

Non-Residential Minimum R-Value Insulation Requirements

The International Energy Conservation Code (IECC) and American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1 set specific R-value requirements for non-residential buildings to enhance energy efficiency. These requirements vary based on climate zones and building types, focusing on insulation levels for roofs to minimize thermal energy loss. Compliance with the required building code ensures reduced energy consumption and improved occupant comfort, while contributing towards potential sustainability goals. The information provided below is for reference purposes only and should be validated for its current accuracy prior to use.

Insulation Entirely Above Roof Deck –International Energy Conservation Code (IECC)

STATE	APPLICABLE CODE	ASHRAE ZONE	MINIMUM R-VALUE
Alabama (AL)	2015 Alabama Commercial Energy Code (Based on ASHRAE Standard 90.1-2013)	2	25
		3	25
Alaska (AK)	No State-Wide Energy Code – Use the most current version of the International Energy Conservation Code (IECC)	7	35
		8	35
Arizona (AZ)	No State-Wide Energy Code Use either the 2015 or 2018 versions of the International Energy Conservation Code (IECC)	2	25
		3	25
		4	30
		5	30
Arkansas (AR)	2014 Arkansas Energy Code (Based on the 2009 International Energy Conservation Code with state specific amendments)	3	20
		4	20
California (CA)	2022 California Energy Code	3	25
		4	30
		5	30
		6	30
Colorado (CO)	2021 International Energy Conservation Code	4	30
		5	30
		6	30
		7	35
Connecticut (CT)	2022 Connecticut State Building Code (Based on the 2021 International Energy Conservation Code with state-specific amendments)	5	30
Delaware (DE)	Regulations for State Energy Conservation Code (Based on the 2018 International Energy Conservation Code)	4	30
District of Columbia (DC)	District of Columbia Energy Conservation Code (2017)	4	33
Florida (FL)	2023 8th Edition Florida Building Code, Energy Conservation (Based on the 2021 International Energy Conservation Code with state specific amendments)	1	20
		2	25
Georgia (GA)	2020 Georgia State Minimum Standard Energy Code (Based on the 2015 IECC with state specific amendments)	2	25
		3	25
		4	30
Hawaii (HI)	2018 International Energy Conservation Code (Based on the 2018 International Energy Conservation Code with state specific amendments)	1	20
Idaho (ID)	Idaho Energy Conservation Code (2020 Edition) (Based on the 2018 International Energy Conservation Code with state-specific amendments)	5	30
		6	30
Illinois (IL)	2024 Illinois Energy Conservation Code (Based on the 2024 International Energy Conservation Code with state-specific amendments)	4	30
		5	30
Indiana (IN)	2010 Indiana Energy Conservation Code (Based on ASHRAE Standard 90.1-2007 with state-specific amendments)	4	20
		5	20
Iowa (IA)	2012 International Energy Conservation Code	5	25
		6	30
Kansas (KS)	No State-Wide Energy Code – Use the most current version of the International Energy Conservation Code (IECC)	4	30
		5	30
Kentucky (KY)	2013 Kentucky Building Code, 4th Edition (Based on the 2012 International Energy Conservation Code with state-specific amendments)	4	25

Louisiana (LA)	Louisiana State Uniform Construction Code (Based on the 2021 International Energy Conservation Code)	2	25
Maine (ME)	Maine Uniform Building and Energy Code (MUBEC) (Based on the 2021 International Energy Conservation Code)	6	30
		7	35
Maryland (MD)	Maryland Building Performance Standards (Based on the 2021 International Energy Conservation Code with state specific amendments)	4	30
		5	30
Massachusetts (MA)	Tenth Edition of the MA State Building Code 780 (Based on the 2021 International Energy Conservation Code with state-specific amendments)	5	30
Michigan (MI)	2021 Michigan Energy Code (Commercial) (Based on either the ASHRAE 90.1-2019 or the 2021 IECC with state specific amendments)	5	30
		6	30
		7	35
Minnesota (MN)	2024 Minnesota Commercial Energy Code (Based on the ASHRAE 90.1-2019 Standard with state-specific amendments)	5	30
		6	30
		7	35
Mississippi (MS)	No State-Wide Energy Code – Use the most current version of the International Energy Conservation Code (IECC)	2	25
		3	25
Missouri (MO)	No State-Wide Energy Code – Use the most current version of the International Energy Conservation Code (IECC)	4	30
		5	30
Montana (MT)	2021 International Energy Conservation Code with state-specific amendments	6	30
Nebraska (NE)	Nebraska Energy Code (Based on the 2018 International Energy Conservation Code with state-specific amendments)	5	30
Nevada (NV)	2024 International Energy Conservation Code (IECC)	3	25
		4	30
		5	30
New Hampshire (NH)	State Building Code (Based on the 2018 International Energy Conservation Code with state-specific amendments)	5	30
		6	30
New Jersey (NJ)	Uniform Construction Code – Energy Subcode (Based on ASHRAE Standard 90.1-2019)	4	30
		5	30
New Mexico (NM)	2021 New Mexico Commercial Energy Code (Based on the 2021 International Energy Conservation Code with state specific amendments)	3	25
		4	30
		5	30
New York (NY)	2025 Energy Conservation Construction Code of New York State (Based on the 2024 International Energy Conservation Code with state-specific amendments)	4	33
		5	33
		6	34
North Carolina (NC)	2018 North Carolina State Building Code: Energy Conservation Code (Based on the 2015 International Energy Conservation Code with state specific amendments)	3	25
		4	30
		5	30
North Dakota (ND)	2024 International Energy Conservation Code (IECC)	6	30
		7	35
Ohio (OH)	2024 Ohio Building Code, Chapter 13 (Based on the 2021 International Energy Conservation Code with state-specific amendments)	4	30
		5	30
Oklahoma (OK)	Oklahoma Uniform Building Code (Based on the 2006 International Energy Conservation Code with state specific amendments)	3	15
		4	15
Oregon (OR)	2025 Oregon Energy Efficiency Specialty Code (Based on ASHRAE Standard 90.1-2022)	4	30
		5	30
Pennsylvania (PA)	2021 International Energy Conservation Code (With state-specific amendments)	4	30
		5	30
Rhode Island (RI)	RISBC-8 State of Rhode Island Energy Conservation Code (Based on the 2024 International Energy Conservation Code (IECC))	5	30
South Carolina (SC)	2009 South Carolina Energy Standard (Based on the 2009 International Energy Conservation Code with state specific amendments and ASHRAE 90.1-2007)	3	20
South Dakota (SD)	No State-Wide Energy Code – Use the most current version of the International Energy Conservation Code (IECC)	5	30
		6	30

Tennessee (TN)	2021 International Energy Conservation Code (With exceptions for specific building types)	3	25
		4	30
Texas (TX)	2015 International Energy Conservation Code	2	25
		3	25
		4	30
Utah (UT)	Commercial Energy Conservation Code 2021 of Utah (Based on the 2021 International Energy Conservation Code with state-specific amendments)	3	25
		5	30
		6	30
Vermont (VT)	2024 Commercial Building Energy Standards (Based on the 2021 International Energy Conservation Code with state-specific amendments)	6	45
Virginia (VA)	2021 Virginia Existing Building Code (VECC) and the 2021 Virginia Energy Conservation Code (VEBC)	3	25
		4	30
Washington (WA)	2021 Washington State Energy Code (Based on the 2021 International Energy Conservation Code with state-specific amendments)	4	38
		5	38
West Virginia (WV)	State Building Code (Based on ASHRAE Standard 90.1-2013)	4	30
		5	30
Wisconsin (WI)	2021 Wisconsin Commercial Building Code (Based on the 2021 International Energy Conservation Code with state-specific amendments)	5	30
		6	30
Wyoming (WY)	No State-Wide Energy Code – Use the most current version of the International Energy Conservation Code (IECC)	5	30
		6	30
		7	35
US TERRITORIES			
American Samoa	No State-Wide Energy Code - Refer to Local Code	1	25
Guam	2018 International Energy Conservation Code	1	25
Northern Mariana Islands	2018 International Energy Conservation Code	1	25
Puerto Rico	2018 Puerto Rico Energy Conservation Code	1	25
		2	25
Virgin Islands	2018 International Energy Conservation Code	1	25
NOTE: <ul style="list-style-type: none"> The zones and minimum R-Values listed in this table are based on the 2021 IECC and may change. Please reference the current building code of each state for additional information. Some states may adopt modified zone maps that differ from the ASHRAE map below. Values listed are for non-residential projects. 			

Minimum R-Value Requirements (Continuous Insulation Above Deck, Non-Residential)

Zone	IBC – IECC					ASHRAE 90.1			
	2012	2015	2018	2021	2024	2013	2016	2019	2022
0	-	-	-	20	20	-	25	25	25
1	20	20	20	20	25	20	20	20	20
2	20	25	25	25	25	25	25	25	25
3	20	25	25	25	25	25	25	25	25
4	25	30	30	30	30	30	30	30	30
5	25	30	30	30	30	30	30	30	30
6	30	30	30	30	30	30	30	30	30
7	35	30	35	35	35	35	35	35	35
8	35	35	35	35	35	35	35	35	35
NOTE: Data in table above extracted from the applicable version of the code document. See applicable documents for complete and most up to date information.									

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