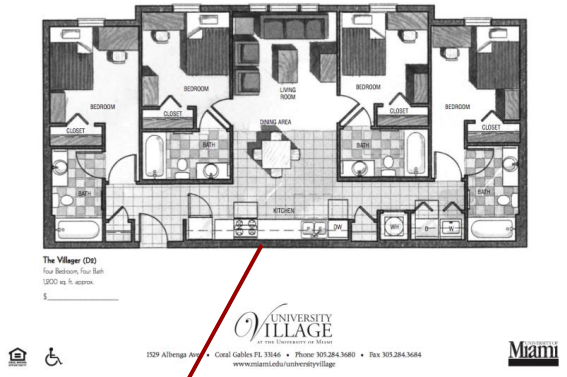
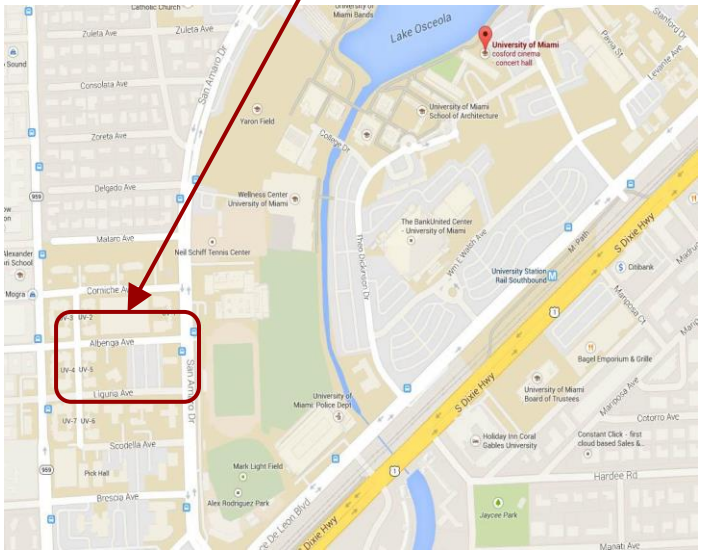
Where?

4-bed unit in the University Village

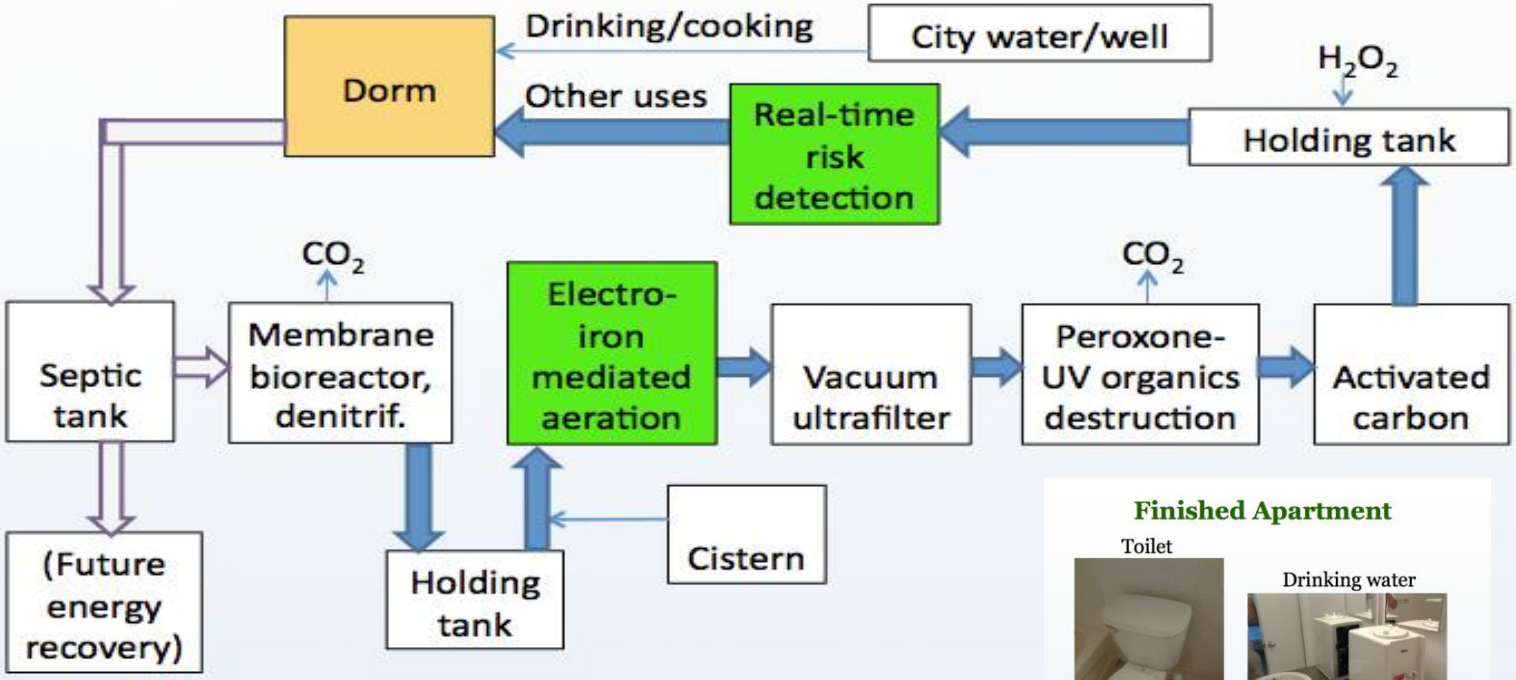


How? A mix of

- Biological treatment-2psi
- Iron-mediated aeration
- Vacuum ultrafiltration
- Peroxone advanced oxidation with rainwater makeup



UM Autonomous Net-Zero Water Dorm System



Finished Apartment

Toilet

Drinking water

Net Zero Challenges

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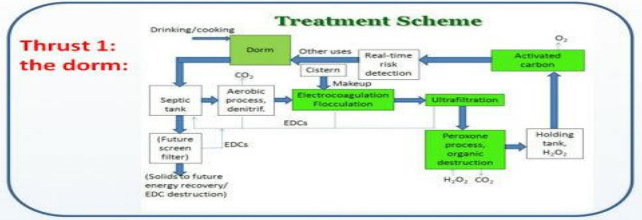
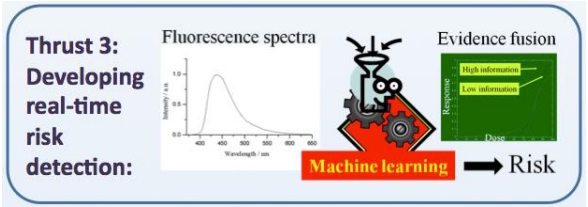
1 - Sustainable treatment system scaling and design



2 - Sociocultural and architectural acceptance

3 - Real-time risk assessment and monitoring



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Questions?

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Thank You!

For more information,
contact us at greenu@miami.edu