

State Maps and Prescriptive Packages

April 2000

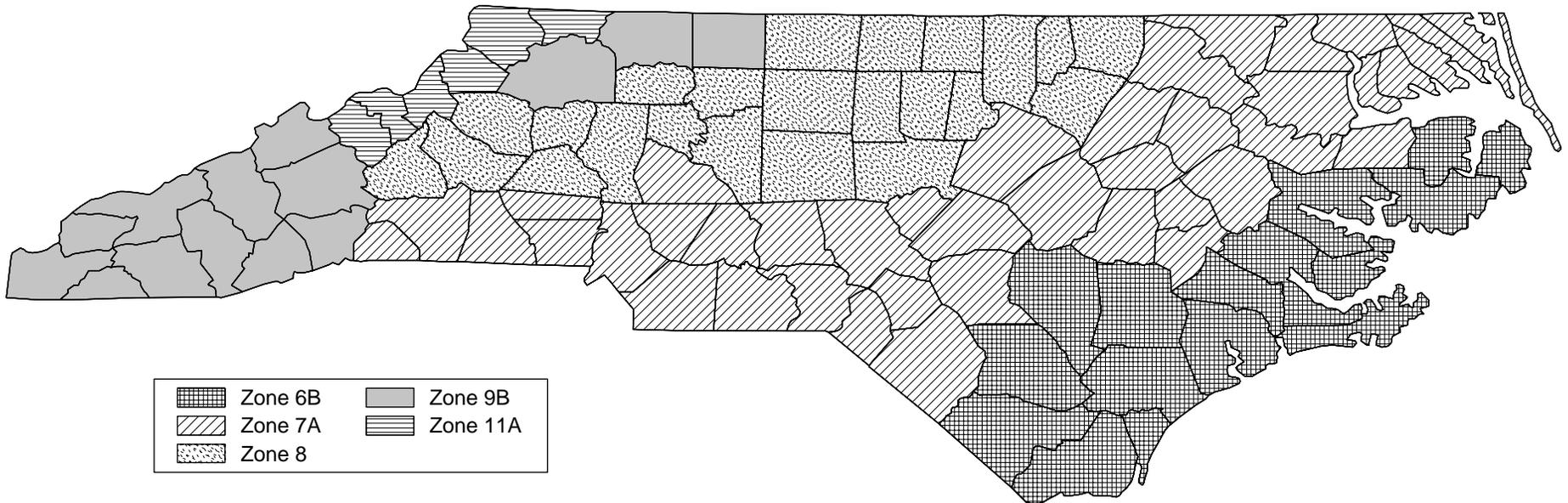
The State Maps and Prescriptive Packages contain supporting materials that are needed when using the Envelope and Mechanical Compliance Guides. Insulation and other building envelope requirements and some mechanical system requirements vary by climate. The State Maps divide the United States into 33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

NORTH CAROLINA

Zone	County	Zone	County	Zone	County	Zone	County	Zone	County	Zone	County	Zone	County		
8	Alamance	8	Caldwell	7A	Currutuck	7A	Greene	7A	Lee	6B	New Hanover	7A	Richmond	6B	Tyrrell
8	Alexander	7A	Camden	6B	Dare	8	Guilford	7A	Lenoir	7A	Northampton	7A	Robeson	7A	Union
11A	Alleghany	6B	Carteret	8	Davidson	7A	Halifax	7A	Lincoln	6B	Onslow	8	Rockingham	8	Vance
7A	Anson	8	Caswell	8	Davie	7A	Harnett	9B	Macon	8	Orange	7A	Rowan	7A	Wake
11A	Ashe	8	Catawba	6B	Duplin	9B	Haywood	9B	Madison	6B	Pamlico	7A	Rutherford	8	Warren
11A	Avery	8	Chatham	8	Durham	9B	Henderson	7A	Martin	7A	Pasquotank	6B	Sampson	7A	Washington
6B	Beaufort	9B	Cherokee	7A	Edgecombe	7A	Hertford	8	Mcdowell	6B	Pender	7A	Scotland	11A	Watauga
7A	Bertie	7A	Chowan	8	Forsyth	7A	Hoke	7A	Mecklenburg	7A	Perquimans	7A	Stanly	7A	Wayne
6B	Bladen	9B	Clay	8	Franklin	6B	Hyde	11A	Mitchell	8	Person	9B	Stokes	9B	Wilkes
6B	Brunswick	7A	Cleveland	7A	Gaston	8	Iredell	7A	Montgomery	7A	Pitt	9B	Surry	7A	Wilson
9B	Buncombe	6B	Columbus	7A	Gates	9B	Jackson	7A	Moore	7A	Polk	9B	Swain	8	Yadkin
8	Burke	6B	Craven	9B	Graham	7A	Johnston	7A	Nash	8	Randolph	9B	Transylvania	11A	Yancey
7A	Cabarrus	7A	Cumberland	8	Granville	6B	Jones								



COMcheck-EZ™ Prescriptive Packages

Climate Zone 6b

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)		
	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing
Walls (a)												
Framed Any Spacing <i>Minimum R-Value</i>	NA	11	11	NA	11	11	NA	11	11	NA	11	11
CMU, 8 in. or greater with Integral Insulation(b) <i>Minimum R-Value</i>	0	0	0	0	0	0	0	0	0	0	0	0
All Other Masonry Walls(c) <i>Minimum R-Value</i>	0	0	0	5	11	11	5	11	11	5	11	11
Windows												
<i>Maximum Solar Heat Gain Coefficient</i>	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection
<i>Maximum U-Factor</i>	Any	Any	Any	0.6	0.7	Any	0.5	0.6	0.7	0.4	0.5	0.7
	Any	Any	Any	Any	Any	Any	0.7	0.7	0.7	0.7	0.7	0.7
Skylight (Limit 3% of Roof Area)												
<i>Maximum U-Factor</i>	1			1			1			1		
Roof												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	16		19	16		19	19		25	19		25
Concrete Slab or Deck <i>Minimum R-Value</i>	17		25	17		25	20		25	20		25
Metal Purlin with Thermal Break <i>Minimum R-Value</i>	16		NA	16		NA	19		NA	19		NA
Metal Purlin without Thermal Break <i>Minimum R-Value</i>	17		25	17		25	20		30	20		30
	17		X	17		X	20		X	20		38
Floor												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	6		11	6		11	6		11	6		11
Concrete Slab or Deck <i>Minimum R-Value</i>	6		11	6		11	6		11	6		11
	6		NA	6		NA	6		NA	6		NA
Slab Edge or Basement Walls												
<i>Minimum R-Value</i>	Insulation			Insulation			Insulation			Insulation		
	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.
- (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 7a

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)		
	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing
Walls (a)												
Framed Any Spacing <i>Minimum R-Value</i>	NA	11	11	NA	11	11	NA	11	11	NA	11	11
CMU, 8 in. or greater with Integral Insulation(b) <i>Minimum R-Value</i>	0	0	0	0	0	0	5	11	11	5	11	11
All Other Masonry Walls(c) <i>Minimum R-Value</i>	5	11	11	5	11	11	5	11	11	5	11	11
Windows												
<i>Maximum Solar Heat Gain Coefficient</i>	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection
<i>Maximum U-Factor</i>	Any	Any	Any	0.5	0.6	0.7	0.4	0.5	0.6	0.3	0.4	0.5
	Any	Any	Any	0.7	0.7	0.7	0.7(d)	0.7(d)	0.7(d)	0.7	0.7	0.7
Skylight (Limit 3% of Roof Area)												
<i>Maximum U-Factor</i>	0.8			0.8			0.8			0.8		
Roof												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	14		19	19		25	19		25	19		25
Concrete Slab or Deck <i>Minimum R-Value</i>	15		19	20		25	20		25	20		25
Metal Purlin with Thermal Break <i>Minimum R-Value</i>	14		NA	19		NA	19		NA	19		NA
Metal Purlin without Thermal Break <i>Minimum R-Value</i>	15		25	20		30	20		30	20		30
	15		X	20		X	20		X	20		38
Floor												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	8		11	8		11	8		11	8		11
Concrete Slab or Deck <i>Minimum R-Value</i>	9		11	9		11	9		11	9		11
	8		NA	8		NA	8		NA	8		NA
Slab Edge or Basement Walls												
<i>Minimum R-Value</i>	Insulation			Insulation			Insulation			Insulation		
	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.
- (d) For buildings over 3 stories in height, the maximum U-factor shall be 0.60.

- "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 8

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)
	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
Walls (a)				
Framed Any Spacing <i>Minimum R-Value</i>	NA 11 11	NA 13 11	NA 13 11	NA 13 11
CMU, 8 in. or greater with Integral Insulation(b) <i>Minimum R-Value</i>	5 11 11	5 11 11	5 11 11	5 11 11
All Other Masonry Walls(c) <i>Minimum R-Value</i>	5 11 11	6 13 11	6 13 11	6 13 11
Windows	No Projection ^{§.25} Projection ^{§.5} Projection			
<i>Maximum Solar Heat Gain Coefficient</i>	Any Any Any	0.5 0.6 0.7	0.4 0.5 0.6	0.3 0.4 0.5
<i>Maximum U-Factor</i>	Any Any Any	0.7 0.7 0.7	0.5 0.5 0.5	0.5 0.5 0.5
Skylight (Limit 3% of Roof Area)				
<i>Maximum U-Factor</i>	0.8	0.8	0.8	0.8
Roof	Continuous Insulation or Roof Cavity Insulation			
All-Wood Joist/Truss <i>Minimum R-Value</i>	14 19	19 25	19 25	19 25
Nonwood Joist/Truss <i>Minimum R-Value</i>	15 19	20 25	20 25	20 25
Concrete Slab or Deck <i>Minimum R-Value</i>	14 NA	19 NA	19 NA	19 NA
Metal Purlin with Thermal Break <i>Minimum R-Value</i>	15 25	20 30	20 30	20 30
Metal Purlin without Thermal Break <i>Minimum R-Value</i>	15 X	20 X	20 X	20 38
Floor	Continuous Insulation or Cavity Insulation			
All-Wood Joist/Truss <i>Minimum R-Value</i>	9 11	9 11	9 11	9 11
Nonwood Joist/Truss <i>Minimum R-Value</i>	10 11	10 11	10 11	10 11
Concrete Slab or Deck <i>Minimum R-Value</i>	9 NA	9 NA	9 NA	9 NA
Slab Edge or Basement Walls	Insulation	Insulation	Insulation	Insulation
<i>Minimum R-Value</i>	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 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)		
	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing
Walls (a,b)												
Framed <i>Minimum Cavity R-Value (c)</i>	NA	11	11	NA	11	11	NA	13	11	NA	13	13
Any Spacing <i>Minimum Continuous R-Value (d)</i>	NA	0	0	NA	0	0	NA	0	0	NA	5	3
CMU, 8 in. or greater <i>Minimum Cavity R-Value</i>	NA	11	11	NA	11	11	NA	11	11	NA	11	11
with Integral Insulation(e) <i>Minimum Continuous R-Value</i>	5	0	0	5	0	0	5	0	0	5	0	0
All Other <i>Minimum Cavity R-Value</i>	NA	11	11	NA	11	11	NA	13	11	NA	13	11
Masonry Walls(f) <i>Minimum Continuous R-Value</i>	5	0	0	5	0	0	6	0	0	6	0	0
Windows												
<i>Maximum Solar Heat Gain Coefficient</i>	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection
<i>Maximum U-Factor</i>	Any	Any	Any	0.5	0.6	0.7	0.4	0.5	0.6	0.3	0.4	0.5
	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)												
<i>Maximum U-Factor</i>	0.8			0.8			0.8			0.8		
Roof												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	15		19	19		25	19		25	19		25
Concrete Slab or Deck <i>Minimum R-Value</i>	16		19	20		25	20		25	20		25
Metal Purlin with Thermal Break <i>Minimum R-Value</i>	15		NA	19		NA	19		NA	19		NA
Metal Purlin without Thermal Break <i>Minimum R-Value</i>	16		25	20		30	20		30	20		30
	16		X	20		X	20		X	20		38
Floor												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	11		13	11		13	11		13	11		13
Concrete Slab or Deck <i>Minimum R-Value</i>	12		13	12		13	12		13	12		13
	12		NA	12		NA	12		NA	12		NA
Slab Edge or Basement Walls												
<i>Minimum R-Value</i>	Insulation			Insulation			Insulation			Insulation		
	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 undiminished 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 11a

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)		
	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing	No Framing	Metal Framing	Wood Framing
Walls (a)												
Framed Any Spacing <i>Minimum R-Value</i>	NA	11	11	NA	11	11	NA	11	11	NA	13	11
CMU, 8 in. or greater with Integral Insulation(b) <i>Minimum R-Value</i>	5	11	11	5	11	11	5	11	11	5	11	11
All Other Masonry Walls(c) <i>Minimum R-Value</i>	5	11	11	5	11	11	5	11	11	5	11	11
Windows												
<i>Maximum Solar Heat Gain Coefficient</i>	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection	No Projection	^{§.25} Projection	^{§.5} Projection
<i>Maximum U-Factor</i>	Any	Any	Any	0.6	0.7	Any	0.5	0.6	0.7	0.5	0.6	0.7
	Any	Any	Any	0.7	0.7	0.7	0.6	0.6	0.6	0.4	0.4	0.4
Skylight (Limit 3% of Roof Area)												
<i>Maximum U-Factor</i>	0.8			0.8			0.8			0.8		
Roof												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation	Continuous Insulation	or	Roof Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	14		19	16		19	19		25	19		25
Concrete Slab or Deck <i>Minimum R-Value</i>	15		19	17		25	20		25	20		25
Metal Purlin with Thermal Break <i>Minimum R-Value</i>	14		NA	16		NA	19		NA	19		NA
Metal Purlin without Thermal Break <i>Minimum R-Value</i>	15		25	17		25	20		30	20		30
	15		X	17		X	20		X	20		30
Floor												
All-Wood Joist/Truss <i>Minimum R-Value</i>	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation	Continuous Insulation	or	Cavity Insulation
Nonwood Joist/Truss <i>Minimum R-Value</i>	14		19	14		19	14		19	14		19
Concrete Slab or Deck <i>Minimum R-Value</i>	14		19	14		19	14		19	14		19
	14		NA	14		NA	14		NA	14		NA
Slab Edge or Basement Walls												
<i>Minimum R-Value</i>	Insulation			Insulation			Insulation			Insulation		
	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.
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