State Maps and Prescriptive Packages

April 2000

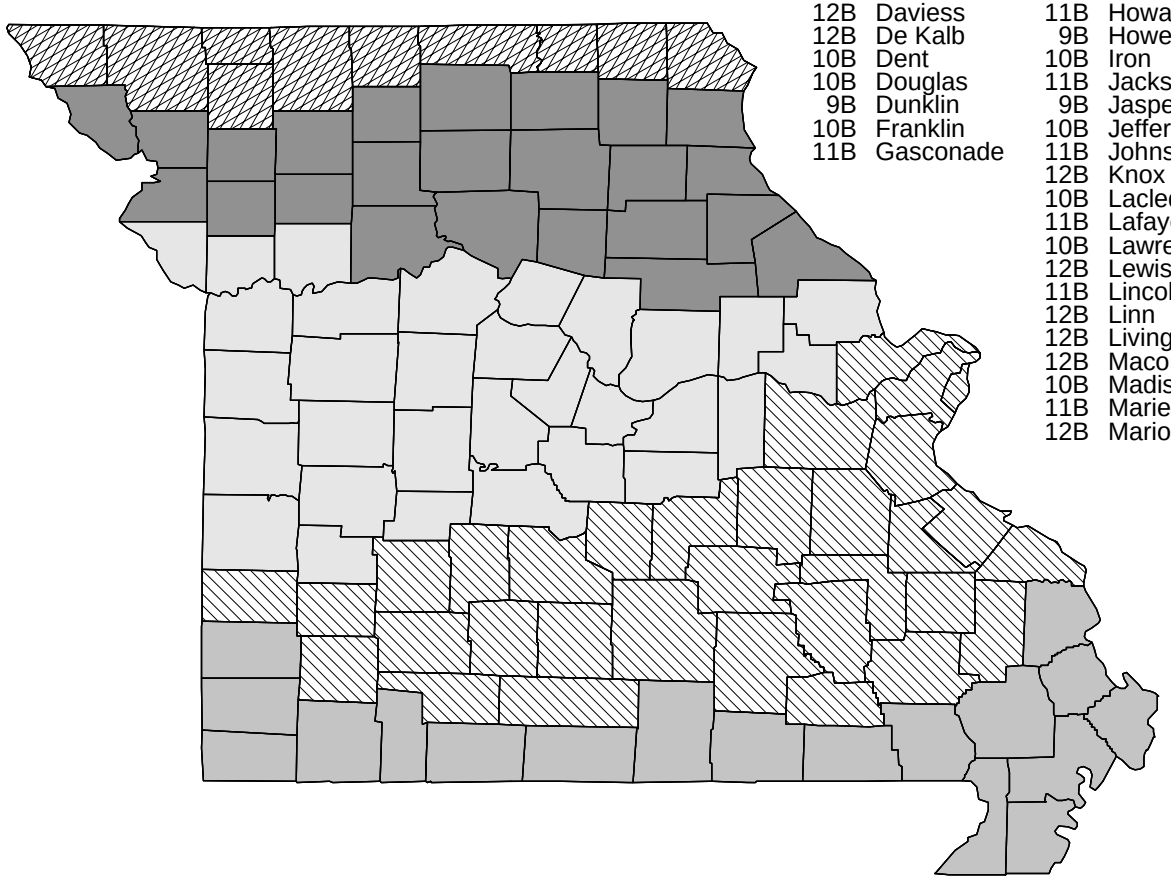
The State Maps and Prescriptive Packages contain supporting materials that are needed when using the Envelope and Mechanical Compliance Guides. Insulation and other building envelope requirements and some mechanical system requirements vary by climate. The State Maps divide the United States into 33 different climate zones at a county level. Zones are numbered from 1 through 19 (consistent with the IECC and MEC*check* climate zones) and have a, b, and c designations to reflect climate differences that affect cooling; e.g., cooling degree days and solar radiation. The climate maps are unchanged from Version 1.

To determine the climate zone to use with your building, locate the map for your state and identify the zone number from the legend or county list.

To determine insulation and other building envelope requirements, find the prescriptive package number corresponding to your climate zone. The *Envelope Compliance Guide* employs a package approach that requires all components in your design to meet or exceed the prescribed efficiency levels contained in the prescriptive package. If you find the prescriptive packages too constraining, consider using the COM*check-EZ* software, which allows tradeoffs among building envelope components.

MISSOURI

Zone	County
12B	Adair
12B	Andrew
13B	Atchison
12B	Audrain
9B	Barry
10B	Barton
11B	Bates
11B	Benton
10B	Bollinger
11B	Boone
12B	Buchanan
9B	Butler
12B	Caldwell
11B	Callaway
11B	Camden
9B	Cape Girardeau
12B	Carroll
10B	Carter
11B	Cass
11B	Cedar
12B	Chariton
10B	Christian
13B	Clark
11B	Clay
12B	Clinton
11B	Cole
11B	Cooper
10B	Crawford
10B	Dade
10B	Dallas
12B	Daviess
12B	De Kalb
10B	Dent
10B	Douglas
9B	Dunklin
10B	Franklin
11B	Gasconade
13B	Gentry
10B	Greene
12B	Grundy
13B	Harrison
11B	Henry
11B	Hickory
12B	Holt
11B	Howard
9B	Howell
10B	Iron
11B	Jackson
9B	Jasper
10B	Jefferson
11B	Johnson
12B	Knox
10B	Laclede
11B	Lafayette
10B	Lawrence
12B	Lewis
11B	Lincoln
12B	Linn
12B	Livingston
12B	Macon
10B	Madison
11B	Maries
12B	Marion
9B	Mcdonald
13B	Mercer
11B	Miller
9B	Mississippi
11B	Moniteau
12B	Monroe
11B	Montgomery
11B	Morgan
9B	New Madrid
9B	Newton
13B	Nodaway
9B	Oregon
11B	Osage
9B	Ozark
9B	Pemiscot
10B	Perry
11B	Pettis
10B	Phelps
12B	Pike
11B	Platte
10B	Polk
10B	Pulaski
13B	Putnam
12B	Ralls
12B	Randolph
11B	Ray
10B	Reynolds
9B	Ripley
11B	Saline
13B	Schuyler
13B	Scotland
9B	Scott
10B	Shannon
12B	Shelby
10B	St Charles
11B	St Clair
10B	St Francois
10B	St Louis
10B	St Louis City
10B	Ste Genevieve
9B	Stoddard
9B	Stone
12B	Sullivan
9B	Taney
10B	Texas
11B	Vernon
11B	Warren
10B	Washington
10B	Wayne
10B	Webster
13B	Worth
10B	Wright



COMcheck-EZ™ Prescriptive Packages Climate Zone 9b

Envelope Component	Low Fenestration Area (0-10% Window-Wall Ratio)			Medium Fenestration Area (10%-25% Window-Wall Ratio)			High Fenestration Area (25%-40% Window-Wall Ratio)			Very High Fenestration Area (40%-50% Window-Wall Ratio)		
Walls (a,b)	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing
Framed *Minimum Cavity R-Value (c)*	NA	11	11	NA	11	11	NA	13	11	NA	13	13
Any Spacing *Minimum Continuous R-Value (d)*	NA	0	0	NA	0	0	NA	0	0	NA	5	3
CMU, 8 in. or greater *Minimum Cavity R-Value*	NA	11	11	NA	11	11	NA	11	11	NA	11	11
with Integral Insulation(e) *Minimum Continuous R-Value*	5	0	0	5	0	0	5	0	0	5	0	0
All Other *Minimum Cavity R-Value*	NA	11	11	NA	11	11	NA	13	11	NA	13	11
Masonry Walls(f) *Minimum Continuous R-Value*	5	0	0	5	0	0	6	0	0	6	0	0
Windows	No Projection	³.25 Projection	³.5 Projection	No Projection	³.25 Projection	³.5 Projection	No Projection	³.25 Projection	³.5 Projection	No Projection	³.25 Projection	³.5 Projection
Maximum Solar Heat Gain Coefficient	Any	Any	Any	0.5	0.6	0.7	0.4	0.5	0.6	0.3	0.4	0.5
Maximum U-Factor	Any	Any	Any	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Skylight (Limit 3% of Roof Area)												
Maximum U-Factor		0.8			0.8			0.8			0.8	
Roof	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation
All-Wood Joist/Truss *Minimum R-Value*	15		19	19		25	19		25	19		25
Nonwood Joist/Truss *Minimum R-Value*	16		19	20		25	20		25	20		25
Concrete Slab or Deck *Minimum R-Value*	15		NA	19		NA	19		NA	19		NA
Metal Purlin with Thermal Break *Minimum R-Value*	16		25	20		30	20		30	20		30
Metal Purlin without Thermal Break *Minimum R-Value*	16		X	20		X	20		X	20		38
Floor	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation
All-Wood Joist/Truss *Minimum R-Value*	11		13	11		13	11		13	11		13
Nonwood Joist/Truss *Minimum R-Value*	12		13	12		13	12		13	12		13
Concrete Slab or Deck *Minimum R-Value*	12		NA	12		NA	12		NA	12		NA
Slab Edge or Basement Walls	Insulation			Insulation			Insulation			Insulation		
Minimum R-Value	0			0			0			0		

Notes:

(a) For walls next to unconditioned spaces, use the Low Fenestration Area wall requirements.

(b) Where values are shown for both cavity and continuous insulation, both requirements must be met.

(c) Cavity insulation is insulation between framing members or furring strips and does not refer to integral insulation in CMUs.

(d) Continuous insulation is insulation that is continuous across structural members, and its effectiveness is undimished by compression or bridging.

(e) Integral insulation in concrete masonry units may be perlite, vermiculite, or other insulating material. Minimum R-values are in addition to insulation in CMU voids.

(f) Use of the Other Masonry Walls category is restricted to walls weighing 35 lb/ft2 or more; lightweight masonry veneers and unfilled CMUs <8 in. in thickness do not qualify.

- "NA" indicates the category is not applicable.
- A minimum R-value of zero indicates no insulation is required.
- "Any" indicates any available product will comply.
- "X" indicates no complying option exists in the prescriptive packages.

COMcheck-EZ™ Prescriptive Packages Climate Zone 10b

Envelope Component	Low Fenestration Area (0-10% Window-Wall Ratio)			Medium Fenestration Area (10%-25% Window-Wall Ratio)			High Fenestration Area (25%-40% Window-Wall Ratio)			Very High Fenestration Area (40%-50% Window-Wall Ratio)		
Walls (a)	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing
Framed Any Spacing — *Minimum R-Value*	NA	11	11	NA	11	11	NA	11	11	NA	11	11
CMU, 8 in. or greater with Integral Insulation(b) — *Minimum R-Value*	5	11	11	5	11	11	5	11	11	5	11	11
All Other Masonry Walls(c) — *Minimum R-Value*	5	11	11	5	11	11	5	11	11	5	11	11
Windows	No Projection	³.25 Projection	³.5 Projection	No Projection	³.25 Projection	³.5 Projection	No Projection	³.25 Projection	³.5 Projection	No Projection	³.25 Projection	³.5 Projection
Maximum Solar Heat Gain Coefficient	Any	Any	Any	0.5	0.6	0.7	0.4	0.5	0.6	0.3	0.4	0.5
Maximum U-Factor	Any	Any	Any	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Skylight (Limit 3% of Roof Area)												
Maximum U-Factor		0.8			0.8			0.8			0.8	
Roof	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation
All-Wood Joist/Truss — *Minimum R-Value*	17		19	19		25	19		25	19		25
Nonwood Joist/Truss — *Minimum R-Value*	18		25	20		25	20		25	20		25
Concrete Slab or Deck — *Minimum R-Value*	17		NA	19		NA	19		NA	19		NA
Metal Purlin with Thermal Break — *Minimum R-Value*	18		30	20		30	20		30	20		30
Metal Purlin without Thermal Break — *Minimum R-Value*	18		X	20		X	20		X	20		30
Floor	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation
All-Wood Joist/Truss — *Minimum R-Value*	12		19	12		19	12		19	12		19
Nonwood Joist/Truss — *Minimum R-Value*	13		19	13		19	13		19	13		19
Concrete Slab or Deck — *Minimum R-Value*	13		NA	13		NA	13		NA	13		NA
Slab Edge or Basement Walls	Insulation			Insulation			Insulation			Insulation		
Minimum R-Value	0			0			0			0		

Notes:

(a) For walls next to unconditioned spaces, use the Low Fenestration Area wall requirements.

(b) Integral insulation in concrete masonry units may be perlite, vermiculite, or other insulating material. Minimum R-values are in addition to insulation in CMU voids.

(c) Use of the Other Masonry Walls category is restricted to walls weighing 35 lb/ft2 or more; lightweight masonry veneers and unfilled CMUs <8 in. in thickness do not qualify.

- "NA" indicates the category is not applicable.
- A minimum R-value of zero indicates no insulation is required.
- "Any" indicates any available product will comply.
- "X" indicates no complying option exists in the prescriptive packages.

COMcheck-EZ™ Prescriptive Packages Climate Zone 11b

Envelope Component	Low Fenestration Area (0-10% Window-Wall Ratio)				Medium Fenestration Area (10%-25% Window-Wall Ratio)				High Fenestration Area (25%-40% Window-Wall Ratio)				Very High Fenestration Area (40%-50% Window-Wall Ratio)			
Walls (a,b)	No Framing	or	Metal Framing	or Wood Framing	No Framing	or	Metal Framing	or Wood Framing	No Framing	or	Metal Framing	or Wood Framing	No Framing	or	Metal Framing	or Wood Framing
Framed *Minimum Cavity R-Value (c)*	NA		11	11	NA		11	11	NA		11	11	NA		13	11
Any Spacing *Minimum Continuous R-Value (d)*	NA		0	0	NA		0	0	NA		0	0	NA		3	0
CMU, 8 in. or greater *Minimum Cavity R-Value*	NA		11	11	NA		11	11	NA		11	11	NA		11	11
with Integral Insulation(e) *Minimum Continuous R-Value*	5		0	0	5		0	0	5		0	0	5		0	0
All Other *Minimum Cavity R-Value*	NA		11	11	NA		11	11	NA		11	11	NA		11	11
Masonry Walls(f) *Minimum Continuous R-Value*	5		0	0	5		0	0	5		0	0	5		0	0
Windows	No Projection		[3].25 Projection	[3].5 Projection	No Projection		[3].25 Projection	[3].5 Projection	No Projection		[3].25 Projection	[3].5 Projection	No Projection		[3].25 Projection	[3].5 Projection
Maximum Solar Heat Gain Coefficient	Any		Any	Any	0.5		0.6	0.7	0.4		0.5	0.6	0.3		0.4	0.5
Maximum U-Factor	Any		Any	Any	0.6		0.6	0.6	0.5		0.5	0.5	0.5		0.5	0.5
Skylight (Limit 3% of Roof Area)																
Maximum U-Factor			0.8				0.8				0.8				0.8	
Roof	Continuous Insulation	or		Roof Cavity Insulation	Continuous Insulation	or		Roof Cavity Insulation	Continuous Insulation	or		Roof Cavity Insulation	Continuous Insulation	or		Roof Cavity Insulation
All-Wood Joist/Truss *Minimum R-Value*	18			25	19			25	23			30	23			30
Nonwood Joist/Truss *Minimum R-Value*	19			25	20			25	24			30	24			30
Concrete Slab or Deck *Minimum R-Value*	18			NA	19			NA	23			NA	23			NA
Metal Purlin with Thermal Break *Minimum R-Value*	19			30	20			30	24			X	24			30
Metal Purlin without Thermal Break *Minimum R-Value*	19			X	20			X	24			X	24			38
Floor	Continuous Insulation	or		Cavity Insulation	Continuous Insulation	or		Cavity Insulation	Continuous Insulation	or		Cavity Insulation	Continuous Insulation	or		Cavity Insulation
All-Wood Joist/Truss *Minimum R-Value*	14			19	14			19	14			19	14			19
Nonwood Joist/Truss *Minimum R-Value*	15			19	15			19	15			19	15			19
Concrete Slab or Deck *Minimum R-Value*	15			NA	15			NA	15			NA	15			NA
Slab Edge or Basement Walls	Insulation				Insulation				Insulation				Insulation			
Minimum R-Value	0				0				8				8			

Notes:

(a) For walls next to unconditioned spaces, use the Low Fenestration Area wall requirements.

(b) Where values are shown for both cavity and continuous insulation, both requirements must be met.

(c) Cavity insulation is insulation between framing members or furring strips and does not refer to integral insulation in CMUs.

(d) Continuous insulation is insulation that is continuous across structural members, and its effectiveness is undimished by compression or bridging.

(e) Integral insulation in concrete masonry units may be perlite, vermiculite, or other insulating material. Minimum R-values are in addition to insulation in CMU voids.

(f) Use of the Other Masonry Walls category is restricted to walls weighing 35 lb/ft2 or more; lightweight masonry veneers and unfilled CMUs <8 in. in thickness do not qualify.

- "NA" indicates the category is not applicable.
- A minimum R-value of zero indicates no insulation is required.
- "Any" indicates any available product will comply.
- "X" indicates no complying option exists in the prescriptive packages.

COMcheck-EZ™ Prescriptive Packages Climate Zone 12b

Envelope Component	Low Fenestration Area (0-10% Window-Wall Ratio)				Medium Fenestration Area (10%-25% Window-Wall Ratio)				High Fenestration Area (25%-40% Window-Wall Ratio)				Very High Fenestration Area (40%-50% Window-Wall Ratio)			
Walls (a,b)	No Framing	or	Metal Framing	or Wood Framing	No Framing	or	Metal Framing	or Wood Framing	No Framing	or	Metal Framing	or Wood Framing	No Framing	or	Metal Framing	or Wood Framing
Framed *Minimum Cavity R-Value (c)*	NA		11	11	NA		11	11	NA		11	11	NA		13	13
Any Spacing *Minimum Continuous R-Value (d)*	NA		0	0	NA		0	0	NA		0	0	NA		3	0
CMU, 8 in. or greater *Minimum Cavity R-Value*	NA		11	11	NA		11	11	NA		11	11	NA		11	11
with Integral Insulation(e) *Minimum Continuous R-Value*	5		0	0	5		0	0	5		0	0	5		0	0
All Other *Minimum Cavity R-Value*	NA		11	11	NA		11	11	NA		11	11	NA		11	11
Masonry Walls(f) *Minimum Continuous R-Value*	5		0	0	5		0	0	5		0	0	5		0	0
Windows	No Projection		[3].25 Projection	[3].5 Projection	No Projection		[3].25 Projection	[3].5 Projection	No Projection		[3].25 Projection	[3].5 Projection	No Projection		[3].25 Projection	[3].5 Projection
Maximum Solar Heat Gain Coefficient	Any		Any	Any	0.5		0.6	0.7	0.4		0.5	0.6	0.3		0.4	0.5
Maximum U-Factor	Any		Any	Any	0.6		0.6	0.6	0.5		0.5	0.5	0.5		0.5	0.5
Skylight (Limit 3% of Roof Area)																
Maximum U-Factor			0.8				0.8				0.8				0.8	
Roof	Continuous Insulation	or	Roof Cavity Insulation		Continuous Insulation	or	Roof Cavity Insulation		Continuous Insulation	or	Roof Cavity Insulation		Continuous Insulation	or	Roof Cavity Insulation	
All-Wood Joist/Truss *Minimum R-Value*	16		19		19		25		23		30		23		30	
Nonwood Joist/Truss *Minimum R-Value*	17		25		20		25		24		30		24		30	
Concrete Slab or Deck *Minimum R-Value*	16		NA		19		NA		23		NA		23		NA	
Metal Purlin with Thermal Break *Minimum R-Value*	17		25		20		30		24		X		24		38	
Metal Purlin without Thermal Break *Minimum R-Value*	17		X		20		X		24		X		24		49	
Floor	Continuous Insulation	or	Cavity Insulation		Continuous Insulation	or	Cavity Insulation		Continuous Insulation	or	Cavity Insulation		Continuous Insulation	or	Cavity Insulation	
All-Wood Joist/Truss *Minimum R-Value*	15		19		15		19		15		19		15		19	
Nonwood Joist/Truss *Minimum R-Value*	16		19		16		19		16		19		16		19	
Concrete Slab or Deck *Minimum R-Value*	16		NA		16		NA		16		NA		16		NA	
Slab Edge or Basement Walls	Insulation				Insulation				Insulation				Insulation			
Minimum R-Value	0				0				8				8			

Notes:

(a) For walls next to unconditioned spaces, use the Low Fenestration Area wall requirements.

(b) Where values are shown for both cavity and continuous insulation, both requirements must be met.

(c) Cavity insulation is insulation between framing members or furring strips and does not refer to integral insulation in CMUs.

(d) Continuous insulation is insulation that is continuous across structural members, and its effectiveness is undimished by compression or bridging.

(e) Integral insulation in concrete masonry units may be perlite, vermiculite, or other insulating material. Minimum R-values are in addition to insulation in CMU voids.

(f) Use of the Other Masonry Walls category is restricted to walls weighing 35 lb/ft2 or more; lightweight masonry veneers and unfilled CMUs <8 in. in thickness do not qualify.

- "NA" indicates the category is not applicable.
- A minimum R-value of zero indicates no insulation is required.
- "Any" indicates any available product will comply.
- "X" indicates no complying option exists in the prescriptive packages.

COMcheck-EZ™ Prescriptive Packages Climate Zone 13b

Envelope Component	Low Fenestration Area (0-10% Window-Wall Ratio)			Medium Fenestration Area (10%-25% Window-Wall Ratio)			High Fenestration Area (25%-40% Window-Wall Ratio)			Very High Fenestration Area (40%-50% Window-Wall Ratio)		
Walls (a,b)	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing
Framed *Minimum Cavity R-Value (c)*	NA	13	11	NA	13	11	NA	13	11	NA	13	13
Any Spacing *Minimum Continuous R-Value (d)*	NA	0	0	NA	0	0	NA	0	0	NA	7	3
CMU, 8 in. or greater *Minimum Cavity R-Value*	NA	11	11	NA	11	11	NA	11	11	NA	11	11
with Integral Insulation(e) *Minimum Continuous R-Value*	5	0	0	5	0	0	5	0	0	5	0	0
All Other *Minimum Cavity R-Value*	NA	11	11	NA	11	11	NA	11	11	NA	11	11
Masonry Walls(f) *Minimum Continuous R-Value*	5	0	0	5	0	0	5	0	0	5	0	0
Windows	No Projection	[3].25 Projection	[3].5 Projection	No Projection	[3].25 Projection	[3].5 Projection	No Projection	[3].25 Projection	[3].5 Projection	No Projection	[3].25 Projection	[3].5 Projection
Maximum Solar Heat Gain Coefficient	Any	Any	Any	0.5	0.6	0.7	0.4	0.5	0.6	0.4	0.5	0.6
Maximum U-Factor	Any	Any	Any	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4
Skylight (Limit 3% of Roof Area)												
Maximum U-Factor		0.8			0.8			0.8			0.8	
Roof	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation
All-Wood Joist/Truss *Minimum R-Value*	18		25	19		25	23		30	23		30
Nonwood Joist/Truss *Minimum R-Value*	19		25	20		25	24		30	24		30
Concrete Slab or Deck *Minimum R-Value*	18		NA	19		NA	23		NA	23		NA
Metal Purlin with Thermal Break *Minimum R-Value*	19		30	20		30	24		X	24		38
Metal Purlin without Thermal Break *Minimum R-Value*	19		X	20		X	24		X	24		49
Floor	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation
All-Wood Joist/Truss *Minimum R-Value*	17		19	17		19	17		19	17		19
Nonwood Joist/Truss *Minimum R-Value*	17		25	17		25	17		25	17		25
Concrete Slab or Deck *Minimum R-Value*	17		NA	17		NA	17		NA	17		NA
Slab Edge or Basement Walls	Insulation			Insulation			Insulation			Insulation		
Minimum R-Value	0			0			8			8		

Notes:

(a) For walls next to unconditioned spaces, use the Low Fenestration Area wall requirements.

(b) Where values are shown for both cavity and continuous insulation, both requirements must be met.

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- "Any" indicates any available product will comply.
- "X" indicates no complying option exists in the prescriptive packages.