Think about water/sewer costs as “Dollars Per Apartment Per Year” so you can compare a building to any kind of flat-rate bill.

DEP meter bills are in HCF (Hundred Cubic Feet) Units. 1 HCF = 748 gallons.

Average indoor water use is 65-75 gallons per person per day ($278-$321 per person per year). Efficient homes use less (40-50 gallons per person per day, $171-$214).
Goals for Owners/Managers

- How much does the building use? (Metered costs as $ per apartment per year)

- How does that compare with the MCP $894.15 per apartment per year?

- Is metered use above 0.34 HCF per apartment per day (consumption equivalent of $894.15 per apartment per year)?

- How can I make my building more water-efficient?

- What do I need to do to qualify for MCP?
Automated Meter Reading
Advanced Metering Infrastructure ("AMI") or simply Automated Meter Reading ("AMR")

Leveraging citywide rooftop-based wireless network

Customer Benefits:
- Reduce estimated bills and customer complaints
- Early notification of leaks
- Monthly bills (future)
- Readings four times a day or hourly
- Readings available via website

Visit nyc.gov/dep for more information
How to View and Monitor Your Water Consumption
Did you know that My DEP Account allows you to:

- Save money by monitoring and managing your daily water use
- Quickly detect costly leaks
- View and pay your bill online
- Go green and sign up for paperless billing
- Track the status of a billing dispute
- View your payment history

* DEP’s 2% discount has been extended until June 30, 2012. Please check www.nyc.gov/dep for more information
How to Access your My DEP Account

Visit nyc.gov/dep and click the blue “My DEP Account and Online Bill Pay” button located in the top right corner of the page.
How to Create your My DEP Account

Log in to your **My DEP Account** by entering your User ID and Password

New to **My DEP Account**? Just click the “Register Now” link and follow the instructions
Manage your My DEP Account by clicking on one of the tools located at the top of your screen.

Welcome to My DEP Account

In order to see your water use online you must have an AMR (Automated Meter Reading) device installed on your water meter.

Step 1: Please select your account number below.

Account No: 1000807604001

Step 2: Please select a service above.

What is Automated Meter Reading (AMR)?
AMR is a system of small, low-power radio transmitters connected to individual water meters that send readings to a network of rooftop receivers throughout the City. This new technology will help you know more and save more when it comes to your water use. By tracking your water use daily, weekly, monthly, and yearly, you can quickly be alerted to potential leaks so you can fix them before they become a billing problem. All meters in the City will have AMR technology installed. This project began in March of 2009 and will continue over the next three years.

Why Go Paperless?
Going paperless is the most environmentally friendly way to get your quarterly water bill. Instead of receiving a paper bill in the mail, you'll get an email notification when your next bill is due. You can then log in to My DEP Account to see an electronic copy of your bill. By viewing your statements online you'll save time and paper.

Why Pay Your Bill Online?
Pay your bill online is fast, easy, and convenient. Instead of sending a check in the mail or paying in person, you can simply log in to My DEP Account and pay online any time. No stamps or envelopes and no standing in line. You can even get a 2% discount on your water and sewer bill when you sign up online for direct debit. Click here to learn more.

What are Leak Notification Alerts?
DEP will automatically send registered customers an alert if we detect a dramatic increase in daily water use. This tool allows you to react quickly to sudden changes in consumption that could indicate a potential leak. Instead of waiting months for your next water bill, you'll be alerted to a leak the next day. This means you can catch and fix the leak before it becomes a billing problem. All Tax Class 1 properties are automatically enrolled in the program. Owners must manually enroll their Tax Class 2 property by clicking on the "Enroll for Services" tab and selecting the "Leak Notification" link at the top of the page. Tax Class 1 customers can unenroll from the program by following the same process.
Detect Costly Leaks

Daily usage for February 2011

- Actual Consumption
- Average Cons
- Read Not Available
- Zero Cons
- Total Cons

Cubic Feet:
- 7,170 CF
What Am I Looking For?

- Increasing trend over weeks
- Significant overnight use – overnight use should be very low in a low-leakage building
- Note new vacancies and new occupants
- Maintain data on
  - Gallons per day per apartment (total apartments)
  - Gallons per day per apartment (occupied apartments)
  - Gallons per day per person (if you have a good idea of the number of people)
How Much Should We Be Using?

- 70 – 80 gallons per person per day without water-saving fixtures (9 – 10 CF per person per day)

- Less than 60 gallons per person with water-saving fixtures (8 CF per person)

- If you’re using 100 gallons per person or more “alarms” should go off (13 CF per person)

- All numbers are approximate
Indoor Water Use in the “Standard” Use Home

- **Toilet**: 28%
- **Clothes Washer**: 21%
- **Shower/Tub**: 17%
- **Faucets**: 15%
- **Leaks**: 14%
- **Dishwasher**: 1%
- **Other**: 4%

The pie chart visually represents the distribution of indoor water use. Each category is color-coded for easy identification.

- **Toilet** is the largest segment at 28%.
- **Clothes Washer** follows at 21%.
- **Shower/Tub** is at 17%.
- **Faucets** make up 15%.
- **Leaks** account for 14%.
- **Dishwasher** is at 1%.
- **Other** is at 4%.
<table>
<thead>
<tr>
<th>End Use</th>
<th>Standard</th>
<th>Efficient</th>
<th>Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilets</td>
<td>20.1</td>
<td>5.1</td>
<td>High Efficiency Toilets</td>
</tr>
<tr>
<td>Clothes Washer</td>
<td>15.1</td>
<td>10.6 or less</td>
<td>CEE Tier 3</td>
</tr>
<tr>
<td>Showers</td>
<td>12.6</td>
<td>5 – 10</td>
<td>&lt; 2.5 gpm showerhead</td>
</tr>
<tr>
<td>Faucets</td>
<td>11.1</td>
<td>7 – 10.8</td>
<td>&lt; 2.0 gpm</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>1.0</td>
<td>0.5 – 1.0</td>
<td>CEE</td>
</tr>
<tr>
<td>Leaks and Other</td>
<td>12.7</td>
<td>&lt; 7,7</td>
<td>Monitoring</td>
</tr>
<tr>
<td>Total</td>
<td>72.5</td>
<td>36 - 42</td>
<td></td>
</tr>
</tbody>
</table>
Toilets

- National standard of 1.6 gpf is being informally superseded by 1.28 gpf: High Efficiency Toilets (“HET”)
  - Gravity 1.28 gpf
  - Gravity Dual-flush 1.6 gpf/0.8 – 1.0 gpf
  - Pressurized 1.0 – 1.28 gpf
  - Commercial 1.0 gpf, 1.28 gpf and Dual Flush

- As of July 2012, NYC Local Law requires the installation of 1.28 gpf as a part of new construction
Why Start with WaterSense As a Specification?

- 1.28 gpf maximum flush volume
- Minimum 350 grams MaP test score for flush performance
- Requires use of pilot fill valve (no ballcock type valve)
- Design must not allow adjustment of the fixture to flush above 1.68 gpf (single flush fixtures) or 1.40/2.00 for dual flush fixtures
- Requirement by Local Law starting 7/2012
Pressurized fixtures flush at less than 1.28 gpf, i.e. 1 gpf

Some fixtures have flushing performance that exceeds 350 grams on the MaP test – requires comparing the WaterSense list with MaP scores to learn which products exceed 350 grams
Pressurized-Tank Toilet
What’s MaP Testing?

- “Maximum Performance” flushing test using realistic test media developed in 2005 for several water utilities who wanted a more reliable measure of toilet flush performance

- Flushing 250 grams of media is considered a “passing” grade although WaterSense and some utilities prefer to use 350 grams. Many toilets can clear far more and pressurized fixtures usually flush more than 1,000 grams

- 250 grams based on clinical data of human waste production

- If a manufacturer has not submitted a product for MaP testing that should be taken as a sign of lack of confidence in the product. “If it’s not on the MaP, don’t go there”
Data is inconclusive about the amount of incremental savings from dual flush fixtures

Average flush volume varies from 1.0 – 1.1

Are the residents “environmentally conscious?”

Is education part of the goal?

Research the specific product. Toilets with a “wash down” type design may often flush solids at the “half flush” while this is less likely for “siphonic” toilet designs

- [http://www.cuwcc.org/products_tech.lasso#HETs](http://www.cuwcc.org/products_tech.lasso#HETs)
- [http://www.epa.gov/watersense/](http://www.epa.gov/watersense/)
Modest retrofit reductions (1 gallon per flush) are possible from existing nominal 5 gpf toilets.

Toilet leaks are the largest single source of leaks – and the one most often missed.

Alternate refill devices are available that protect against “silent” toilet leaks.
Repair Your Leaking Toilets:
*Save Water and Stop Flushing Away Your Water Bill*

High water bills are often caused by leaking toilets that waste large amounts of water.

<table>
<thead>
<tr>
<th>Size of Leak</th>
<th>Amount of Water Waste Per Day</th>
<th>Approximate Cost of Waste Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>30 gallons</td>
<td>$0.25</td>
</tr>
<tr>
<td>Medium</td>
<td>250 gallons</td>
<td>$2.30</td>
</tr>
<tr>
<td>Large</td>
<td>Up to 4,000 gallons</td>
<td>As much as $40</td>
</tr>
</tbody>
</table>

**WHAT CAUSES A TOILET LEAK?**
- The flapper becomes warped or damaged and does not provide a watertight seal on the flush valve. In-tank toilet cleaners can cause flapper damage.
- The flapper, trip lever or chain may lose its alignment with the flush valve, leaving a gap that can cause a leak.
- The flush valve can develop small cuts or other damage that causes a leak between it and the flapper. This is usually caused by grit or sediment.
- The fill valve can become stuck in an open position causing water waste as it flows down the overflow tube. This can happen when your water pressure changes in your home.

**THE TOILET THAT LEAKS WHILE YOU SLEEP**

Toilet leaks are often frustrating because they can be intermittent and hard to detect. If you have a toilet that uses a float ball-style fill valve similar to the one in the diagram, higher water pressure overnight in your building or neighborhood can cause the float ball to open and stay open until the pressure decreases. This could cause a leak while you are sleeping.
Dye Tablets for Toilet Leak Detection
In-Tank Chlorine Cleaners
Typical Causes of Toilet Leaks

- Flapper chain gets tangled and holds flapper open slightly: Adjust so that chain is no longer than necessary

- Sediment scores flapper seat or builds up (clean)

- Refill valve (ball cock type) goes out of adjustment so water level is never reached before overflow occurs: Move adjustment screw slightly or bend ballcock arm slightly downward
Alternative Refill Devices
Fluidmaster “Leak Sentry” does not refill tank if there’s a leak – limits loss to one tank

- You must flush twice at next use: Once to refill the tank and once to flush the toilet

MJSI “HydroClean” emits a whistling sound if there’s a toilet leak
Displacement Products
Replacement Flapper
Flushometer Toilets Can Leak (Big Time)

- Pressure spikes or debris in water can cause “phantom flushes” or leaking valve

- Shutting water supply to building or valve can cause valve to unseat and turning water back on can result in valve remaining open – potential 35 gpm

- Always exercise flushometer valves after water is turned off and then turned back on
Basic Recommendation for Clothes and Dish Washers

ENERGY STAR
Clothes Washers: The Best Energy Star Products

- Consortium for Energy Efficiency ("CEE") sets three tiers of energy and water efficiency performance
- Water Factor = Gallons per Cubic Foot Capacity

<table>
<thead>
<tr>
<th>Standard</th>
<th>Water Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Star</td>
<td>8.0</td>
</tr>
<tr>
<td>CEE Tier 1</td>
<td>7.5</td>
</tr>
<tr>
<td>CEE Tier 2</td>
<td>6.0</td>
</tr>
<tr>
<td>CEE Tier 3</td>
<td>4.5</td>
</tr>
</tbody>
</table>
- www.cee1.org

- Also has water-oriented specs for dishwashers and commercial kitchen equipment in addition to energy specs
Residential Faucet Quick Spec: WaterSense

- Maximum 1.5 gpm at 60 psi; Minimum 0.8 gpm at 20 psi
- Complies with NSF61 ("no lead" alloy)
- Commercial faucets available at 0.5 and 1.0 gpm along with 15-second duty cycles
Showerheads

- Current standard 2.5 gpm at 80 psi
- Local Law requires 2.0 gpm 7/1/2012
- If low pressure conditions exist, specify “pressure compensating”
- Constant temperature shower valves important
- If trying for less than 2 gpm, consider a hand-held showerhead
Steam Heated Buildings

- Old condensate return lines can leak, losing water and energy
- If the return lines are more than 20 years old, consider a water meter to monitor losses on the makeup boiler water line
- Condensate pipes may be leaking behind walls or under the basement floor
Roof Tank Overflow

- Indicated by significant night time water use
- Caused by float valve failure
- Roof tank should be inspected and maintained annually
Washing the Sidewalk

Waterbroom

Watersweeper
Reducing Costs: Commercial Tenants

- Whenever possible, install owner submeter for commercial tenants and make sure they are obligated to pay their share of water/sewer costs.

- Most important if the tenant is in a food-related, health-related or other water-using business.

- Once-through water-cooled equipment is a common source of major use and leaks.
The Submetering Debate
The Submetering Debate: Pros

- American Water Works Association Research Foundation study indicates 15% savings over simply passing along water/sewer costs
- Users should pay for what they use at every level
- Without submetering owners are subsidizing waste by tenants
- Submetering would reduce rents for most apartments
The Submetering Debate: Cons

- Submetering would have to be performed by private companies working for the owner – utilities have no legal relationship with tenants
- Consumer protection rules and oversight of submetering companies would be required
- Owners would no longer have a financial incentive to fix leaks unless building structure is effected
- In New York, rent regulation would have to be revised (as it was for individual electric metering)
- Many submetering technologies do not allow tenants to read their own meters
- Major change required in plumbing design of apartment buildings
Tenants and Cooperators Have a Part to Play

- Education by co-op board and tenant organizations should be aimed at understanding that:
  - Wasting water leads to higher housing costs
  - Water is not “free” even if they do not pay for it directly
  - Report leaks to building management and if they do not act, to HPD and DEP

- Turn the following into negative images:
  - Defrosting food under running water
  - Flushing a tissue down the toilet
Additional Sources of Information

- DEP web site: [www.nyc.gov/dep](http://www.nyc.gov/dep)

- Billing Issues: (718) 595-7000 or write:
  - BCS Correspondence Unit, NYC Department of Environmental Protection, 59-17 Junction Blvd., 7th Floor, Flushing, NY 11373-5107

- Water Efficiency Resources:
  - [www.allianceforwaterefficiency.org](http://www.allianceforwaterefficiency.org)

- Energy Efficiency Resources: [www.getenergymsmart.org](http://www.getenergymsmart.org)