

**PROPOSED REGULATION OF THE DIRECTOR OF
THE OFFICE OF ENERGY WITHIN THE
OFFICE OF THE GOVERNOR**

LCB File No. R098-08

April 25, 2008

EXPLANATION – Matter in *italics* is new; matter in brackets ~~[omitted material]~~ is material to be omitted.

AUTHORITY: §§1-9, NRS 701.220.

A REGULATION relating to energy; establishing standards for the conservation of energy in buildings in certain areas of this State; adopting by reference the International Energy Conservation Code; providing a procedure for determining whether an updated version of or an amendment to the Code is appropriate for use in this State; and providing other matters properly relating thereto.

Section 1. NAC 701.010 is hereby amended to read as follows:

701.010 As used in NAC 701.010 to ~~[701.390,]~~ *701.230*, inclusive, unless the context otherwise requires, the words and terms defined in NAC 701.020 ~~[to 701.170, inclusive,]~~, *701.030 and 701.110* have the meanings ascribed to them in those sections.

Sec. 2. NAC 701.020 is hereby amended to read as follows:

701.020 “Code” means the ~~[1986 edition of the Model Energy Code, as adopted by the Council of American Building Officials,]~~ *most recent version of the International Energy Conservation Code issued by the International Code Council and any amendments thereto which have been adopted or determined appropriate for use in this State by the Director pursuant to NAC 701.190.*

Sec. 3. NAC 701.180 is hereby amended to read as follows:

701.180 ~~1.~~ Except as otherwise provided in NAC 701.010 to ~~[701.390,]~~ 701.230, inclusive, and in subsection 4 of NRS 701.220, the design of any new building or any addition to an existing building must conform to the standards for the conservation of energy set forth in NAC 701.010 to ~~[701.390,]~~ 701.230, inclusive, *and the Code* if:

~~[(a)]~~ 1. The building or addition is used or to be used for public assembly, educational, business, mercantile, institutional, storage or residential purposes; and

~~[(b)]~~ 2. Construction of the building or addition begins on or after ~~[July 8, 1988.]~~ *the effective date of this regulation*. For the purposes of this paragraph, construction begins on the date a fee is paid for the issuance of a building permit.

~~[2.— The provisions of NAC 701.010 to 701.390, inclusive, do not apply to any:~~

~~—(a) Mobile home;~~

~~—(b) Manufactured home;~~

~~—(c) Greenhouse;~~

~~—(d) Pump house; or~~

~~—(e) Building or portion of a building which is not heated or cooled by any system of heating or mechanical cooling involving the expenditure of electrical energy or energy derived from fossil fuel.]~~

Sec. 4. NAC 701.190 is hereby amended to read as follows:

701.190 1. Except as they are inconsistent with the provisions of NAC 701.010 to ~~[701.390,]~~ 701.230, inclusive, ~~[and except as otherwise provided in this section,]~~ the provisions of the *Code* are hereby adopted by reference. A *soft cover* copy of the *Code* may be purchased from the ~~[Council of American Building Officials, 5203 Leesburg Pike, Falls Church, Virginia 22041, for \$4.~~

~~—2. The provisions of the current edition or version of each standard described in section 701.1 of the Code are hereby adopted by reference.~~

~~—3. Sections 101.3.1.2, 302.1, 303.1, 502.1.2, 504.5.2 and 505.3.4.2 of the Code are not adopted by reference.] International Code Council at the Internet website www.iccsafe.org, at a price of \$25 for members and \$32.50 for nonmembers.~~

2. If the International Code Council issues an updated version of or an amendment to the Code after the effective date of this regulation, the Director will review the updated version or amendment to determine whether it is appropriate for use in this State.

3. If the Director determines that the updated version or amendment to the Code:

(a) Is appropriate for use in this State, the Director will determine the effective date of the updated version or amendment in this State and post at the Office and the State Library and Archives a notice of approval which includes a copy of the updated version or amendment and the effective date thereof.

(b) Is not appropriate for use in this State, the version of the Code that was most recently adopted or determined appropriate for use in this State by the Director pursuant to this section continues in effect.

4. The Director will review, evaluate and consider updated versions or amendments to the Code at least once every 3 years.

Sec. 5. NAC 701.200 is hereby amended to read as follows:

701.200 If any provision of NAC 701.010 to ~~[701.390,]~~ **701.230**, inclusive, *or the Code* or its application to any person, thing or circumstance is held to be invalid, it is intended that the invalidity not affect the other provisions of NAC 701.010 to ~~[701.390,]~~ **701.230**, inclusive, *or the Code* to the extent that they can be given effect.

Sec. 6. NAC 701.210 is hereby amended to read as follows:

701.210 Plans prepared for the building official must bear a certificate, signed by the architect, professional engineer, contractor, designer or building owner responsible for the preparation of the plans, stating that he has reviewed the provisions of NAC 701.010 to ~~701.390,]~~ 701.230, inclusive, *and the Code* and that the plans conform to the requirements of NAC 701.010 to ~~701.390,]~~ 701.230, inclusive ~~[-]~~ *and the Code*.

Sec. 7. NAC 701.220 is hereby amended to read as follows:

701.220 1. Any person otherwise subject to the provisions of NAC 701.010 to ~~701.390,]~~ 701.230, inclusive, *and the Code* may submit a petition to the building official for a variance from the application of those provisions to the construction of a building.

2. A petition submitted pursuant to subsection 1 must:

(a) Be in writing;

(b) Contain the name and address of the petitioner; and

(c) Set forth in short and plain terms the basis for the petition, together with any supporting information.

3. Upon receiving the petition, the building official shall review it and forward it, with his comments and recommendations, to the Office.

4. The Office will review the petition and will render a decision on its merits within 30 days after it is received by the Office. A formal or informal hearing may be held on the petition. Notice of the disposition of the petition must be given, in writing, to the petitioner at the address set forth in the petition.

5. Any petitioner aggrieved by the disposition of the petition may appeal to the Director by submitting a written request for a hearing on the matter. The request must be received by the

Office within 15 days after the date the notice of disposition is mailed to the petitioner pursuant to subsection 4.

Sec. 8. NAC 701.230 is hereby amended to read as follows:

701.230 1. Any person who requests the adoption, filing, amendment or repeal of any provision of NAC 701.010 to ~~701.390,~~ **701.230**, inclusive, *or the Code* pursuant to NRS 233B.100 must submit to the Office a petition in writing setting forth his request. Three copies of the petition must be filed.

2. A petition submitted pursuant to subsection 1 must:

(a) Contain the name and address of the petitioner; and

(b) Set forth in short and plain terms the action requested of the Office and the basis for the petition, together with any supporting information.

3. The Office may hold a formal or informal hearing on the petition.

Sec. 9. NAC 701.040, 701.050, 701.060, 701.070, 701.080, 701.090, 701.100, 701.120, 701.130, 701.140, 701.150, 701.160, 701.170, 701.240, 701.250, 701.260, 701.270, 701.280, 701.290, 701.300, 701.310, 701.320, 701.330, 701.340, 701.350, 701.360, 701.370, 701.380 and 701.390 are hereby repealed.

TEXT OF REPEALED SECTIONS

701.040 “Evaporative cooling” defined. (NRS 701.220) “Evaporative cooling” means the adiabatic exchange of heat between air and a water spray or wetted surface.

701.050 “Gross area of a roof assembly” defined. (NRS 701.220)

1. Except as otherwise provided in subsection 2, “gross area of a roof assembly” means the total interior surface of the roof assembly, including any skylight exposed to a space which is heated or mechanically cooled.

2. If a return air ceiling plenum is used, “gross area of a roof assembly” is the area of the interior face of the upper plenum surface.

701.060 “Manufactured home” defined. (NRS 701.220) “Manufactured home” has the meaning ascribed to it in NRS 489.113.

701.070 “Mechanical cooling” defined. (NRS 701.220) “Mechanical cooling” means cooling accomplished by the expenditure of energy. The term does not include:

1. Evaporative cooling; or
2. Natural or mechanical ventilation using outdoor air.

701.080 “Mechanical ventilation” defined. (NRS 701.220) “Mechanical ventilation” means the process of supplying or removing conditioned or unconditioned air, by mechanical means, to or from any space.

701.090 “Mobile home” defined. (NRS 701.220) “Mobile home” has the meaning ascribed to it in NRS 489.120.

701.100 “Occupancy” defined. (NRS 701.220) “Occupancy” means the purpose for which a building or part of a building is used or intended to be used.

701.120 “Percent glazed opening” defined. (NRS 701.220) “Percent glazed opening” means the percentage of the gross vertical exterior wall and roof areas consisting of glazing or glass, including glazing or glass used in any window, door, skylight or other opening.

701.130 “Residential building” defined. (NRS 701.220) “Residential building” means any hotel, apartment, house, convent, monastery, dwelling, condominium or other building within occupancy group “R” as set forth in the Uniform Building Code.

701.140 “Roof assembly” defined. (NRS 701.220)

1. Except as otherwise provided in subsection 2, “roof assembly” means the components of the roof/ceiling envelope through which heat flows, creating a building transmission heat loss or gain, if the components are exposed to outdoor air and enclose a space which is heated or mechanically cooled.

2. If a return air ceiling plenum is used, “roof assembly” does not include the ceiling proper or the plenum space.

701.150 “Thermal insulation” defined. (NRS 701.220) “Thermal insulation” means a material or combination of materials which retards the flow of heat energy.

701.160 “Thermal transfer value” defined. (NRS 701.220) “Thermal transfer value” means the quantity of heat, expressed in British thermal units per hour, transferred through a square foot of building surface under a particular set of interior and exterior design conditions.

701.170 “Uniform Building Code” defined. (NRS 701.220) “Uniform Building Code” means the current edition of the Uniform Building Code, as adopted by the International Conference of Building Officials. A copy of the Uniform Building Code may be purchased from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for \$50.75. A copy of those provisions of the Uniform Building Code referred to in NAC 701.010 to 701.390, inclusive, is available for public inspection and may be obtained from the Office at 1100 East William Street, Carson City, Nevada 89710.

701.240 Parameters for exterior design. (NRS 701.220)

1. The thermal design requirements of the building envelope and the design of the heating, ventilating and air-conditioning system must be based on the following exterior design parameters for the location of the building:

	Winter	Summer °F			North Latitude	
	Design	Design	Design	Heating		
	Dry-bulb °F	Dry-bulb	Wet bulb	Degree Days	Degrees	Minutes
Carson City	9	91	61	5766	39	9
Elko	-2	92	62	7248	40	50
Ely	-4	87	59	7700	39	17
Las Vegas	28	106	70	2532	36	5
Lovelock	12	96	65	5836	40	4
Reno (Airport)	10	92	62	6030	39	30
Reno (Downtown)	11	93	62	6030	39	30
Tonopah	10	92	62	5753	38	4
Winnemucca	3	94	62	6409	40	54

2. If the building is not at a location specified in subsection 1, the exterior design parameters for the nearest specified location with similar climatic conditions must be applied.

701.250 Adjustment of thermal transmittance value for masonry. (NRS 701.220) For the purposes of the heating criteria set forth in section 502 of the Code, in determining the overall thermal transmittance value of masonry wall construction, its thermal transmittance value

may be adjusted according to a mass correction factor. This factor must be calculated according to the weight of the masonry used in the construction and the number of Fahrenheit heating degree days in the location:

Weight of Masonry	Mass Correction	Mass Correction
Wall Construction	Factor 3500 Degree	Factor More than
lbs./sq. ft.	Days or Less	3500 Degree Days
0-25	1.000	1.000
26-40	.850	.880
41-80	.750	.791
81 and above	.650	.775

701.260 Insulation in crawl spaces. (NRS 701.220) In any building governed by section 502 of the Code:

1. Notwithstanding any provision of section 503.9, 503.11 or 504.7 of the Code, insulation of duct work or piping in unheated crawl spaces is not required if the requirements of subsection 3 of this section are met.
2. Notwithstanding any provision of section 502.2.1.3 or 502.3.1.3 of the Code, insulation of floors of heated spaces over unheated crawl spaces is not required if:
 - (a) Duct work and piping in the unheated spaces is uninsulated; and
 - (b) The requirements of subsection 3 are met.

3. Foundation walls enclosing unheated crawl spaces containing uninsulated duct work or piping must provide a thermal resistance at least equal to that required by section 502.2.1.5 of the Code. Any insulation used must extend from the bottom of the floor sheathing to the top of the footing. Any vent supplied to the crawl space must be of the closeable type.

701.270 Insulation of slab-on-grade floors. (NRS 701.220) For the purposes of the heating criteria for slab-on-grade floors set forth in sections 502.2.1.4 and 502.3.1.4 of the Code, insulation is not required for a heated slab in any location having less than 3,000 Fahrenheit heating degree days.

701.280 Gain or loss of heat in building with air curtain at entrance. (NRS 701.220)

1. In any building governed by section 502.3 of the Code and having an air curtain entrance, the total heat gain or loss of the building, whichever is greater, calculated as provided in subsections 2 and 3, must not exceed the total heat gain or loss calculated as provided in subsection 4.

2. Heat gain resulting from the air curtain entrance, expressed in British thermal units per hour, must be included in the total calculated heat gain for the building by multiplying 10,000 by a number equal to the width of the curtain in linear feet.

3. Heat loss resulting from the air curtain entrance, expressed in British thermal units per hour, must be included in the total calculated heat loss for the building by multiplying 30,000 by a number equal to the width of the curtain in linear feet.

4. The total heat gain or loss for the building without an air curtain entrance must be calculated by replacing the area of the air curtain with gross wall having an overall thermal transmittance value conforming to that required for the building by sections 502.3.1.1 and 502.3.2.1 of the Code.

5. In making the calculations of heat gain and loss required by this section, heat gains or losses resulting from ducts, piping or infiltration need not be considered.

701.290 Exemption from heating criteria for certain buildings. (NRS 701.220)

1. Except as otherwise provided in subsection 3 of this section, in a building otherwise governed by section 502.3.1 of the Code, compliance with the heating criteria set forth in that section is not required if:

- (a) The building is heated but not cooled;
- (b) The building is heated primarily for the purpose of maintaining an inside temperature above freezing; and
- (c) The total calculated heat loss for the building, at an inside design temperature of 42 degrees Fahrenheit, does not exceed the total calculated heat loss for that building, constructed in conformity with those criteria:
 - (1) At an inside design temperature of 72 degrees Fahrenheit; and
 - (2) At the outside winter design temperature for the building, as determined in accordance with NAC 701.240.

2. In making the calculations of heat loss required by subsection 1, heat losses from ducts, piping or infiltration need not be considered.

3. In a building otherwise meeting the requirements of subsection 1, compliance with the heating criteria set forth in section 502.3.1 of the Code is required for any space within the building which is heated primarily for a purpose other than that specified in paragraph (b) of subsection 1.

701.300 Exemption from cooling criteria for certain buildings. (NRS 701.220) In a building otherwise governed by section 502.3.2 of the Code, compliance with the cooling criteria

set forth in that section is not required for any building or portion of a building cooled by evaporative cooling.

701.310 Use of new energy for control of temperature. (NRS 701.220) If new energy is used for temperature control as provided in section 503.3.3 of the Code:

1. Exterior and interior zones of a constant volume reheat system must not be served by a cooling coil if more than 20 percent of the quantity of air passing through the cooling coil is used to serve exterior zones.

2. Consideration must be given to the use of recovery systems for the conservation of energy if the amount of energy expended is less than the amount of energy recovered, giving consideration to the energy transfer potential and operating hours of the system for temperature control.

701.320 Exemption for swimming pool used for therapeutic purposes. (NRS 701.220) A swimming pool otherwise subject to the provisions of section 504.5.1 of the Code is exempt from those provisions if it is used for therapeutic purposes and the exemption is approved by the building official.

701.330 Insulation in crawl spaces. (NRS 701.220) In any building governed by section 602 or 603 of the Code:

1. Notwithstanding any provision of section 603.4, 603.5 or 604.3 of the Code, insulation of duct work or piping in unheated crawl spaces is not required if the requirements of subsection 3 of this section are met.

2. Notwithstanding any provision of section 602.2.3 of the Code, insulation of floors of heated spaces over unheated crawl spaces is not required if:

- (a) Duct work and piping in the unheated spaces is uninsulated; and

(b) The requirements of subsection 3 are met.

3. Foundation walls enclosing unheated crawl spaces containing uninsulated duct work or piping must provide a thermal resistance at least equal to that required by section 602.2.5 of the Code. Any insulation used must extend from the bottom of the floor sheathing to the top of the footing. Any vent supplied to the crawl space must be of the closeable type.

701.340 Insulation of slab-on-grade floors. (NRS 701.220) For the purposes of the heating criteria for slab-on-grade floors set forth in section 602.2.4 of the Code, insulation is not required for a heated slab in any location having less than 3,000 Fahrenheit heating degree days.

701.350 Exemptions regarding swimming pools. (NRS 701.220)

1. A swimming pool otherwise subject to the provisions of section 604.1.2.3 of the Code is exempt from those provisions if it is used for therapeutic purposes and the exemption is approved by the building official.

2. Notwithstanding the provisions of section 604.1.2.3, a pool cover is not required on a heated swimming pool.

701.360 Applicability of provisions. (NRS 701.220) NAC 701.360 to 701.390, inclusive, apply to any building:

1. Located in a county whose population is 100,000 or more; and
2. Constructed on or after October 1, 1983. For the purposes of this subsection, a building is constructed on the date a fee is paid for the issuance of a building permit.

701.370 Petition to install system. (NRS 701.220)

1. A person who intends to install a system using electric resistance for heating spaces in a building subject to the provisions of NAC 701.360 to 701.390, inclusive, must first submit a

petition to the building official as provided by NAC 701.220. The petition will be reviewed and disposed of by the Office in the manner provided by that section.

2. A petition submitted pursuant to subsection 1 must include any documents or calculations relied upon by the petitioner to justify the use of the system under the provisions of NRS 701.230.

701.380 Determination that system is supplementary; use of heat pump. (NRS 701.220)

1. For the purposes of paragraph (a) of subsection 1 of NRS 701.230, a system using electric resistance for heating spaces is “supplementary to another means of heating” if it is designed or used to provide not more than 25 percent of the total calculated design hourly heat loss for the building.

2. If the primary means of heating is an electric heat pump, the maximum allowed installed supplemental heat strip capacity must not exceed the minimum capacity specified or recommended by the manufacturer of the heat pump or by the engineer responsible for the design of the application.

3. Nothing in this section shall be construed to prohibit the use of any heat pump having a coefficient of performance at least equal to that required by section 503.4.2 of the Code.

701.390 Consideration of feasible and economical alternatives. (NRS 701.220)

1. A person who intends to install a system using electric resistance for heating spaces, in determining whether any means of heating:

(a) Is a feasible alternative to heating by electric resistance, shall consider any system which uses current technology and is commercially available.

(b) Is an economical alternative to heating by electric resistance, shall consider the capital, operational and fuel costs of each system during its life cycle.

2. The Office will not approve a petition submitted pursuant to NAC 701.370 if the costs referred to in paragraph (b) of subsection 1 are, for the proposed system of heating by electric resistance, greater than or equal to those for any feasible alternative.