

Metering



Optional Water Efficiency Measure: May contribute to the 30 percent water efficiency requirement, depending on the chosen WaterSense® Approved Certification Method (WACM).



UNDERSTAND

- Single-family residences typically have a single meter that is required by the water utility or authority having jurisdiction (AHJ) for billing purposes. However, this is not always the case. It is common for homes supplied with onsite well water to not have a meter installed.
- WaterSense encourages installation of water meters, even when not required by the local water utility or AHJ, to help homeowners and multifamily building managers understand and manage their water use.
- Multifamily properties typically have a master meter for a whole building or property, unless submetering of individual units is required by the water utility or AHJ, or unless the property plans to submeter each unit for billing purposes.
- Individual metering or submetering for each unit in multifamily buildings helps residents track their usage and allows property managers to identify and manage issues such as leaks in a specific unit.
- Utility water meters are typically owned by the water utility and are used to track water use from whole properties or significant pieces of a property. To be separately metered, each unit must represent a wholly separate plumbing system attached to the main line. Submetering typically involves using downstream meters to monitor distinct uses of water or systems.
- Work with the water utility or AHJ to identify the meter type and size appropriate for the home or unit. Pursue reducing the meter size to the extent possible, which often reduces initial and ongoing charges from the utility. If a multifamily building is pursuing submetering independent of a water utility, it is important to select the correct type and size of meter.
- For multifamily buildings, meters and submeters can be integrated into a centralized building management or billing system, making it easy to track water usage and accurately bill residents.
- A dedicated irrigation meter might be appropriate for some types of residential properties, such as single-family residences with large landscapes, multifamily buildings, homeowners associations with outdoor common space, or



Understand Local Submetering Rules

Owners and operators of multifamily properties should be sure to understand the rules and regulations related to submetering and resident utility billing, as these can vary by location. For example, some states or local utilities may require the use of submeters for individual units, whereas other states require prior approval from the responsible state agency or public utilities commission before installing submeters.

While WaterSense recommends water metering and submetering wherever feasible, another common strategy to recoup water costs is through a Ratio Utility Billing System (RUBS). Through a RUBS program, a property owner is able to allocate costs from a master meter serving a multifamily property to individual units, typically based on square footage, occupancy, and/or other factors.

To find out more regulations pertaining to submetering or RUBS, contact your state government, public utility commission, or water utility.

properties with access to reclaimed water for irrigation purposes. These meters exclusively measure outdoor water use and can be particularly helpful for evaluating outdoor water efficiency.



BUILD

- **INVESTIGATE** submetering during the early stages of designing the plumbing system for multifamily properties. Consider supplying each unit with a single pipe source for the water to facilitate individual unit submetering, which is less expensive than metering each source of water entering the unit.
- **SELECT** equipment that is best suited for the property. For example, positive displacement meters may be well-suited for residential applications, because they have high accuracy at low flows and can precisely measure peak flows.
- **COMMUNICATE** with the water utility or meter manufacturer to select an appropriately sized meter, which depends on the home's or unit's size, function, fixture types, anticipated occupancy, and peak population. These statistics affect minimum and maximum flow rates, which guide meter sizing.
- **FOLLOW** the meter manufacturer's instructions for installation.
- **INSTALL** meters in an accessible location that is protected from weather and potential damage (work with water utility as appropriate).
- **AVOID** installing the meter near pipe bends. Place the meter where there is a length of straight pipe equivalent to at least 10 times the pipe diameter downstream of the meter and five times the pipe diameter upstream of the meter.
- **INCLUDE** a strainer on all meters and submeters to prevent debris and sediment from damaging the device. An inline strainer on the meter's inlet will prevent debris and sediment from entering the meter body.



VERIFY

- **REVIEW** building plans to identify water meter location(s).
- **CONFIRM** that a meter or alternative for tracking water use is installed for each unit in a multifamily building.
- **ENSURE** that residents can easily access information from the submeters.

**NOTE: Consult with the Home Certification Organization for specific verification protocols.*



Savings Potential

One national study on submetering of multifamily buildings showed that residents in submetered units used approximately 15 percent less water than residents in unmetered units.

Learn More

- EPA's *WaterSense at Work: Best Management Practices* at www.epa.gov/watersense/best-management-practices guide has information on implementing metering in commercial and institutional properties, but much of the information is also relevant to multifamily buildings. Builders and property managers may find the document useful, especially for tips on meter installation and maintenance.
- Pacific Northwest National Laboratory's *Water Metering Best Practices* guide at www.pnnl.gov/publications/water-metering-best-practices has useful recommendations for selecting a meter.
- IAPMO's Water Demand Calculator at www.iapmo.org/water-demand-calculator/ can help right-size plumbing systems based on anticipated maximum flow rates.



This technical fact sheet is part of EPA's *Technical Reference Manual for WaterSense Labeled Homes*. For the full document and other tools and resources for homes, visit www.epa.gov/watersense/tools-and-resources.

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