



Department of
**PLANNING &
ZONING**

Green Building Plan EUI Design Guide

Planning Commission Retreat

September 25, 2026



Plan Implementation

Previously

- ▶ As of July 1, 2026, all new concept plans must conform with the Green Building Plan
 - ▶ New memo to industry outlining items due at each stage of development review
 - ▶ New standard conditions

Now

- ▶ Review draft Guide to Achieve Multi-Unit Residential EUI Target
 - ▶ Discussed with CREDA on September 16



Design Guide Overview

Nine Strategies

- ▶ Optimize building massing
- ▶ Optimize window-to-wall ratio
- ▶ Improve window performance
- ▶ Improve wall and roof thermal performance
- ▶ Reduce thermal bridging
- ▶ Use high-efficiency heat pump-based heating and cooling systems
- ▶ Use high-efficiency heat pump-based domestic hot water systems
- ▶ Minimize corridor pressurization
- ▶ Minimize fan, pump, and HVAC equipment energy



Optimize Building Massing

Best Practices

- ▶ Use simple, compact building forms
- ▶ Use thermal mass strategically
- ▶ Minimize vertical façade area ratio (VFAR)
- ▶ Consider unit density

Good Practice Benchmark

- ▶ Building VFAR < 0.65



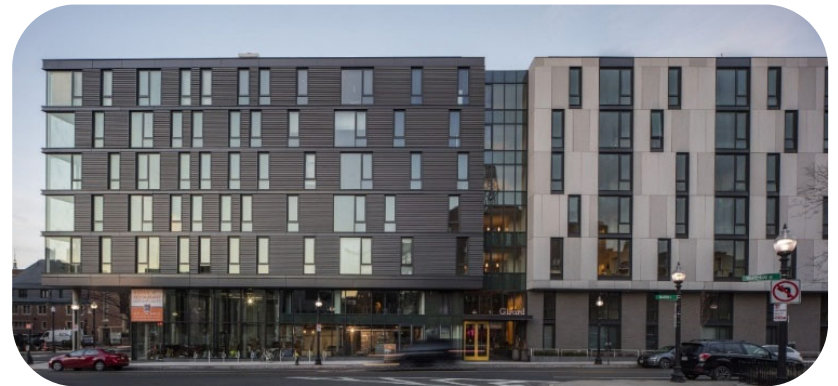
Samuel Madden (ALX)



Optimize Window to Wall Ratio

Best Practices

- ▶ Limit window-to-wall ratio (WWR)
- ▶ Optimize WWR by orientation
- ▶ Avoid unnecessary low-level glazing
- ▶ Optimize daylighting while controlling solar gain



Girard (Boston)

Good Practice Benchmark

- ▶ WWR < 40%



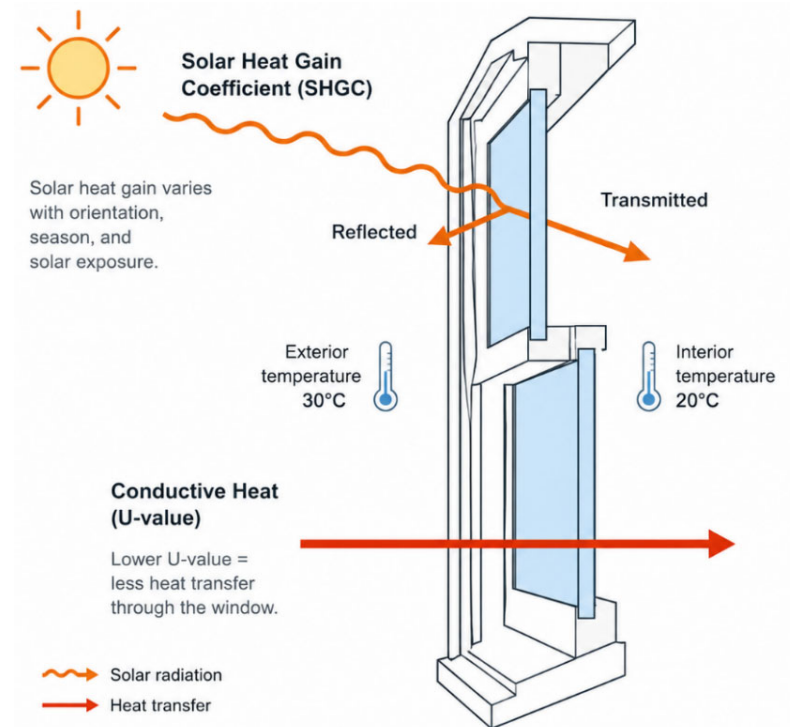
Window Performance

Best Practices

- ▶ Specify high-performance, low U-value windows
- ▶ Optimize SHGC by orientation
- ▶ Use thermally efficiency frames
- ▶ Provide exterior solar shading

Good Practice Benchmark

- ▶ Window performance:
 - ▶ $U < 0.35 \text{ Btu/h}\cdot\text{ft}^2\cdot^\circ\text{F}$
 - ▶ $\text{SHGC} < 0.35$



SHGC = Solar Heat Gain Coefficient



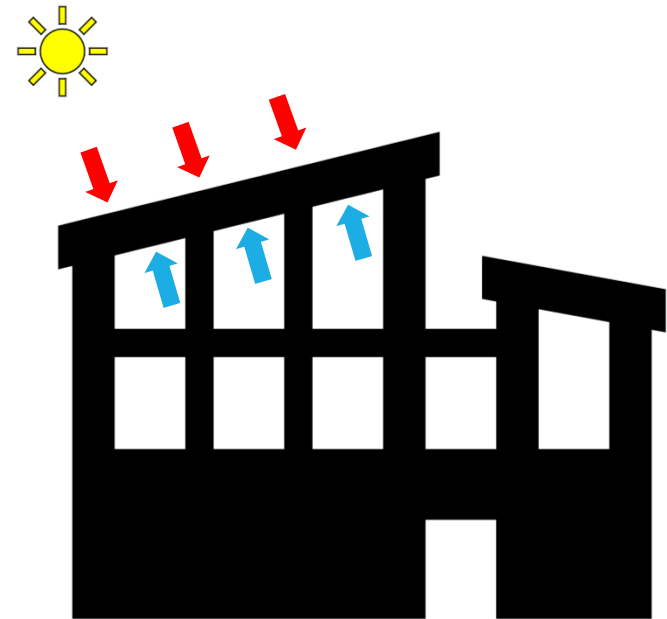
Wall and Roof Thermal Performance

Best Practices

- ▶ Increase clear-field thermal resistance
- ▶ Prioritize continuous exterior insulation
- ▶ Design scalable wall assemblies

Good Practice Benchmark

- ▶ Wall clear-field $> R-20$
- ▶ Roof clear-field $> R-30$





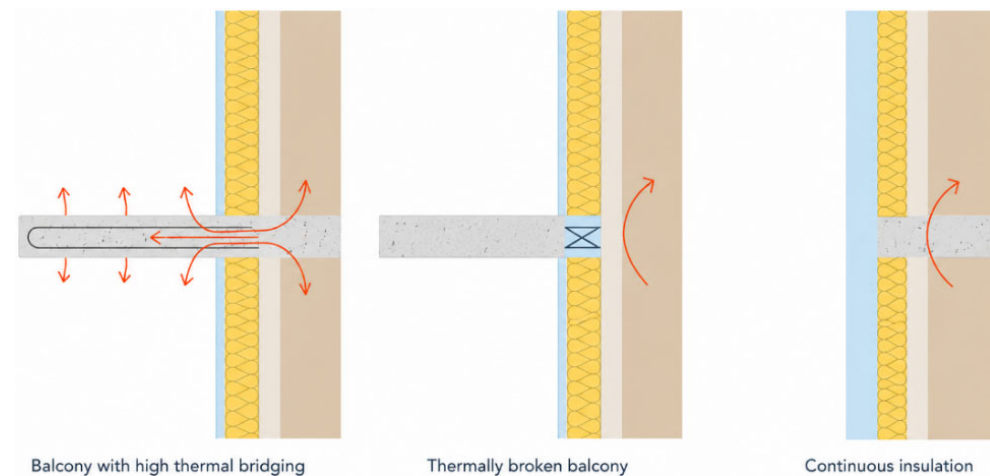
Reduce Thermal Bridging

Best Practices

- ▶ Maintain continuous insulation
- ▶ Thermally isolate structural penetrations
- ▶ Reduce envelope complexity
- ▶ Optimize enclosure interfaces

Good Practice Benchmark

- ▶ Exterior insulation of floor slabs
- ▶ Thermally broken balconies





Heat Pump Heating and Cooling

Best Practices

- ▶ Right-size equipment based on calculated building loads
- ▶ Select equipment based on expected part-load and seasonal performance
- ▶ Minimize reliance on electric resistance backup heating
- ▶ Separate space-conditioning and ventilation systems
- ▶ Coordinate heat pump selection with envelope improvements

Good Practice Benchmark

- ▶ Size the heat pump system to meet the lesser of these requirements
 - ▶ Capacity to meet full peak cooling load when in cooling mode, or
 - ▶ Capacity to provide 80% of the annual heating load



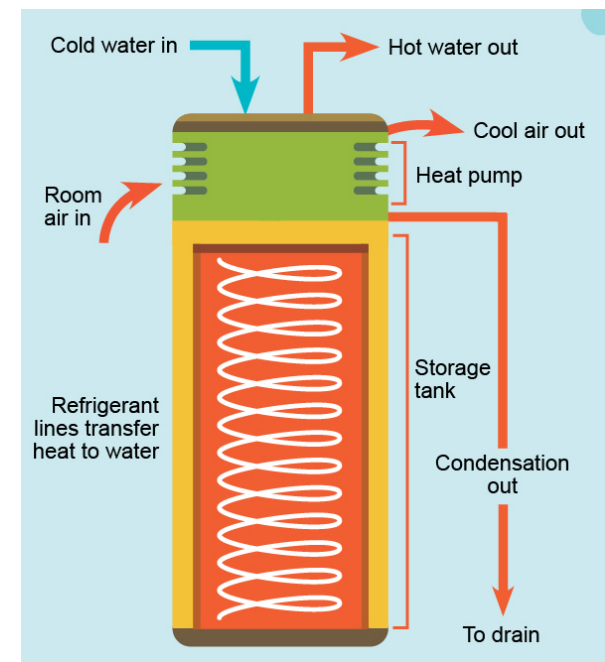
Heat Pump Hot Water System

Best Practices

- ▶ Compact piping layouts and pipe insulation
- ▶ Optimize recirculation controls
- ▶ Consider drain-water heat recovery

Good Practice Benchmark

- ▶ Hybrid domestic hot water heater, or
- ▶ Dual-fuel hot water heater



Source: Full Spectrum Solar



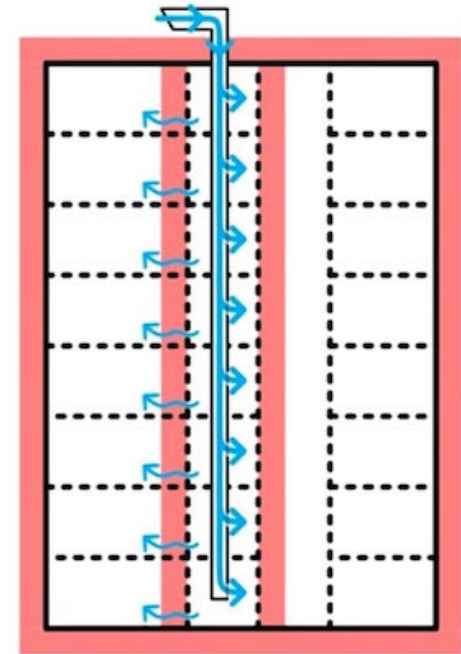
Minimize Corridor Pressurization

Best Practices

- ▶ Minimize unnecessary outdoor airflow
- ▶ Recover energy from exhaust air
- ▶ Improve compartmentalization

Good Practice Benchmark

- ▶ Corridor pressurization < 20 cfm per door



Source: Energy Vanguard



Fan, Pump, & HVAC Energy

Best Practices

- ▶ Reduce fan energy
- ▶ Reduce pumping energy
- ▶ Specify high-efficiency HVAC equipment
- ▶ Optimize controls

Good Practice Benchmark

- ▶ Equipment efficiency to meet minimum ASHRAE performance requirements



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Discussion