

2002 New York State Energy Conservation Construction Code Summary of Basic Residential Requirements

Compliance Documentation	<ul style="list-style-type: none"> Plans/specification, which bear the seal of a design professional, shall have written statement that plans/specifications are in compliance with code. Plans/specifications shall note the Chapter(s) and method used for compliance.
Air Leakage	<ul style="list-style-type: none"> Joints, penetrations, and all other such openings in the building envelope that are sources of air leakage must be caulked, gasketed, weatherstripped, or otherwise sealed. Recessed lights must be typed IC rated and installed with no penetrations or installed inside an appropriate air-tight assembly with a 0.5-in clearance from combustible materials and 3-in clearance from insulation. Fireplaces shall be installed with tight-fitting noncombustible fireplace doors.
Vapor Retarder	<ul style="list-style-type: none"> Vapor retarders must be installed on the warm-in-winter side of all non-vented framed ceilings, walls, and floors, except in exempted locations.
Materials & Insulation Information	<ul style="list-style-type: none"> Materials and equipment must be installed in accordance with the manufacturer's installation instructions. Materials and equipment must be identified so that compliance can be determined. Manufacturer manuals for all installed heating and cooling equipment and service water heating equipment must be provided.
Duct Insulation	<ul style="list-style-type: none"> Supply and return-air ducts and plenums for heating and cooling systems located in unconditioned spaces must be insulated to the levels shown on the reverse side of this sheet. <i>Exception:</i> Factory-installed plenums, casings, or ductwork furnished as part of the HVAC equipment, ducts within building envelope located in detached one-two-family and townhouses.
Duct Construction	<ul style="list-style-type: none"> All joints, seams, and connections must be securely fastened with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric, or tapes. Unlisted duct tape is not permitted. <i>Exception:</i> Continuously welded and locking-type longitudinal joints and seams on ducts operating at less than 2 in w.g. (500Pa). Ducts must be supported every 10 ft or in accordance with the manufacturer's instructions. Cooling ducts with exterior insulation must be covered with a vapor retarder. Air filters are required in the return air system. The HVAC system must provide a means for balancing air and water systems.
Temperature Controls	<ul style="list-style-type: none"> Each dwelling unit shall have at least one programmable thermostat for the largest zone. Thermostats must have the following ranges: Heating Only 55°F - 75°F Cooling Only 70°F - 85°F Heating & Cooling 55°F - 85°F A means to partially restrict or shut off the heating and/or cooling input to each zone or floor must be provided for single-family homes and to each room for multifamily buildings. Heat pumps require a thermostat that can prevent the back-up heat from turning on when the heating requirements can be met by the heat pump alone.
HVAC Piping Insulation	<ul style="list-style-type: none"> HVAC piping in unconditioned spaces conveying fluids above 105°F or chilled fluids at less than 55°F must be insulated to the levels shown on the reverse side of this sheet. <i>Exception:</i> Factory-installed within equipment, or fluids which have not been heated or cooled by fossil fuels or electricity, piping within building envelope located in detached one-two-family dwellings and townhouses.
Swimming Pools	<ul style="list-style-type: none"> All heated swimming pools must have an on/off pool heater switch. Heated pools require a pool cover unless over 20% of the heating energy is from non-depletable sources. All swimming pools pumps must be equipped with a time clock.
Service Water Heating	<ul style="list-style-type: none"> All heated with vertical pipe risers must have a heat trap on both the inlet and outlet unless the water heated has an integral heat trap or is part of a circulating system. Circulating hot water systems must have automatic or manual controls and pipes must be insulated to the levels shown on the reverse side of this sheet.
Electric	<ul style="list-style-type: none"> Each multifamily dwelling unit must be equipped with separate electric meters.

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Duct Insulation R-Value Requirements

Annual Heating Degree Days	Ducts in Unconditioned Spaces (i.e. Attics, Crawl Spaces, Unheated Basements and Garages, and Exterior Cavities)	Ducts Outside the Building
3,501 - 7500	Supply/R-8 Return/R-2	Supply/R-8 Return/R-4
Above 7500	Supply/R-11 Return/R-2	Supply/R-11 Return/R-6

Minimum HVAC Piping Insulation Thickness^(a)

Piping Systems Types	Fluid Temp Range (°F)	Insulation Thickness in Inches by Pipe Sizes ^(b)			
		Runouts 2" ^(c)	1" and Less	1.25" and 2"	2.5" to 4"
Heating Systems					
Low Pressure/Temperature	201-250	1.0	1.5	1.5	2.0
Low Temperature	106-200	0.5	1.0	1.0	1.5
Steam Condensate (for feed water)	Any	1.0	1.0	1.5	2.0
Cooling Systems					
Chilled Water, Refrigerant, and Brine	40-55	0.5	0.5	0.75	1.0
	Below 40	1.0	1.0	1.5	1.5

(a) The pipe insulation thickness specified in this table are based on insulation R-values ranging from R-4 to R-4.6/in of thickness. For materials with an R-value greater than R-4.6, the insulation thickness specified in this table may be reduced as follows:

$$\text{New Minimum Thickness} = \frac{4.6 \times \text{Table Thickness}}{\text{Actual R-Value}}$$

For materials with an R-Value less than R-4, the minimum insulation thickness must be increased as follows:

$$\text{New Minimum Thickness} = \frac{4.0 \times \text{Table Thickness}}{\text{Actual R-Value}}$$

(b) For piping exposed to outdoor air, increase thickness by 0.5 in.

(c) Applies to runouts not exceeding 12 ft. in length to individual terminal units.

Service Water Heating

Minimum Insulation Thickness for Recirculation Piping

Heated Water Temp (°F)	Insulation Thickness in Inches by Pipe Sizes ^(a)			
	Non-circulating Runouts	Circulating Mains and Runouts		
	Up to 1"	Up to 1.25"	1.5 - 2.0"	Over 2"
170-180	0.5	1.0	1.5	2.0
140-169	0.5	0.5	1.0	1.5
100-139	0.5	0.5	0.5	1.0

(a) Nominal pipe size and insulation thickness