State Maps and Prescriptive Packages

April 2000

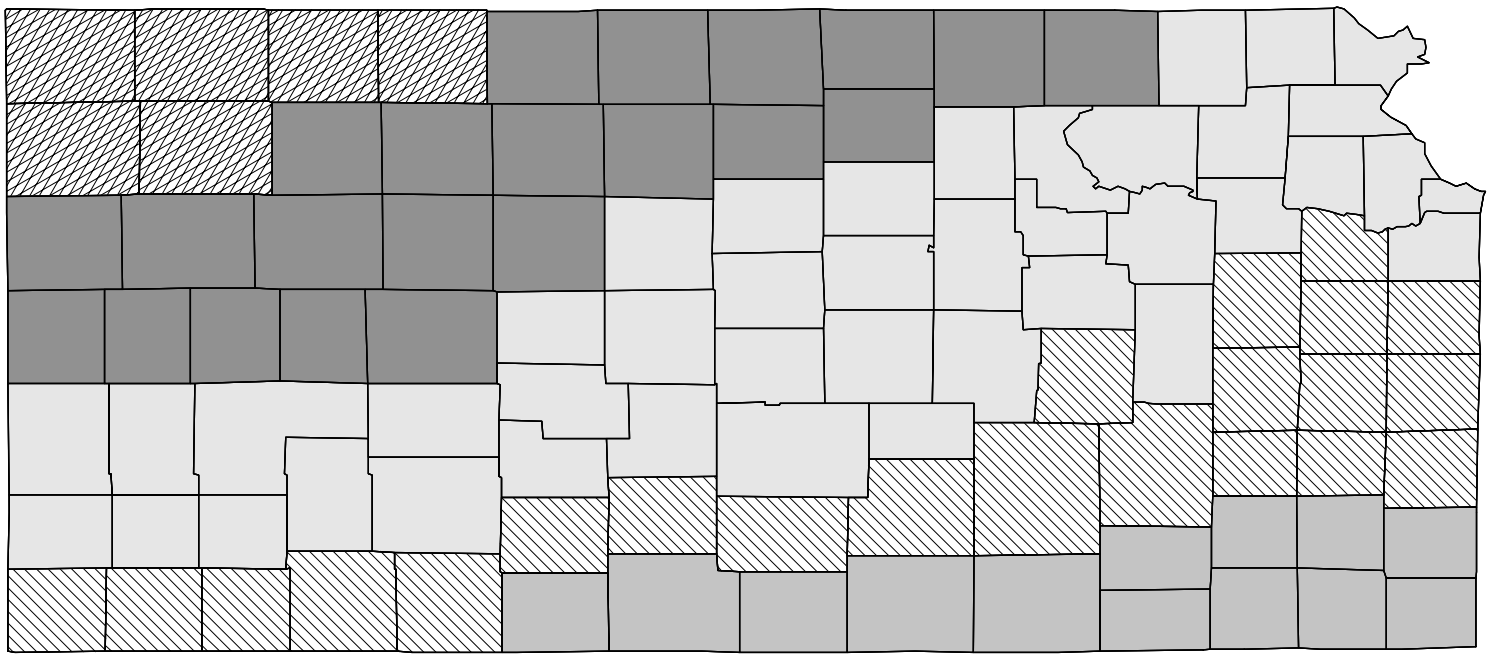
The State Maps and Prescriptive Packages contain supporting materials that are needed when using the Envelope and Mechanical Compliance Guides. Insulation and other building envelope requirements and some mechanical system requirements vary by climate. The State Maps divide the United States into 33 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.

KANSAS

Zone	County
10B	Allen
10B	Anderson
11B	Atchison
9B	Barber
11B	Barton
10B	Bourbon
11B	Brown
10B	Butler
10B	Chase
9B	Chautauqua
9B	Cherokee
13B	Cheyenne
10B	Clark
11B	Clay
12B	Cloud
10B	Coffey
9B	Comanche
9B	Cowley
9B	Crawford
13B	Decatur
11B	Dickinson
11B	Doniphan
10B	Douglas
11B	Edwards
9B	Elk
12B	Ellis
11B	Ellsworth
11B	Finney
11B	Ford
10B	Franklin
11B	Geary
12B	Gove
12B	Graham
11B	Grant
11B	Gray
12B	Greeley
10B	Greenwood
11B	Hamilton
9B	Harper
11B	Harvey
11B	Haskell
11B	Hodgeman
11B	Jackson
11B	Jefferson
12B	Jewell
11B	Johnson
11B	Kearny
10B	Kingman
10B	Kiowa
9B	Labette
12B	Lane
11B	Leavenworth
11B	Lincoln
10B	Linn
12B	Logan
11B	Lyon
11B	Marion
12B	Marshall
11B	Mcpherson
10B	Meade
10B	Miami
12B	Mitchell
9B	Montgomery
11B	Morris
10B	Morton
11B	Nemaha
9B	Neosho
12B	Ness
13B	Norton
10B	Osage
12B	Osborne
11B	Ottawa
11B	Pawnee
12B	Phillips
11B	Pottawatomie
10B	Pratt
13B	Rawlins
11B	Reno
12B	Republic
11B	Rice
11B	Riley
12B	Rooks
11B	Rush
11B	Russell
11B	Saline
12B	Scott
10B	Sedgwick
10B	Seward
11B	Shawnee
12B	Sheridan
13B	Sherman
12B	Smith
11B	Stafford
11B	Stanton
10B	Stevens
9B	Sumner
13B	Thomas
12B	Trego
11B	Wabaunsee
12B	Wallace
12B	Washington
12B	Wichita
9B	Wilson
10B	Woodson
11B	Wyandotte



Zone 9B
Zone 10B
Zone 11B
Zone 12B
Zone 13B

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.
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