

Approaches to Meet New PACE Wisconsin Standards

PACE Wisconsin updated the program guidelines in February 2022 to increase the impact on energy conservation and CO₂ reduction in PACE projects. The program guide now matches the Wisconsin Energy Conservation Code and includes an incremental-based SIR for projects that meet the High-Performance Building Standard. To help PACE applicants meet the new standards, Slipstream has developed a list of best practice measures for cost-effective energy efficiency improvements on hotel and multi-family new construction and major rehabilitation projects.

The recommendations are targeted for reasonable simple paybacks and designed to help achieve a **15-20% savings** improvement over the Wisconsin Energy Conservation Code. By reaching a 20% savings threshold, projects can be eligible for the High-Performance Building Track, increasing the potential for available financing.

A set of core measures provides a comprehensive improvement package by reaching targeted efficiency levels for HVAC equipment, window and envelope performance, domestic hot water, and lighting power density and control strategies.

Windows

Total vision glass area may not exceed 40% of the above-grade wall area.

GLAZING ASSEMBLIES (glass plus frame) area-weighted average:

- U-Factor 0.30
- SHGC 0.35 (South, East, West facing facades only)

CLASS AW WINDOWS:

- Fixed Window U-Factor 0.36
- Operable Window U-Factor 0.43
- SHGC 0.35 (South, East, West facing facades only)

Storefront window systems generally have less availability for high-performance products and have limited impact on overall savings; therefore, are not prioritized to exceed code.



Interior Lighting Power

Not all LED lighting is equal when it comes to performance. Some LED fixtures, such as those listed by [DLC](#) or [Energy Star®](#), can provide better lighting quality, effectiveness, and longevity. Selecting these fixtures, along with careful layouts, will result in significant operational savings and a well-lit space.

- Total lighting power density (LPD) in common areas shall not exceed 0.43 W/sf. This can be achieved by selecting high efficacy light fixtures over 90 lumens per watt and designing layouts to reduce over lighting in both circulation spaces and amenity areas.
- For dwelling units, 90% of lamps and fixtures should have minimum efficacy greater than 75 lumens per watt.

Common Area Lighting Controls

Fully lighting unused spaces results in wasted energy. Consider selecting fixtures with integrated controls to reduce upfront costs and take advantage of savings opportunities from daylighting, dimming, and occupancy. Corridor and stairwell lighting can operate at reduced background lighting while unoccupied, quickly reaching full lighting once someone enters the space.

- Install occupancy controls (automatic on/off) capable of reducing lighting power of lobbies, corridors, and stairways by at least 50% after 5 minutes of non-occupancy.
- For renovations of hotel rooms, consider including the code required a master of lighting control at a minimum for guests to easily turn off all lights when they leave the room. A guest room energy management system can provide additional automation of both lighting and HVAC systems.

Exterior Lighting Power

Going beyond code required timeclock operation, consider occupancy-based controls, which provide a background light level for ambiance and security that brightens based on space usage where needed.

- Install LED fixtures to achieve 0.03 watts/sf or lower for parking and drive areas.

Domestic Hot Water Efficiency

Water heating is a significant energy end-use in residential and lodging applications. Consider installing condensing water heaters. Once the hot water is produced, limiting the volume that quickly cools while stagnant in piping is also a concern.

- All in-unit gas water heaters or heat pump water heaters shall meet Energy Star® requirements.
- All centralized gas water heaters should have a rated thermal efficiency of 95% or higher. Any recirculation loops should be equipped with pump controls based on demand and temperature.
- Where gas heating is not possible, consider installing heat pump water heaters over electric resistance water heaters. Target a UEF greater or equal to 2.0.

Low flow Plumbing Fixtures

Installing low flow plumbing fixtures is one of the easiest and most cost-effective ways to reduce operational costs. The [EPA Watersense® Program](#) has created guides and toolkits specifically for hotel and multi-family buildings to assess savings opportunities and expected operational cost reductions.

- Install low-flow plumbing fixtures that meet EPA Watersense® Guidelines. Kitchen and bathroom faucets must be rated for 1.5 gallons per minute or less, and showerheads must be rated for 2.0 gallons per minute or less.

Heating and Cooling System Efficiency

The recommendations provided for HVAC performance are generalized to account for the fact that HVAC system selection is highly dependent on the constraints of the building. The referenced CEE Tier 1 requirements provide a good starting place for efficiencies outside of a general improvement over code. Within hotels and multi-family buildings, packaged distributed systems such as PTACs, PTHP, or SPVA/HP tend to have higher operating costs and the lowest relative efficiencies compared with non-single packaged water or air-source heat pumps VRF systems, and furnace AC split systems.

COOLING EQUIPMENT:

- Install efficient cooling equipment with rated efficiency 10% higher than code minimum or meeting [CEE Tier I requirements](#).

HEATING EQUIPMENT:

- Install gas heating equipment with rated thermal efficiency of 95% or higher (make-up air units excluded).

FAN EFFICIENCY:

- Individual bath and utility fans: 6.0 cfm/watt or higher.

Fans over 1 hp: 0.82 W/cfm (constant) or 1.11 W/cfm (variable) or lower.



Learn more about Wisconsin PACE project development, the application process and how to close financing at www.pacewi.org or call 1-800-522-3014.