Table A-1 State-by-State Climate Region Index

State	Primary Region	Exception	Counties				
Alabama	3	Region 4:	Baldwin	Coffee	Escambia	Lowndes	Perry
			Barbour	Conecuh	Geneva	Macon	Pike
			Bullock	Covington	Greene	Marengo	Russell
			Butler	Crenshaw	Hale	Mobile	Sumter
			Choctaw	Dale	Henry	Monroe	Washington
			Clarke	Dallas	Houston	Montgomery	Wilcox
Alaska	1	None					
Arizona	4	Region 2:	Apache	Coconino	Graham	Navajo	Santa Cruz
			Cochise	Gila	Greenlee	Pima	Yavapai
Arkansas	3	Region 4:	Ashley	Cleveland	Hempstead	Little River	Pike
			Bradley	Columbia	Howard	Miller	Sevier
			Calhoun	Dallas	Jefferson	Montgomery	Union
			Chicot	Desha	Lafayette	Nevada	
			Clark	Drew	Lincoln	Ouachita	
California	3	Region 2:	Alpine	Lake	Nevada	Sierra	Yolo
			Butte	Lassen	Placer	Solano	Yuba
			Colusa	Modoc	Plumas	Sutter	
			Glenn	Mono	Shasta	Tehama	
		Region 4:	Imperial	Inyo	Riverside	San Bernardino	
Colorado	1	Region 2:	Baca	Custer	Kit Carson	Phillips	Washington
			Bent	El Paso	Lake	Prowers	Yuma
			Chaffee	Fremont	Las Animas	Pueblo	
			Cheyenne	Huerfano	Lincoln	Sedgwick	
			Crowley	Kiowa	Otero	Teller	
Connecticut	2	None					
Delaware	2	None					
Florida	4	None					
Georgia	4	Region 3:	Banks	Dawson	Habersham	Marion	Stephens
			Barrow	DeKalb	Hall	Meriwether	Talbot
			Bartow	Douglas	Haralson	Murray	Taylor
			Carroll	Elbert	Harris	Muscogee	Towns
			Catoosa	Fannin	Hart	Oconee	Troup
			Chattahoochee	Fayette	Heard	Oglethorpe	Union
			Chattooga	Floyd	Henry	Paulding	Upson
			Cherokee	Forsyth	Jackson	Pickens	Walker
			Clarke	Franklin	Lamar	Pike	Walton
			Clayton	Fulton	Lincoln	Polk	White
			Cobb	Gilmer	Lumpkin	Rabun	Whitfield
			Coweta	Gordon	Macon	Schley	Wilkes
			Dade	Gwinnett	Madison	Spalding	
Hawaii	4	None					
Idaho	1	Region 2:	Ada	Gooding	Lemhi	Minidoka	Payette
			Canyon	Jerome	Lincoln	Nez Perce	Washington
			Gem				
Illinois	2	None					

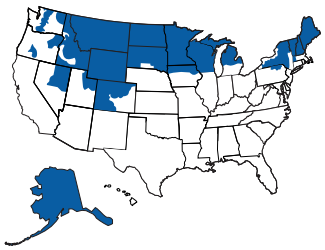
State	Primary Region	Exception Counties				
Indiana	2	None				
Iowa	2	Region 1:	Allamakee	Cherokee	Emmet	Kossuth	Pocahontas
			Black Hawk	Chickasaw	Fayette	Lyon	Sioux
			Bremer	Clay	Floyd	Mitchell	Winnebag
			Buchanan	Clayton	Franklin	O'Brien	Winneshiek
			Buena Vista	Delaware	Hancock	Osceola	Worth
			Butler	Dickinson	Howard	Palo Alto	Wright
			Cerro Gordo	Dubuque	Humboldt	Plymouth	
Kansas	2	None				
Kentucky	2	None				
Louisiana	4	None				
Maine	1	None				
Maryland	2	None				
Massachusetts	2	Region 1:	Berkshire	Franklin	Hampden	Hampshire	
Michigan	2	Region 1:	Alcona	Clare	Iosco	Mason	Ontonagon
			Alger	Crawford	Iron	Mecosta	Osceola
			Alpena	Delta	Isabella	Menominee	Oscoda
			Antrim	Dickinson	Kalkaska	Midland	Otsego
			Arenac	Emmet	Keweenaw	Missaukee	Presque Isle
			Baraga	Gladwin	Lake	Montcalm	Roscommon
			Bay	Gogebic	Leelanau	Montmorency	Saginaw
			Benzie	Grand Taverse	Luce	Muskegon	Sanilac
			Charlevoix	Gratiot	Mackinac	Newaygo	Schoolcraft
			Cheboygan	Houghton	Manistee	Oceana	Tuscola
			Chippewa	Huron	Marquette	Ogemaw	Wexford
Minnesota	1	None				
Mississippi	4	Region 3:	Alcorn	Grenada	Marshall	Prentiss	Tishomingo
			Benton	Itawamba	Panola	Tate	Union
			Calhoun	Lafayette	Pontotoc	Tippah	Yalobusha
			DeSoto	Lee			
Missouri	2	Region 3:	Butler	Mississippi	Pemiscot	Scott	Stoddard
			Duncan	New Madrid			
Montana	1	None				
Nebraska	2	None				
Nevada	4	Region 1:	Elko	Eureka	Lander	White Pine	
		Region 2:	Carson City	Esmeralda	Lyon	Nye	Storey
			Churchill	Humboldt	Mineral	Pershing	Washoe
			Douglas	Lincoln			
New Hampshire	1	None				
New Jersey	2	None				
New Mexico	2	Region 3:	Chaves	Dona Ana	Guadalupe	Lea	Otero
			DeBaca	Eddy	Hidalgo	Luna	

State	Primary Region	Exception Counties					
New York	2	Region 1:	Allegany	Cortland	Lewis	Otsego	Tioga
			Broome	Delaware	Livingston	Schoharie	Tompkins
			Cattaraugus	Essex	Madison	Schuyler	Warren
			Cayuga	Franklin	Montgomery	Seneca	Wyoming
			Chemung	Fulton	Oneida	St. Lawrence	Yates
			Chenango	Hamilton	Onondaga	Steuben	
			Clinton	Herkimer	Ontario	Sullivan	
North Carolina	3	Region 2:	Alleghany	Caldwell	Henderson	Mitchell	Transylvania
			Ashe	Cherokee	Jackson	Polk	Watauga
			Avery	Clay	McDowell	Rutherford	Wilkes
			Buncombe	Graham	Macon	Surry	Yadkin
			Burke	Haywood	Madison	Swain	Yancey
North Dakota	1	None					
Ohio	2	None					
Oklahoma	4	Region 2:	Beaver	Cimarron	Ellis	Harper	Texas
		Region 3:	Craig	Nowata	Ottawa	Rogers	Wagoner
			Delaware	Osage	Pawnee	Tulsa	Washington
			Mayes				
Oregon	2	Region 1:	Baker	Klamath	Union	Wallowa	
Pennsylvania	2	Region 1:	Bradford	Sullivan	Susquehanna	Tioga	Wyoming
Rhode Island	2	None					
South Carolina	3	Region 4:	Allendale	Berkeley	Colleton	Jasper	Orangeburg
			Bamberg	Calhoun	Dorchester	Lee	Richland
			Barnwell	Charleston	Hampton	Lexington	Sumter
			Beaufort	Clarendon			
South Dakota	1	Region 2:	Gregory	Mellette	Todd	Tripp	
Tennessee	3	Region 2:	Bledsoe	Franklin	Morgan	Putnum	Van Buren
			Coffee	Grundy	Overton	Scott	Warren
			Cumberland	Marion	Pickett	Sequatchie	White
			Fentress				
Texas	4	Region 3:	Andrews	Dallam	Hansford	Lubbock	Potter
			Armstrong	Dawson	Hartley	Lynn	Randall
			Bailey	Deaf Smith	Hemphill	Martin	Roberts
			Briscoe	Floyd	Hockley	Midland	Sherman
			Carson	Gaines	Howard	Moore	Swisher
			Castro	Glasscock	Hutchinson	Ochiltree	Terry
			Cochran	Gray	Lamb	Oldham	Yoakum
			Crosby	Hale	Lipscomb	Parmer	
Utah	2	Region 1:	Cache	Daggett	Morgan	Summit	Wasatch
			Carbon	Duchesne	Rich	Uintah	
		Region 4:	Washington				
Vermont	1	None					
Virginia	2	Region 3:	Accomack	Isle of Wight	Lancaster	Northumberland	Surry
			Charles City	James City	Mathews	Prince George	Sussex
			Essex	King and Queen	Middlesex	Richmond	Westmoreland
			Gloucester	King George	New Kent	Southampton	York
			Greensville	King William	Northampton	Stafford	

State	Primary Region	Exception Counties					
Washington	2	Region 1:	Chelan Ferry	Kittitas Okanogan	Pend Orielle Skamania	Spokane Stevens	Yakima
West Virginia	2	None					
Wisconsin	1	None					
Wyoming	1	None					

Table A-2 ENERGY STAR Design Packages

CLIMATE REGION 1



Basic Requirements:

- Maximum shell leakage: 7.0 ACH_{50}
- Window SHGC: any
- Minimum duct insulation: R-8

Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Envelope Heat Resistance U_o-value	High Efficiency WH[11]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.054			1-1
		0.056		✓	1-2
		0.058	✓		1-3
	0.90 AFUE	0.060		✓	1-4
		0.063	✓	✓	1-5
Heat Pump	7.7 HSPF	0.052		✓	1-6
		0.053	✓	✓	1-7
Electric Resistance (Forced Air)[12]	1.0 EF	0.048		✓[13]	1-8
		0.050	✓	✓[13]	1-9

Packages for homes with maximum 5% duct losses

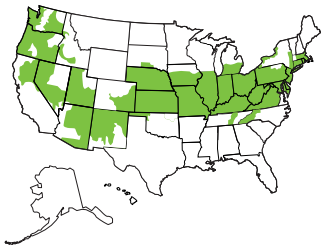
Heating Type	Minimum Heating Efficiency	Maximum U_o-value	High Efficiency WH[11]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.052			1-10
		0.054		✓	1-11
		0.056	✓	✓	1-12
	0.90 AFUE	0.058		✓	1-13
		0.061	✓	✓	1-14
Heat Pump	7.7 HSPF	0.050		✓	1-15
		0.051	✓	✓	1-16
	8.0 HSPF	0.052		✓	1-17
		0.053	✓	✓	1-18

[11] The high efficiency WH requirement may be met by using a 0.59 EF gas WH or a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

[12] Electric resistance packages in Climate Region 1 require a maximum shell leakage rate of 4.0 ACH50 and a 70% efficient heat recovery ventilator to ensure that total ventilation rate is maintained at 0.35 ACH at all times.

[13] A programmable thermostat is required for a forced air all-electric heating system. Zone controls are required for baseboard electric resistance heating systems.

CLIMATE REGION 2



Basic Requirements:

- Maximum shell leakage: 7.0 ACH_{50}
- Maximum window SHGC: 0.55
- Minimum duct insulation: R-8

Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U_o-value	High Efficiency WH [14]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.061			2-1
		0.065		✓	2-2
		0.067	✓	✓	2-3
Heat Pump	7.7 HSPF	0.061		✓	2-6
		0.063	✓	✓	2-7

Packages for homes with maximum 5% duct losses

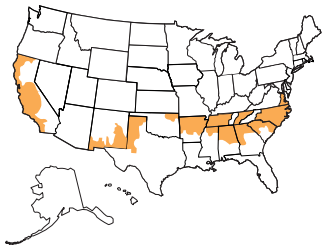
Heating Type	Minimum Heating Efficiency	Maximum U_o-value	High Efficiency WH [14]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.057			2-8
		0.061		✓	2-9
		0.063	✓	✓	2-10
	0.90 AFUE	0.063		✓	2-11
		0.065	✓	✓	2-12
Heat Pump	7.7 HSPF	0.058			2-13
		0.059		✓	2-16
		0.062	✓	✓	2-17
	8.0 HSPF	0.062		✓	2-18
		0.064	✓	✓	2-19

Packages for homes with maximum 7% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U_o-value	High Efficiency WH [14]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.056			2-20
		0.060		✓	2-21
		0.062	✓	✓	2-22
	0.90 AFUE	0.062		✓	2-23
		0.064	✓	✓	2-24
Heat Pump	7.7 HSPF	0.054			2-25
		0.055		✓	2-26
		0.059	✓	✓	2-27

[14] The high efficiency WH requirement may be met by using a 0.59 EF gas WH or a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

CLIMATE REGION 3



Basic Requirements:

- Maximum shell leakage: 7.0 ACH_{50}
- Minimum duct insulation: R-6

Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U_o-value	Maximum Window SHGC	High Efficiency WH [15]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.075	0.50			3-1
		0.082	0.50		✓	3-2
		0.084	0.50	✓	✓	3-3
		0.084	0.40		✓	3-4
		0.086	0.40	✓	✓	3-5
Heat Pump	7.7 HSPF	0.074	0.50			3-6
		0.075	0.50		✓	3-7
		0.076	0.50	✓	✓	3-8
		0.076	0.40		✓	3-9
		0.077	0.40	✓	✓	3-10

Packages for homes with maximum 5% duct losses

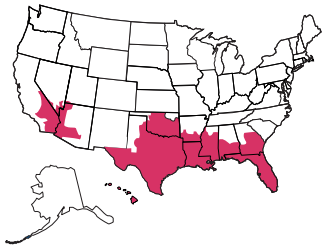
Heating Type	Minimum Heating Efficiency	Maximum U_o-value	Maximum Window SHGC	High Efficiency WH [15]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.073	0.50			3-11
		0.080	0.50		✓	3-12
		0.082	0.50	✓	✓	3-13
		0.082	0.40		✓	3-14
		0.084	0.40	✓	✓	3-15
Heat Pump	7.7 HSPF	0.073	0.50			3-16
		0.074	0.50		✓	3-21
		0.075	0.50	✓	✓	3-22
		0.076	0.40	✓	✓	3-23
	8.0 HSPF	0.077	0.50		✓	3-24
		0.078	0.50	✓	✓	3-25
		0.079	0.40	✓	✓	3-26

Packages for homes with maximum 7% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U_o-value	Maximum Window SHGC	High Efficiency WH [15]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.068	0.50			3-27
		0.075	0.50		✓	3-28
		0.077	0.50	✓	✓	3-29
		0.078	0.40		✓	3-30
		0.080	0.40	✓	✓	3-31
Heat Pump	7.7 HSPF	0.066	0.50			3-32
		0.067	0.50		✓	3-33
		0.068	0.50	✓	✓	3-34
		0.070	0.40		✓	3-35
		0.071	0.40	✓	✓	3-36

[15] The high efficiency WH requirement may be met by using a 0.59 EF gas WH or a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

CLIMATE REGION 4



Basic Requirements:

- Maximum shell leakage: 7.0 ACH_{50}
- Minimum duct insulation: R-6

Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Uo-value	Maximum Window SHGC	High Efficiency WH [17]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.111	0.50			4-1
Heat Pump	7.7 HSPF	0.097	0.50			4-2
		0.104	0.50		✓	4-3
		0.108	0.50	✓	✓	4-4
Electric Resistance [16]	1.0 EF	0.074	0.40		✓ [18]	4-5
		0.075	0.40	✓	✓ [18]	4-6
Electric Resistance (Florida Only)	1.0 EF	0.111	0.40		✓ [18]	4-7
		0.114	0.40	✓	✓ [18]	4-8

Packages for homes with maximum 5% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Uo-value	Maximum Window SHGC	High Efficiency WH [17]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.102	0.50			4-9
		0.116	0.50		✓	4-10
Heat Pump	7.7 HSPF	0.095	0.50			4-11
		0.102	0.50		✓	4-14
		0.106	0.50	✓	✓	4-15
	8.0 HSPF	0.104	0.50		✓	4-16
		0.108	0.50	✓	✓	4-17
Electric Resistance [16]	1.0 EF	0.070	0.40		✓ [18]	4-18
		0.071	0.40	✓	✓ [18]	4-19
Electric Resistance (Florida Only)	1.0 EF	0.116	0.40		✓ [18]	4-20

Packages for homes with maximum 7% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Uo-value	Maximum Window SHGC	High Efficiency WH [17]	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.092	0.50			4-21
		0.106	0.50		✓	4-22
		0.109	0.40		✓	4-23
		0.111	0.50	✓	✓	4-24
		0.115	0.40	✓	✓	4-25
Heat Pump	7.7 HSPF	0.086	0.50			4-26
		0.093	0.50		✓	4-27
		0.095	0.40		✓	4-28
		0.099	0.50	✓	✓	4-29
		0.101	0.40	✓	✓	4-30

[16] Electric resistance packages are not available for homes placed in HUD Thermal Zone 3.

[17] The high efficiency WH requirement may be met by using a 0.59 EF gas WH, a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

[18] A programmable thermostat is required for a forced air all-electric heating system. Zone controls are required for baseboard electric resistance heating systems.