REACH CODE NEWS BRIEF: AUGUST 2026

NEW OPPORTUNITIES TO REDUCE WATER USE AND LOWER CONSTRUCTION COSTS

Using the Water Demand Calculator for Multifamily Buildings

Sizing plumbing and related water distribution infrastructure in multifamily new construction is at a crossroads, due to new requirements in the latest energy code cycle. The 2025 California Energy Code, effective January 1, 2026, establishes a prescriptive requirement to size hot-water distribution piping (not total or cold branch) in multifamily central water-heating systems using California Plumbing Code (CPC) Appendix M.

The WDC (CPC Appendix M) is a design tool used to estimate the required water supply for a building based on its fixtures, appliances, and expected patterns of simultaneous use. It helps determine the appropriate size of water service, branches, and risers based on the estimated peak demand. This approach replaces the previous one, governed by assumptions developed in the 1940s, when plumbing products and appliances used approximately 50-75% more water than today’s products and queues for using fixtures were assumed.

Utilizing the new WDC is expected to result in a range of construction and operational savings, without compromising water service. These savings include:

- Construction cost savings due to smaller diameter pipes and fittings, less pipe insulation material, smaller water heaters, and reduced water service entrance size
- Ongoing cost savings to occupants and homeowners from water and energy savings
- Water and embedded energy savings due to faster hot water delivery times
- Additional energy savings due to decreased heat loss in the hot water distribution system (particularly in multifamily buildings with a recirculation system) and due to decreased energy use by booster pumps (in multifamily buildings)
- Reduced carbon emissions due to material savings (embodied carbon) and energy reductions (operational carbon)
- Faster delivery of hot water to occupants
- Reduced public health and safety risk and improved water quality due to shorter water dwell times in premise plumbing systems

The current version of the WDC covers residential projects (multifamily and single family). A data collection effort currently underway, spearheaded by IAPMO (International Association of Plumbing and Mechanical Officials), is aimed at gathering data to expand the scope of the WDC to commercial applications. For instance, monitoring of multifamily buildings built with the WDC is of interest. Also of interest in this research effort is how plumbing systems are sized in commercial buildings, such as hotels, healthcare facilities, and assisted living properties. Specifically, this effort is seeking data from approximately 140 buildings per building type to ensure the data is statistically representative. The information needed includes:

- Building type (i.e., hotel, healthcare, multifamily facility)
- Water flow data from the appropriate and accessible point(s)
- The number and types of fixtures serviced from the point of measurement
- The occupancy rate of the building when the data was collected

Monitoring duration is expected to last three to four weeks. Participants are eligible to receive a free water audit with an accompanying report. For more information about the water audits, contact Steffi Becking or Gary Klein. For more information about the data collection efforts, contact Christoph Lohr at IAPMO.

WDC resources available from the Local Energy Codes team include a UPC Appendix M Overview Presentation, CPC Appendix M: Alternative Methodology for Calculating Water Demand, Alternative Methodology for Sizing Water Demand Executive Summary and UPC Appendix M Fact Sheet.

UPCOMING EVENTS

September 1: 3C-REN Training: 2025 Energy Code: Multifamily Ventilation

September 8: CCR-REN Forum: Easing Energy Code Compliance: Four Industry Perspectives

September 9: New Buildings Institute: Marketing and Lead Generation for Electrification

September 9: California Energy Commission: Business Meeting

September 10: I-REN C&S Training: Navigating Energy Code Resources

September 15: Building Decarbonization Coalition: California Policy Call

September 15-16: Green California Summit, Pasadena

September 15-17: CABEC Annual Conference, Petaluma

September 16: BayREN Regional Forum: Appliance Rules: Preparing Local Governments and Communities for a Clean Transition

September 29: California Energy Commission: 2026 Electric Program Investment Charge (EPIC) Symposium

NEW THIS MONTH!

A LOOK AT THE CALIFORNIA ENERGY STORAGE PERMITTING GUIDEBOOK: A Q&A WITH DEMETRA TZAMARAS

About Dema

Demetra Tzamaras, P.E., is a Senior Manager on the Distributed Energy Resources (DER) team at the Center for Sustainable Energy (CSE), a national clean energy nonprofit with one mission – Decarbonize. At CSE, she supports a diverse and dynamic portfolio of distributed energy resource projects and customer programs. Demetra holds a bachelor's degree in civil and environmental engineering from the University of Maryland – College Park and a master’s degree in civil and environmental engineering from the University of California, Berkeley.

Q: Tell us a little about the reason for producing this Energy Storage Permitting Guidebook.

A: The impetus for developing the Energy Storage Permitting Guidebook came from research into key permitting issues that can create barriers to the cost-effective installation of customer-sited battery energy storage systems (BESS). These included inconsistent communication among stakeholders, varying levels of familiarity with BESS and permitting requirements and the need to navigate multiple applicable codes and standards.

The guidebook was funded through the California Energy Commission's Electric Program Investment Charge program. The goal was to create a resource that could help local authorities having jurisdiction (AHJs) and industry professionals develop more standardized and streamlined local permitting procedures for residential and commercial projects, while also improving communication among stakeholders, especially AHJs and installers.

Q: What types of energy storage systems does this Guidebook cover?

A: While there is a wide range of storage technologies and applications, the team focused on BESS of less than 1 MW in capacity. According to the CEC's California Energy Storage System Survey, more than 98.5% of the installed systems covered in that survey are residential storage systems, with an average size of 7 kW and a maximum size of 250 kW. So, clearly, the greatest need for providing guidance in the permitting process was with the smaller, back-of-the-meter systems.

Q: What building types are primarily the focus for these types of BESS?

A: Typically, these smaller BESS are installed in residential, multifamily and small commercial buildings. These projects can involve a wide range of site conditions, electrical configurations, installation locations, and code requirements, which is one reason permitting practices can vary from jurisdiction to jurisdiction.

Q: Does the Guidebook offer a standardized permitting process that local jurisdictions can implement?

A: While that was the intent of the project, the team found that the wide variety of BESS installation types, building conditions and local permitting makes a single "one-size-fits-all" approach difficult to apply statewide. Instead, the Guidebook consolidates insights and information from AHJs statewide to share best practices and success stories so that individual jurisdictions can select approaches that might best fit similar local needs.

Q: Can you give us a thumbnail view of the Guidebook contents?

A: Absolutely! There are five main sections:

- **Section 1: Introduction** provides background on the project and a general overview.
- **Section 2: Codes and Standards** examines the various parts of Title 24 most relevant to BESS installations (Part 2.5, the Residential Code; Part 3, the Electrical Code; Part 6, the Energy Code; and Part 9, the Fire Code).
- **Section 3: Energy Storage Permit Process** offers an overview of a typical permit review process and highlights permitting best practices from across the state.
- **Section 4: Electronic and Automated Permitting** looks at examples of electronic permitting systems.
- **Section 5: Permitting Resources** includes Energy Code Ace guidance on the Energy Code, along with a permitting toolkit and additional resources.

Q: What last words of advice do you have for local jurisdiction staff?

A: We are always interested in hearing from local staff about best practices and where additional guidance would be useful. Areas we would like to get feedback on include topics like what is working well in an individual jurisdiction, or if there's content missing that would make the Guidebook more useful for local staff.

Because codes, technologies, and permitting practices continue to evolve, we will continue to refine and update the Guidebook through Q1 2027, and of course, the resource will remain active beyond that time frame. Individuals are encouraged to email feedback, questions or concerns to storage.guidebook@energycenter.org.

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