

Climate Zone 3 Recommendation Table for Small Retail Buildings

	Item	Component	Recommendation (Minimum or Maximum)	How-To Tips in Chapter 5	✓	
Envelope	Roof	Insulation entirely above deck	R-20 c.i.	EN1-2, 17, 20-21		
		Metal building	R-13 + R-19	EN1, 3, 17, 20-21		
		Attic and other	R-38	EN4, 17-18, 20-21		
		Single rafter	R-38 + R-5 c.i.	EN5, 17, 20-21		
		Solar reflectance index (SRI)	78	EN1		
	Walls	Mass (HC > 7 Btu/ft ²)	R-11.4 c.i.	EN6, 17, 20-21		
		Metal building	R-13 + R-13	EN7, 17, 20-21		
		Steel framed	R-13 + R-7.5 c.i.	EN8, 17, 20-21		
		Wood framed and other	R-13	EN9, 17, 20-21		
	Floors	Below-grade walls	No recommendation	EN10, 17, 20-21		
		Mass	R-10.4 c.i.	EN11, 17, 20-21		
		Steel framed	R-30	EN12, 17, 20-21		
	Slabs	Wood framed and other	R-30	EN12, 17, 20-21		
		Unheated	No recommendation	EN13, 17, 19-21		
	Doors - Opaque	Heated	R-7.5 for 12 in.	EN14, 17, 19-21		
		Swinging	U-0.70	EN15, 20-21		
Vertical Glazing Including Doors	Non-swinging	U-0.50	EN16, 20-21			
	Area (percent of gross wall)	40%	EN22-23, 27, 28, 29			
	Thermal transmittance	U-0.41	EN22, 25			
	Solar heat gain coefficient (SHGC)	N, S, E, W - 0.41; N only—0.41	EN22			
Skylights	Exterior sun control (S, E, W only)	Projection factor > 0.5	EN26, DL3			
	Area (percent of gross roof)	3%	EN24			
Lighting	Interior Lighting	Thermal transmittance	U-0.69			
		Solar heat gain coefficient (SHGC)	0.16	DL3-10		
		Lighting power density (LPD)	1.3 W/ft ²	EL1, 3, 4, 14, 16-25		
		Linear fluorescent with high-performance electronic ballast	91 mean lm/W	EL7, 8		
		All other sources	50 mean lm/W	EL9,10		
		Dimming controls for daylight harvesting under skylights	Dim fixtures within 10 ft of skylight edge	DL1-9, EL15		
	Additional Interior Lighting for Sales Floor	Occupancy controls	Auto-off all non-sales rooms	EL13		
		Interior room surface reflectances in locations with daylighting	80%+ on ceilings, 70%+ on walls	DL2, EL5		
	Exterior Lighting	Additional LPD for adjustable lighting equipment that is specifically designed and directed to highlight merchandise and is automatically controlled separately from the general lighting	0.4 W/ft ² (spaces not listed below) 0.6 W/ft ² (sporting goods, small electronics) 0.9 W/ft ² (furniture, clothing, cosmetics, and artwork) 1.5 W/ft ² (jewelry, crystal, china)	EL1, 2, 10, 11, 14, 20, 21		
		Sources	Halogen IR or CMH	EL10-12		
	HVAC	HVAC	Façade and externally illuminated signage lighting	0.2 W/ft ²	EX2, 3, EL5, EL7-12	
			Air conditioner (0-65 kBtuh)	13.0 SEER	HV1-4, 6, 12, 16-17, 20	
			Air conditioner (>65-135 kBtuh)	11.0 EER/11.4 IPLV	HV1-4, 6, 12, 16-17, 20	
			Air conditioner (>135-240 kBtuh)	10.8 EER/11.2 IPLV	HV1-4, 6, 12, 16-17, 20	
			Air conditioner (>240 kBtuh)	10.0 EER/10.4 IPLV	HV1-4, 6, 12, 16-17, 20	
			Gas furnace (0-225 kBtuh - SP)	80% AFUE or E _t	HV1-2, 6, 16, 20	
Gas furnace (0-225 kBtuh - Split)			80% AFUE or E _t	HV1-2, 6, 16, 20		
Gas furnace (>225 kBtuh)			80% E _c	HV1-2, 6, 16, 20		
Heat pump (0-65 kBtuh)			13.0 SEER/7.7 HSPF	HV1-4, 6, 12, 16-17, 20		
Heat pump (>65-135 kBtuh)			10.6 EER/11.0 IPLV/3.2 COP	HV1-4, 6, 12, 16-17, 20		
Economizer		Heat pump (>135 kBtuh)	10.1 EER/11.0 IPLV/3.1 COP	HV1-4, 6, 12, 16-17, 20		
		Air conditioners & heat pumps- SP	Cooling capacity > 54 kBtuh	HV23		
Ventilation		Outdoor air damper	Motorized control	HV7-8		
		Demand control	CO ₂ sensors	HV7, 22		
		Ducts	Friction rate	0.08 in. w.c./100 ft	HV9, 18	
			Sealing	Seal class B	HV11	
SWH	Location	Interior only	HV9			
	Insulation level	R-6	HV10			
	Service Water Heating	Gas storage (> 75 kBtuh)	90% E _t	WH1-4		
		Gas Instantaneous	0.81 EF or 81% E _t	WH1-4		
Heating	Electric storage (≤ 12 kW and > 20 gal)	EF > 0.99 – 0.0012xVolume	WH1-4			
	Pipe insulation (d < 1½ in./ d ≥ 1½ in.)	1 in./ 1½ in.	WH6			

Note: If the table contains “No recommendation” for a component, the user must meet the more stringent of either Standard 90.1 or the local code requirements in order to reach the 30% savings target.

