

### ASHRAE 90.1 - 2007 (90.1 ASHRAE 2004)

Climate Zone	Roof (Conditioned)		Roof (Semi-Heated)		Walls (Conditioned)		Walls (Semi-Heated)	
	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive
1	.065 <sup>a</sup>	R-19	1.280	NR	0.113	R-13	1.180	NR
2	.065 <sup>a</sup>	R-19	0.167	R-6	0.113	R-13	0.184	R-6
3	.065 <sup>a</sup>	R-19	0.097	R-10	0.113	R-13	0.184	R-6
4	.065	R-19	0.097	R-10	0.113	R-13	0.134	R-10
5	.065	R-19	0.097	R-10	0.113	R-13	0.123	R-11
6	.065	R-19	0.097	R-10	0.113	R-13	0.113	R-13
7	.065	R-19	0.097	R-10	0.057	R-13 + R-13	0.113	R-13
8	.049	R-13 + R-19	0.072	R-16	0.057	R-13 + R-13	0.113	R-13

These roof assemblies are based on a standing seam roof with a 1" thick thermal spacer block, NR = No Requirement

<sup>a</sup> For Metal Building roof panels installed directly above conditioned spaces that are not cooled, where the exterior surface has a Solar Reflectance value of 0.70 and a minimum Thermal Emittance value of 0.75 or a Solar Reflectance Index value of 82, the roof insulation shall comply with a maximum U-Factor of 0.084 for Climate Zone 1, U-Factor of 0.078 for Climate Zone 2 and a U-Factor of 0.076 for Climate Zone 3.

### ASHRAE 90.1 - 2010 (90.1 - 2007 addendum g)

Climate Zone	Roof (Conditioned)		Roof (Semi-Heated)		Walls (Conditioned)		Walls (Semi-Heated)	
	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive
1	.065 <sup>b</sup>	R-19	0.167	R-6	0.093	R-16	0.113	R-13
2	.055	R-13 + R-13	0.097	R-10	0.093	R-16	0.113	R-13
3	.055	R-13 + R-13	0.097	R-10	0.084	R-19	0.113	R-13
4	.055	R-13 + R-13	0.097	R-10	0.084	R-19	0.113	R-13
5	.055	R-13 + R-13	0.083	R-13	0.069	R-13 + R-5.6 ci	0.113	R-13
6	.049	R-13 + R-19	0.072	R-16	0.069	R-13 + R-5.6 ci	0.113	R-13
7	.049	R-13 + R-19	0.072	R-16	0.057	R-19 + R-5.6 ci	0.113	R-13
8	.035	R-11 + R-19 Ls	0.065	R-19	0.057	R-19 + R-5.6 ci	0.113	R-13

Climate Zones 1-8 are standing seam roofs with minimum R-3.5 thermal spacer block. L=Liner System, ci=Continuous Insulation

<sup>b</sup> Metal Building roof panels installed directly above cooled conditioned spaces in Climate Zone 1, shall comply with a minimum 3 year aged Solar Reflectance value of 0.55 and a minimum 3 year aged Solar Emittance value of 0.75 or a minimum 3 year aged Solar Reflectance Index value of 64, if not, the roof insulation must be increased by installing a system with a maximum U - Factor of 0.028.

### ASHRAE 90.1 - 2013, 2016 & 2019

Climate Zone	Roof (Conditioned)		Roof (Semi-Heated)		Walls (Conditioned)		Walls (Semi-Heated)	
	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive
1	0.041	R-10 + R-19 FC	0.115	R-10	0.094	R-0 + R-9.8 ci	0.352	NR
2	0.041	R-10 + R-19 FC	0.096	R-16	0.094	R-0 + R-9.8 ci	0.162	R-13
3	0.041	R-10 + R-19 FC	0.096	R-16	0.094	R-0 + R-9.8 ci	0.162	R-13
4	0.037	R-19 + R-11 Ls or R-25 + R-8 Ls	0.082	R-19	0.060	R-0 + R-15.8 ci	0.162	R-13
5	0.037	R-19 + R-11 Ls or R-25 + R-8 Ls	0.082	R-19	0.050	R-0 + R-19.0 ci	0.094	R-0 + R-9.8 ci
6	0.031	R-25 + R-11 Ls	0.060	R-19 + R-19	0.050	R-0 + R-19.0 ci	0.094	R-0 + R-9.8 ci
7	0.029	R-30 + R-11 Ls	0.037	R-19 + R-11 Ls or R-25 + R-8 Ls	0.044	R-0 + R-22.1 ci	0.072	R-0 + R-13 ci
8	0.026	R-25 + R-11 + R-11 Ls	0.037	R-19 + R-11 Ls or R-25 + R-8 Ls	0.039	R-0 + R-25 ci	0.060	R-0 + R-15.8 ci

Climate Zone 1-8 are standing seam roofs with minimum R-3 thermal spacer block, except for the Filled Cavity (FC) systems which require a minimum R-5 thermal spacer block; Ls = Liner System, ci = Continuous Insulation

<sup>b</sup> Metal Building roof panels installed directly above cooled conditioned spaces in Climate Zone 1, shall comply with a minimum 3 year aged Solar Reflectance value of 0.55 and a minimum 3 year aged Solar Emittance value of 0.75 or a minimum 3 year aged Solar Reflectance Index value of 64, if not, the roof insulation must be increased by installing a system with a maximum U - Factor of 0.028.

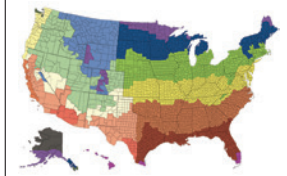
### IECC - 2009

Climate Zone	Roof		Walls		Roof		Walls	
	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive	Performance	Prescriptive
1	0.065	R-19	0.093	R-16	0.044 <sup>ab</sup>	R-19 + R-11 Ls	0.079	R-13 + R-6.5 c.i.
2	0.055	R-13 + R-13	0.093	R-16	0.035 <sup>b</sup>	R-19 + R-11 Ls	0.079	R-13 + R-6.5 c.i.
3	0.055	R-13 + R-13	0.084	R-19	0.035 <sup>b</sup>	R-19 + R-11 Ls	0.079	R-13 + R-6.5 c.i.
4	0.055	R-13 + R-13	0.084	R-19	0.035	R-19 + R-11 Ls	0.052	R-13 + R-13 c.i.
5	0.055	R-13 + R-13	0.069	R-13 + R-5.6 ci	0.035	R-19 + R-11 Ls	0.052	R-13 + R-13 ci
6	0.049	R-13 + R-19	0.069	R-13 + R-5.6 ci	0.031	R-25 + R-11 Ls	0.052	R-13 + R-13 ci
7	0.049	R-13 + R-19	0.057	R-19 + R-5.6 ci	0.029	R-30 + R-11 Ls	0.052	R-13 + R-13 ci
8	0.035	R-11 + R-19	0.057	R-19 + R-5.6 ci	0.029	R-30 + R-11 Ls	0.052	R-13 + R-13 ci

IECC-2009: Roof assemblies are based on a standing seam roof with an R-5 thermal spacer block; ci = Continuous Insulation

IECC-2012/2015: <sup>a</sup> Climate Zone 1 is a thru-fastened roof without thermal spacer block. Roof assemblies in Climate Zone 2-8 are based on a standing seam roof with a thermal spacer block IECC 2012 = R-5, IECC 2015 = R-3. <sup>b</sup> Metal Building roofs with a slope less than 2:12, installed directly above cooled conditioned spaces in Climate Zone 1, 2 and 3 shall comply with one or more of the following options; 3 year aged Solar Reflectance of 0.55 and a 3 year aged Solar Emittance of 0.75 or an initial Solar Reflectance of 0.70 and a initial Solar Emittance of 0.75 or a 3 year aged Solar Reflectance Index of 64 or an initial Solar Reflectance Index of 82, see C402.2.1.1 for a list of exceptions. Ls = Liner System, ci = Continuous Insulation

## Climate Zone & Code Maps



- 0A Extremely Hot Humid
- 0B Extremely Hot Dry
- 1A Very Hot Humid
- 2A Hot Humid
- 2B Hot Dry
- 3A Warm Humid
- 3B Warm Dry
- 3C Warm Marine
- 4A Mixed Humid
- 4B Mixed Dry
- 4C Mixed Marine
- 5A Cool Humid
- 5B Cool Dry
- 5C Cool Marine
- 6A Cold Humid
- 6B Cold Dry
- 7 Very Cold
- 8 Subarctic

### Commercial Buildings



- 1 No statewide code or home rule
- 2 Less energy efficient than 90.1-2007
- 3 90.1-2007 or equivalent
- 4 Between 90.1-2007 and 90.1-2010
- 5 90.1-2010 or equivalent
- 6 Between 90.1-2010 and 90.1-2013
- 7 90.1-2013 or equivalent
- 8 More energy efficient than 90.1-2013

As of December 2018

### COMcheck Compliance



- American Samoa
- Guam
- N. Mariana Islands
- Puerto Rico
- US Virgin Islands

- 1 Can use COMcheck
- 2 Applicable by County/Jurisdiction
- 3 COMcheck Not Applicable

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