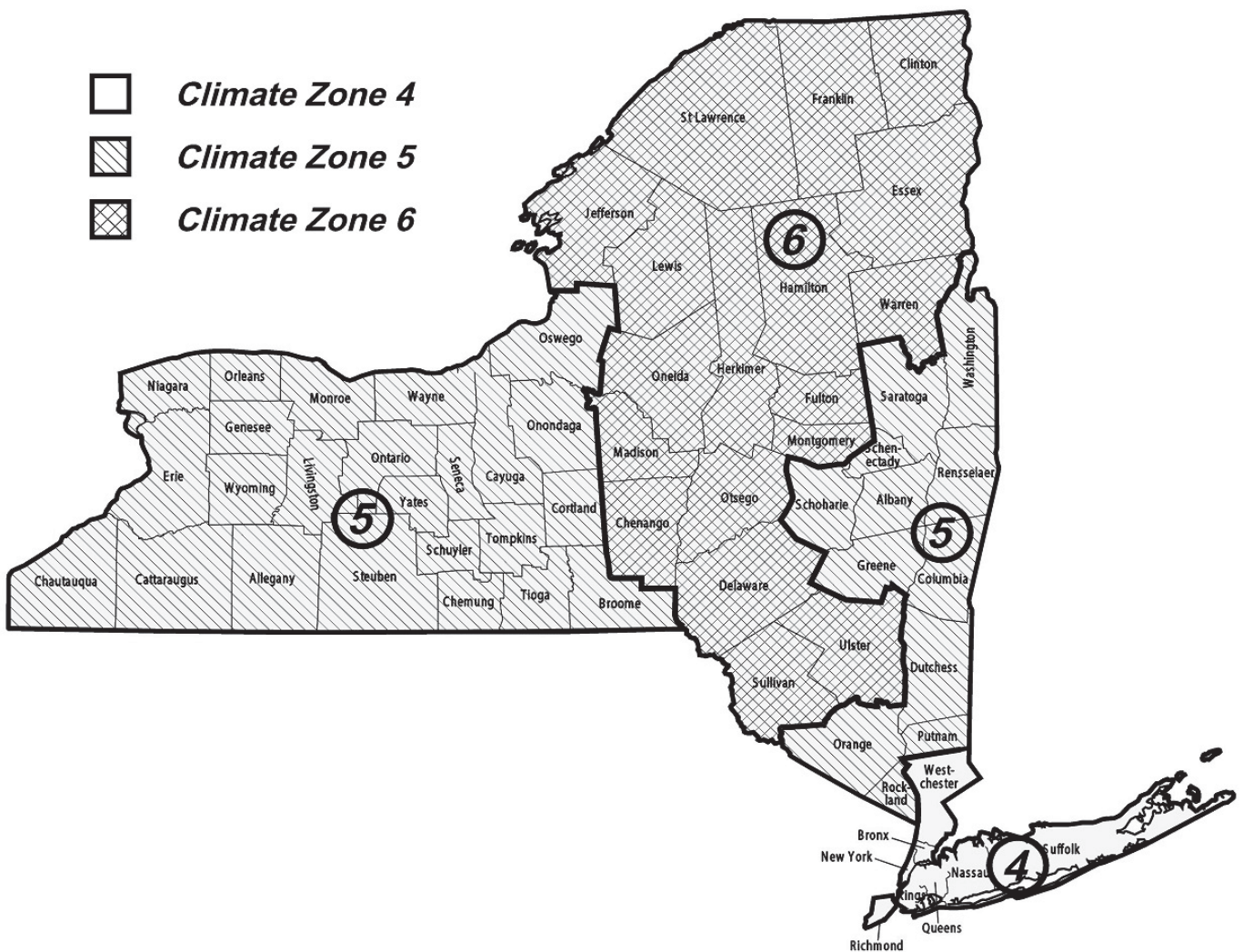


CHAPTER R3 GENERAL REQUIREMENTS

SECTION ECC R301 CLIMATE ZONES

R301.1 General. For projects in the City of New York, Climate Zone 4A shall be used in determining the applicable requirements from Chapter R4.



**FIGURE R301.1
CLIMATE ZONES**

**TABLE R301.1(1)
NEW YORK STATE CLIMATE ZONES BY COUNTY**

CLIMATE ZONE 4	CLIMATE ZONE 5				CLIMATE ZONE 6	
Bronx	Albany	Dutchess	Orange	Schuyler	Chenango	Lewis
Kings	Allegany	Erie	Orleans	Seneca	Clinton	Madison
Nassau	Broome	Genesee	Oswego	Steuben	Delaware	Montgomery
New York	Cattaraugus	Greene	Putnam	Tioga	Essex	Oneida
Queens	Cayuga	Livingston	Rensselaer	Tompkins	Franklin	Otsego
Richmond	Chautauqua	Monroe	Rockland	Washington	Fulton	St. Lawrence
Suffolk	Chemung	Niagara	Saratoga	Wayne	Hamilton	Sullivan
Westchester	Columbia	Onondaga	Schenectady	Wyoming	Herkimer	Ulster
	Cortland	Ontario	Schoharie	Yates	Jefferson	Warren

**TABLE R301.1(2)
THERMAL CLIMATE ZONE DEFINITIONS**

ZONE NUMBER	THERMAL CRITERIA	
	IP Units	SI Units
4	CDD50°F ≤ 6,300 AND 3,600 < HDD65°F ≤ 5,400	CDD10°C < 3500 AND 2000 < HDD18°C ≤ 3000
5	CDD50°F < 6,300 AND 5,400 < HDD65°F ≤ 7,200	CDD10°C < 3500 AND 3000 < HDD18°C ≤ 4000
6	7,200 < HDD65°F ≤ 9,000	4000 < HDD18°C ≤ 5000

For SI: °C = [(°F) – 32]/1.8.

SECTION ECC R302 DESIGN CONDITIONS

R302.1 Interior design conditions. The interior design temperatures used for heating and cooling load calculations shall be a maximum of 72°F (22°C) for heating and minimum of 75°F (24°C) for cooling.

SECTION ECC R303 MATERIALS, SYSTEMS AND EQUIPMENT

R303.1 Identification. Materials, systems and equipment shall be identified in a manner that will allow a determination of compliance with the applicable provisions of this code.

R303.1.1 Building thermal envelope insulation. An R-value identification mark shall be applied by the manufacturer to each piece of building thermal envelope insulation that is 12 inches (305 mm) or greater in width. Alternatively, the insulation installers shall provide a certification that indicates the type, manufacturer and R-value of insulation installed in each element of the *building thermal envelope*. For blown-in or sprayed fiberglass and cellulose insulation, the initial installed thickness, settled thickness, settled R-value, installed density, coverage area and number of bags installed shall be indicated on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the areas covered and the R-value of the installed thickness shall be indicated on the certification. For reflective insulation, the number of reflective sheets, the number and thickness of the enclosed reflective airspaces and the R-value for the installed assembly determined in accordance with Section R303.1.6 shall be listed on the certification. For insulated siding, the R-value shall be on a label on the product's package and shall be indicated on the

certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

Exception: For roof insulation installed above the deck, the R-value shall be labeled as required by the material standards specified in New York City Building Code.

R303.1.1.1 Blown-in or sprayed roof and ceiling insulation. The thickness of blown-in or sprayed fiberglass and cellulose roof and ceiling insulation shall be written in inches (mm) on markers that are installed at not less than one for every 300 square feet (28 m²) throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the mini-mum initial installed thickness with numbers not less than 1 inch (25 mm) in height. Each marker shall face the attic access opening. The thickness and installed *R-value* of sprayed polyurethane foam insulation shall be indicated on the certification provided by the insulation installer.

R303.1.2 Insulation mark installation. Insulating materials shall be installed such that the manufacturer's *R-value* mark is readily observable at inspection. For insulation materials that are installed without an observable manufacturer's *R-value* mark, such as blown or draped products, an insulation certificate complying with Section R303.1.1 shall be left immediately after installation by the installer, in a conspicuous location within the *building*, to certify the installed *R-value* of the insulation material.

Exception: For roof insulation installed above the deck, the R-value shall be labeled as specified by the material standards in the New York City Building Code.

R303.1.3 Fenestration product rating. U-factors of fenestration products such as windows, doors and skylights shall be determined in accordance with NFRC 100.

Exception: Where required, garage door U-factors shall be determined in accordance with either NFRC 100 or ANSI/DASMA 105.

U-factors shall be determined by a third-party accredited, independent laboratory, recognized by ANSI, ILAC MRA and labeled and certified by the manufacturer.

Products lacking such a labeled U-factor shall be assigned a default U-factor from Table R303.1.3(1) or Table R303.1.3(2). The solar heat gain coefficient (SHGC) and visible transmittance (VT) of glazed fenestration products such as windows, glazed doors and skylights shall be determined in accordance with NFRC 200 an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled SHGC or VT shall be assigned a default SHGC or VT from Table R303.1.3(3).

TABLE R303.1.3(1)
DEFAULT GLAZED WINDOW, GLASS DOOR AND SKYLIGHT U-FACTORS

FRAME TYPE	WINDOW AND GLASS DOOR		SKYLIGHT	
	Single pane	Double pane	Single	Double
Metal	1.20	0.80	2.00	1.30
Metal with thermal break	1.10	0.65	1.90	1.10
Nonmetal or metal clad	0.95	0.55	1.75	1.05
Glazed block	0.60			

TABLE R303.1.3(2)
DEFAULT OPAQUE DOOR U-FACTORS

DOOR TYPE	OPAQUE U-FACTOR
Uninsulated metal	1.20
Insulated metal	0.60
Wood	0.50
Insulated, nonmetal edge, not exceeding 45% glazing, any glazing double pane	0.35

TABLE R303.1.3(3)
DEFAULT GLAZED FENESTRATION SHGC AND VT

	SINGLE GLAZED		DOUBLE GLAZED		GLAZED BLOCK
	Clear	Tinted	Clear	Tinted	
SHGC	0.8	0.7	0.7	0.6	0.6
VT	0.6	0.3	0.6	0.3	0.6

R303.1.4 Insulation product rating. The thermal resistance, *R-value*, of insulation shall be determined in accordance with Part 460 of US-FTC CFR Title 16 in units of $h \times ft^2 \times ^\circ F/Btu$ at a mean temperature of 75°F (24°C).

R303.1.4.1 Insulated siding. The thermal resistance, *R-value*, of *insulated siding* shall be determined in accordance with ASTM C1363. Installation for testing shall be in accordance with the manufacturer's instructions.

R303.1.5 Air-impermeable insulation. Insulation having an air permeability not greater than 0.004 cubic feet per minute per square foot [0.002 L/(s × m²)] under pressure differential of 0.3 inch water gauge (75 Pa) when tested in accordance with ASTM E2178 shall be determined air-impermeable insulation.

R303.1.6 Airspaces. Where the *R-value* of an enclosed reflective airspace or enclosed nonreflective airspace is used for compliance with this code, the airspace shall be enclosed in a cavity bounded on all sides by building components and constructed to minimize airflow into and out of the enclosed airspace. Airflow shall be deemed minimized where one of the following conditions occur:

1. The enclosed airspace is unventilated.
2. The enclosed airspace is bounded on one or more sides by an anchored masonry veneer, constructed in accordance with the New York City Building Code, and vented by veneer weep holes located only at the bottom portion of the airspace and spaced not less than 15 inches (381 mm) on center with the top of the cavity airspace closed.

Exception: For ventilated cavities, the effect of the ventilation of airspaces located on the exterior side of the continuous air barrier and adjacent to and behind the exterior wall covering material shall be determined in accordance with ASTM C1363, modified with an airflow entering the bottom and exiting the top of the airspace at an air movement rate of not less than 70 millimeters per second.

R303.2 Installation. Materials, systems and equipment shall be installed in accordance with the manufacturer's instructions and the provisions of the *New York City Construction Codes*.

R303.2.1 Protection of exposed foundation insulation. Insulation applied to the exterior of *basement walls*, *crawl space walls* and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend not less than 6 inches (153 mm) below grade.

R303.2.2 Radiant barrier. Where installed, radiant barriers shall comply with the requirements of ASTM C1313/C1313M and shall be installed in accordance with ASTM C1743.

R303.3 Maintenance information. Maintenance instructions shall be furnished for equipment and systems that require preventive maintenance. Required regular maintenance actions shall be clearly stated and incorporated on a readily visible label. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.