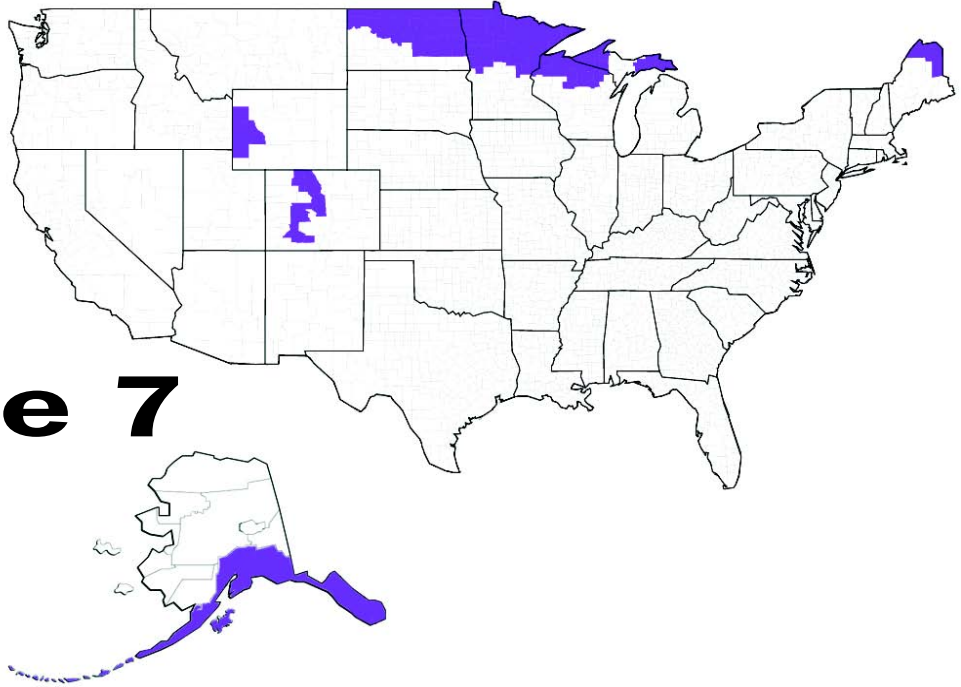


Climate Zone 6 Recommendation Table for Small Retail Buildings

	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)	No recommendation	EN1	
	Walls	Mass (HC > 7 Btu/ft ²)	R-13.3 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 + R-7.5 c.i.	EN9, 17, 20-21	
	Floors	Below-grade walls	R-7.5 c.i.	EN10, 17, 20-21	
		Mass	R-12.5 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	R-10 for 24 in.	EN13, 17, 19-21	
	Doors – Opaque	Heated	R-10 full slab	EN14, 17, 19-21	
Swinging		U-0.50	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-0.38	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		
	Thermal transmittance	U-0.69			
Lighting	Interior Lighting	Solar heat gain coefficient (SHGC)	0.46	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	
		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	
		Exterior Lighting	Façade and externally illuminated signage lighting	0.2 W/ft ²	EX2, 3, EL5, EL7-12
HVAC	HVAC	Air conditioner (0-65 kBtuh)	13.0 SEER	HV1-4, 6, 12, 16-17, 20	
		Air conditioner (>65-135 kBtuh)	No recommendation	HV1-4, 6, 12, 16-17, 20	
		Air conditioner (>135-240 kBtuh)	No recommendation	HV1-4, 6, 12, 16-17, 20	
		Air conditioner (>240 kBtuh)	No recommendation	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)	90% 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)	No recommendation	HV1-4, 6, 12, 16-17, 20	
	Heat pump (>135 kBtuh)	No recommendation	HV1-4, 6, 12, 16-17, 20		
	Economizer Ventilation	Air conditioners & heat pumps- SP	Cooling capacity > 54 kBtuh	HV23	
		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		
	Location	Interior only	HV9		
	Insulation level	R-6	HV10		
SWH	Service Water Heating	Gas storage (> 75 kBtuh)	90% E _t	WH1-4	
		Gas Instantaneous	0.81 EF or 81% E _t	WH1-4	
		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.



Zone 7

Alaska

- Aleutians East
- Aleutians West (CA)
- Anchorage
- Angoon (CA)
- Bristol Bay
- Denali
- Haines
- Juneau
- Kenai Peninsula
- Ketchikan (CA)
- Ketchikan Gateway
- Kodiak Island
- Lake and Peninsula
- Matanuska-Susitna
- Prince of Wales-Outer Sitka
- Skagway-Hoonah-Valdez-Cordova (CA)
- Wrangell-Petersburg (CA)
- Yakutat

Colorado

- Clear Creek
- Grand
- Gunnison
- Hinsdale
- Jackson
- Lake
- Mineral
- Park
- Pitkin
- Rio Grande
- Routt

- San Juan
- Summit

Maine

- Aroostook

Michigan

- Baraga
- Chippewa
- Gogebic
- Houghton
- Iron
- Keweenaw
- Luce
- Mackinac
- Ontonagon
- Schoolcraft

Minnesota

- Aitkin
- Becker
- Beltrami
- Carlton
- Cass
- Clay
- Clearwater
- Cook
- Crow Wing
- Grant
- Hubbard
- Itasca
- Kanabec
- Kittson
- Koochiching

- Lake
- Lake of the Woods
- Mahnomen
- Marshall
- Mille Lacs
- Norman
- Otter Tail
- Pennington
- Pine
- Polk
- Red Lake
- Roseau
- St. Louis
- Wadena
- Wilkin

North Dakota

- Barnes
- Benson
- Bottineau
- Burke
- Cass
- Cavalier
- Divide
- Eddy
- Foster
- Grand Forks
- Griggs
- Kidder
- McHenry
- McLean
- Mountrail
- Nelson
- Pembina
- Pierce
- Ramsey

- Renville
- Rolette
- Sheridan
- Steele
- Stutsman
- Towner
- Trail
- Walsh
- Ward
- Wells
- Williams

Wisconsin

- Ashland
- Bayfield
- Burnett
- Douglas
- Florence
- Forest
- Iron
- Langlade
- Lincoln
- Oneida
- Price
- Sawyer
- Taylor
- Vilas
- Washburn

Wyoming

- Lincoln
- Sublette
- Teton