Water metering

WE3 | Possible point

Glossary

Intent

To measure building and subsystem water performance over time to understand consumption patterns and identify opportunities for additional water savings.

To provide for the ongoing accountability and optimization of building water consumption performance over time.

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Reduce generation of wastewater and potable water demand, while increasing the local aquifer recharge.

To measure building and subsystem water performance over time to understand consumption patterns and identify opportunities for additional water savings.

To support water management and identify opportunities for additional water savings by tracking water consumption.

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Requirements

Option 1. whole building metering (1 point)

Have in place permanently installed water metering that measures the total potable water[1] use for the entire building and associated grounds. Meter data must be recorded on a regular basis and compiled into monthly and annual summaries. Applicants are also encouraged to meter gray or reclaimed water supplied to the building.

OR

Option 2. submetering (2 points)

Meet the requirements for Option 1 and have in place permanently installed metering for 1 or more of the following water subsystems:

- Irrigation. Meter water systems serving at least 80% of the irrigated landscape area on the grounds. The percentage of irrigated landscape area served must be calculated as the total metered irrigated landscape area divided by the total irrigated landscape area. All landscaping areas fully covered with xeriscaping or native vegetation that requires no routine irrigation must be excluded from the calculation entirely.
- Indoor plumbing fixtures and fittings. Meter water systems serving at least 80% of the indoor plumbing fixtures and fittings described in WE Prerequisite 1, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds.
- Cooling towers. Meter replacement water use of all cooling towers serving the facility.
- Domestic hot water. Meter water use of at least 80% of the installed domestic hot water heating capacity (including both tanks and on-demand heaters).
- Other process water. Meter at least 80% of expected daily water consumption for process- type end uses, such as humidification systems, dishwashers, clothes washers, pools and other systems using process water.

Meters must measure potable water use, but gray or reclaimed water use may also be measured to meet the requirements of this credit. Metering must be continuous and data-logged to allow for an analysis of time trends. The project must compile monthly and annual summaries of results for each subsystem metered.

Meters must be calibrated within the manufacturer's recommended interval if the building owner, management organization or tenant owns the meter. Meters owned by third parties (e.g., utilities or governments) are exempt.

Credit substitution available

You may use the LEED v4 version of this credit on v2009 projects. For more information check out this article.

Install meters to track the following water uses (as applicable to the project):

- Cooling tower make-up and blowdown
- Incoming water to the project
- Purified water system (reverse osmosis and/or de-ionized)
- Filter backwash water

- Water use in dietary department
- Water use in laundry
- Outdoor Irrigation systems
- Steam boiler systems make-up water

AND

Install meters to track the water use in any two (for one point) or any three (for two points) of
the following:

- Water use in laboratory
- Water use in central sterile and processing department
- Water use in physio- and hydrotherapy treatment areas
- Water use in surgical suite
- Closed-loop hydronic systems make-up water
- Cold-water make-up for domestic hot water systems

The Measurement and Verification (M&V) period shall cover a period of no less than one year of post-construction occupancy.

Use the International Performance Measurement and Verification Protocol (IPMVP) Volume 1, Concepts for Determining Energy and Water Savings, March 2002, to provide for long term continuous measurement of potable cold water uses within the facility. [Option D: Calibrated Simulation (Savings Estimation Method 2 - See Volume III, April 2003, for description of Option D, Savings Estimation Method) – for new construction; or Option B: Retrofit Measure Isolation – for renovation].

- **WE Credit 1.1** (1 point): Have in place a permanently installed water meter(s) that measures the total potable water use for the entire building and associated grounds. Meter data must be recorded on a regular basis and compiled into monthly and annual summaries. Applicants are also encouraged to meter gray or reclaimed water supplied to the building.
- **WE Credit 1.2** (1 point): Meet the requirements for WE Credit 1.1 and have in place permanently installed metering for one or more of the following water subsystems:
  - Irrigation. Meter water systems serving at least 80% of the irrigated landscape area on the grounds. The percentage of irrigated landscape area served must be calculated as the total metered irrigated landscape area divided by the total irrigated landscape area. All landscaping areas fully covered with xeriscaping or native vegetation that requires no routine irrigation must be excluded from the calculation entirely.
  - Indoor plumbing fixtures and fittings. Meter water systems serving at least 80% of the indoor plumbing fixtures and fittings described in WE Prerequisite 1, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds.
  - Cooling towers. Meter replacement water use of all cooling towers serving the facility.
  - Domestic hot water. Meter water use of at least 80% of the installed domestic hot water heating capacity (including both tanks and on-demand style heaters).
  - Other process water. Meter at least 80% of expected daily water consumption for process-type end uses, such as humidification systems, dishwashers, clothes washers, pools and other systems using process water.

Meters must measure potable water use, but gray or reclaimed water use may also be measured to meet the requirements of this credit. Metering must be continuous and data-logged to allow for an analysis of time trends. The project must compile monthly and annual summaries of results for each subsystem metered.

Meters must be calibrated within the manufacturer's recommended interval if the building owner, management organization or tenant owns the meter. Meters owned by third parties (e.g., utilities or governments) are exempt.

Potable water is defined as water that is suitable for drinking and is supplied from wells or municipal water systems.

Option A

- Reduce use of potable water for building sewage conveyance by 50%, based on water use baseline calculated for WE Prerequisite 1.

Option B

- Treat 100% of wastewater on site to tertiary standards.

- **WE Credit 1.1** (1 point): Have in place a permanently installed water meter(s) that measures the total potable water use for the entire building and associated grounds. Meter data must be recorded on a regular basis and compiled into monthly and annual summaries. Applicants are also encouraged to meter gray or reclaimed water supplied to the building.
- **WE Credit 1.2** (1 point): Meet the requirements for WE Credit 1.1 and have in place permanently installed metering for one or more of the following water subsystems:
  - Irrigation. Meter water systems serving at least 80% of the irrigated landscape area on the grounds. The percentage of irrigated landscape area served must be calculated as the total metered irrigated landscape area divided by the total irrigated landscape area. All landscaping areas fully covered with xeriscaping or native vegetation that requires no routine irrigation must be excluded from the calculation entirely.
  - Indoor plumbing fixtures and fittings. Meter water systems serving at least 80% of the indoor plumbing fixtures and fittings described in WE Prerequisite 1, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds.
  - Cooling towers. Meter replacement water use of all cooling towers serving the facility.
  - Domestic hot water. Meter water use of at least 80% of the installed domestic hot water heating capacity (including both tanks and on-demand style heaters).
  - Other process water. Meter at least 80% of expected daily water consumption for process-type end uses, such as humidification systems, dishwashers, clothes washers, pools and other systems using process water.

Meters must measure potable water use, but gray or reclaimed water use may also be

measured to meet the requirements of this credit. Metering must be continuous and data-logged to allow for an analysis of time trends. The project must compile monthly and annual summaries of results for each subsystem metered.

Meters must be calibrated within the manufacturer's recommended interval if the building owner, management organization or tenant owns the meter. Meters owned by third parties (e.g., utilities or governments) are exempt.

Potable water is defined as water that is suitable for drinking and is supplied from wells or municipal water systems.

Install permanent water meters that measure the total potable water use for the building and associated grounds. Meter data must be compiled into monthly and annual summaries; meter readings can be manual or automated.

Commit to sharing with USGBC the resulting whole-project water usage data for a five-year period beginning on the date the project accepts LEED certification or typical occupancy, whichever comes first.

This commitment must carry forward for five years or until the building changes ownership or lessee.

Establishment

Have permanently installed water meters that measure the total potable water use for the building and associated grounds. Metering of any gray or reclaimed water supplied to the building is encouraged but not required.

Performance

Record meter data on a monthly basis and compile; meter readings can be manual or automated.

Install permanent water meters for two or more of the following water subsystems, as applicable to the project:

- Irrigation. Meter water systems serving at least 80% of the irrigated landscaped area. Calculate the percentage of irrigated landscape area served as the total metered irrigated landscape area divided by the total irrigated landscape area. Landscape areas fully covered with xeriscaping or native vegetation that requires no routine irrigation may be excluded from the calculation.
- Indoor plumbing fixtures and fittings. Meter water systems serving at least 80% of the indoor fixtures and fitting described in WE Prerequisite Indoor Water Use Reduction, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds.
- Domestic hot water. Meter water use of at least 80% of the installed domestic hot water heating capacity (including both tanks and on-demand heaters).
- Boiler with aggregate projected annual water use of 100,000 gallons (378 500 liters) or more, or boiler of more than 500,000 BtuH (150 kW). A single makeup meter may record flows for multiple boilers.
- Reclaimed water. Meter reclaimed water, regardless of rate. A reclaimed water system with a makeup water connection must also be metered so that the true reclaimed water component can be determined.
- Other process water. Meter at least 80% of expected daily water consumption for process end uses, such as humidification systems, dishwashers, clothes washers, pools, and other subsystems using process water.

Install permanent water meters for two or more of the following water subsystems, as applicable to the project:

- Irrigation. Meter water systems serving at least 80% of the irrigated landscaped area. Calculate the percentage of irrigated landscape area served as the total metered irrigated landscape area divided by the total irrigated landscape area. Landscape areas fully covered with xeriscaping or native vegetation that requires no routine irrigation may be excluded from the calculation.
- Indoor plumbing fixtures and fittings. Meter water systems serving at least 80% of the indoor fixtures and fitting described in WE Prerequisite Indoor Water Use Reduction, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds.
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- Reclaimed water. Meter reclaimed water, regardless of rate. A reclaimed water system with a makeup water connection must also be metered so that the true reclaimed water component can be determined.
- Other process water. Meter at least 80% of expected daily water consumption for process end uses, such as humidification systems, dishwashers, clothes washers, pools, and other subsystems using process water.

In addition to the requirements above, install water meters in any five of the following:

- purified water systems (reverse-osmosis, de-ionized);
- filter backwash water;
- water use in dietary department;
- water use in laundry;
- water use in laboratory;
- water use in central sterile and processing department;
- water use in physiotherapy and hydrotherapy and treatment areas;
- water use in surgical suite;
- closed-looped hydronic system makeup water; and
- cold-water makeup for domestic hot water systems.

Establishment

Establish permanently installed meters; 1 point for two water subsystems, 2 points for four or more water subsystems:

- Irrigation. Meter water systems serving at least 80% of the irrigated landscaped area. Calculate the percentage of irrigated landscape area as the total metered irrigated landscape area divided by the total irrigated landscape area. Landscape areas fully covered with xeriscaping or native vegetation that requires no routine irrigation may be excluded from the calculation.
- Indoor plumbing fixtures and fittings. Meter water systems serving at least 80% of the indoor plumbing fixtures and fittings listed in WE Prerequisite Indoor Water-Use Reduction, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds,
- Cooling towers. Meter replacement water use of all cooling towers serving the facility.
- Domestic hot water. Meter water use of at least 80% of the installed domestic hot water heating capacity (including both tanks and on-demand heaters).
- Reclaimed water. Meter reclaimed water, regardless of rate. A reclaimed water system with a makeup water connection must also be metered so that the true reclaimed water component can be determined.
- Other process water. Meter at least 80% of expected daily water consumption for process end uses, such as humidifiers, dishwashers, clothes washers, and pools.

Performance

All meters, including whole-building meter, must be recorded at least weekly and used in a regular analysis of time trends.

Meters must be calibrated within the manufacturer’s recommended interval if the building owner, management organization, or tenant owns the meter. Meters owned by third parties (e.g., utilities or governments) are exempt.