

Using H2O Degree's Submetering & Leak Detection System to support LEED v4 Water Efficiency (WE) Category



H2O Degree's advanced two-way, wireless mesh submetering system is uniquely positioned to help owners & managers of multi-family buildings attain credits and fulfill requirements for reducing water consumption under LEED v4.

Owners and managers of multi-family buildings who have installed H2O Degree's submetering and leak detection system are seeing their water usage in multi-family properties decrease by almost 50%. In addition to saving on utility costs and improving property values, this sophisticated submetering system can also help them earn valuable points and fulfill requirements in the Water Efficiency (WE) category under LEED v4, the international standard that incentivizes environmental building practices managed by the U.S. Green Building Council (USGBC).

WATER EFFICIENCY (WE) UNDER LEED v4

Among other categories describing green practices, the fourth and latest version of the LEED rating system, LEED v4, stipulates requirements and offers points for deploying

water conservation measures in different areas of building projects. In each of these areas, the Water Efficiency (WE) category presents an ideal opportunity for employing H2O Degree's submetering and leak detection to reduce a building's water consumption.

The tables on the following pages list the areas in which prerequisites and credits for the WE category apply. These include: Building Design & Construction (BD&C) and Existing Buildings Operations & Maintenance (EBOM), described in Table 1; Interior Design & Construction (ID&C) described in Table 2; and Home Design & Construction (HD&C) described in Table 3. Each table also lists the H2O Degree products that apply to each type of prerequisite or credit.

H2O Degree Submetering & Leak Detection Products
Existing Buildings - Water Efficiency: LEED V4
Building Operations & Maintenance (EBOM)
Building Design & Construction (BD&C)

WE Prerequisites	
Indoor Water Use Reduction	
Intent	To reduce indoor water consumption.
Requirement	Metered Water Use: Meter fixtures and fittings and record metered data for one year to establish baseline. For projects with at least 80% of fixtures and fittings metered, show that the water use baseline has been maintained.
H2O Degree Applicable Products	Water meters, leak detection monitoring & reporting, usage and analysis reporting.
Building-Level Water Metering	
Intent	To support water management and identify opportunities for additional water savings by tracking water usage.
Requirement	Have permanently installed water meters that measure the total potable water use for building and associated grounds. Record meter data on a monthly basis and compile and commit to sharing with the USGBC the resulting whole-project water use data for a five-year period.
H2O Degree Applicable Products	Water meters and usage & analysis reporting.
WE Credits Available	
Outdoor Water Use Reduction (1-2 Points)	
Intent	To reduce outdoor water consumption.
Requirement	Install irrigation meter to establish baseline usage and demonstrate a reduction in outdoor water use over the most recent 12 months compared with the established baseline. 30% reduction - 1 point, 40% reduction - 2 points.
H2O Degree Applicable Products	Water meters, leak detection monitoring & reporting and usage & analysis reporting.
Indoor Water Use Reduction (1-5 Points)	
Intent	To reduce indoor water consumption.
Requirements	Meter fixtures and fittings and record meter data for one year to establish a baseline water use. For projects with at least 80% of fixtures and fittings metered, show a reduction from the baseline year of meter data.
H2O Degree Applicable Products	Water meters, leak detection monitoring & reporting and usage & analysis reporting.
Water Metering (2 Points)	
Intent	To support water management and identify opportunities for additional water savings by tracking water usage.
Requirements	Install permanent water meters that measure the total potable water use for the building and associated grounds. Record meter data monthly and compile and agree to share usage data with the USGBC for a five-year period.
H2O Degree Applicable Products	Water meters, leak detection monitoring & reporting and usage & analysis reporting.

Table 1. LEED v4 Water Efficiency (WE) prerequisites and credits for Existing Buildings: Building Operation & Maintenance (EBOM) and Building Design & Construction (BD&C).

H2O Degree Submetering & Leak Detection Products
Water Efficiency: LEED V4
Interior Design & Construction (ED&C)

WE Prerequisites	
Indoor Water Use Reduction	
Intent	To reduce indoor water consumption.
Requirement	For new and buildings undergoing major renovation, reduce indoor water usage by an average of 20% from baseline.
H2O Degree Applicable Products	Water meters, leak detection monitoring & reporting, usage and analysis reporting.
WE Credits Available	
Indoor Water Use Reduction (2-12 Points)	
Intent	To reduce indoor water consumption.
Requirement	Further reduce fixture and fitting water use from the calculated baseline in WE Prerequisite Indoor Water Use Reduction.
H2O Degree Applicable Products	Water meters, leak detection monitoring & reporting and usage & analysis reporting.

Table 2. LEED v4 Water Efficiency (WE) prerequisites and credits for Interior Design & Construction (HD&C).

H2O Degree Submetering & Leak Detection Products Water Efficiency: LEED V4 Home Design & Construction (ED&C)	
WE Prerequisites	
Water Efficiency	
Intent	Support water efficiency efforts by monitoring and benchmarking water use over time.
Requirement	Single-Family: Install a whole-house water meter. Encourage homeowners/tenants to share water usage data with the USGBC. Multi-Family: Install water meters or submeters for each unit in the entire building. Encourage homeowners or tenants to share usage data with USGBC.
H2O Degree Applicable Products	Water meters and usage and analysis reporting.
WE Credits Available	
Total Water Use (1-3 Points)	
Intent	Reduce total demand for water through high-efficiency fixtures and efficient landscaping practices.
Requirement	Reduce total indoor and outdoor water consumption by at least 10% over standard practices.
H2O Degree Applicable Products	Water meters, leak detection monitoring & reporting and usage & analysis reporting.

Table 3. LEED v4 Water Efficiency (WE) prerequisites and credits for Home Design & Construction (ED&C).

COMPREHENSIVE APPROACH TO WATER REDUCTION

With utilities representing the single largest controllable cost for a multi-family and commercial property, building owners and managers are increasingly turning to submetering systems that give them both visualization and control of water usage.

H2O Degree's approach to reducing water consumption includes a combination of two-way wireless mesh technology, water meters and daily water meter usage monitoring and leak-detection reporting. This approach is proving to be effective in cutting water consumption in apartment buildings virtually in half. The system is based on the ability to remotely assess tenants' individual water usage using a convenient web-based portal and by accurately pinpointing - and prompting the repair of - water leaks.

WIRELESS WATER METERS

H2O Degree's two-way mesh submetering system is designed to detect and report water leaks for a single apartment down to individual point-of-use entry locations, such as toilets, showers, etc. throughout the property (Figure 1). Unlike typical water meters installed in apartments to track water by gallons used, the H2O Degree battery-powered wireless water meter also monitors "events" such as stop/start and flushes along with the time duration of the water flow. These water meters can monitor up to 9 gpm at an extremely high accuracy rate, +/- 1%, which meets or exceeds current AWWA accuracy standards.



Figure 1. Battery-powered wireless water meters measure water consumption.

LEAK DETECTION AND REPORTING

The H2O Degree system uses cloud-based leak detection reporting. Working in tandem with their wireless water meters, the web-based leak detection reports help building owners dramatically cut their average daily consumption, or ADC. Based on H2O Degree's field experience in leak reporting, the ADC reduction can be as much as 50% in some cases.

Since the water meter's granular insight about the event enables managers to deduce its cause (i.e. when they installed a toilet, it distinguishes among a broken flapper, broken chain or cracked fill valve,) they can quickly send an email or text to maintenance staff to fix the problem. Meanwhile, asset managers can access the online leak reports in order to track the building's historical water consumption information as well as maintenance response times and follow up.

Submetering Systems Based on Plumbing Design

Type of Submetering System	Number of Meters per Apartment Unit	Type of Plumbing Design
Single Point-of-Entry	1	Single cold water branch feeds each apartment. Typically it enters the apartment at one point in the utility closet and supplies the water heater and continues on to supply cold water for the fixtures. Meters are installed right before plumbing branches and after the isolation valve.
Dual Point-of-Entry	2	Building produces central domestic hot water. Both hot and cold water typically enter the apartment at one centralized location in a hallway access panel or washer closet. Meters are installed right before the plumbing branches and after the isolation valves.
Point-of-Use	3 (Average)	Individual hot and cold risers feed the toilets, hot shower, cold water for shower, kitchen sink, etc. Meters are installed at each fixture supply valve to capture water consumption.

Table 5. The type and number of meters required for each type of plumbing system.

H2O Degree's leak detection reports are sortable by serial number, property, apartment, point-of-use and leak size (Figure 2). The company emails daily leak reports through its automated system where the customer (building manager) can assign them to as many as 10 recipients.

The reports are stored on a secure server in near real-time. An easy-to-use dashboard features a variety of user selections including billing data, exception reports, a configurable reporting function and alarms. Aside from leak detection, the system also provides insight into reducing vacant utility costs, indicates over-occupancy and limits the possibility of passing a high water bill caused by leaks onto the tenant, thus improving the tenant experience at the property.

SUMMARY

H2O Degree's submetering system is designed to drive both tenants and property managers to make behavioral changes. Tenants are incentivized to conserve water since they are held accountable for their individual usage, and property managers are able to take proactive water-saving maintenance measures since they receive daily leak detection reports. This comprehensive approach is proving to be an effective way to reduce water consumption to comply with LEED v4 requirements - as well as accruing coveted credits for water efficiency.

For a free site evaluation contact H2O Degree at info@h2odegree.com or call (215) 788-8485.

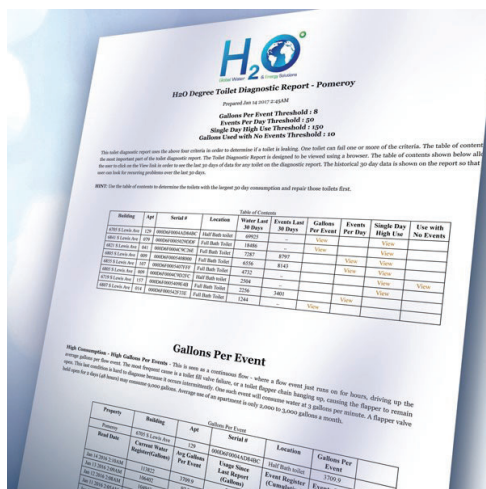


Figure 2. H2O Degree's cloud-based leak detection reports.

