2015 NORTHERN NEVADA

ENERGY CODE AMENDMENTS

2012 INTERNATIONAL ENERGY CONSERVATION CODE

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431 Prater Way
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PREFACE

This document comprises the Northern Nevada Amendments to the following codes:

2012 International Energy Conservation Code as published by the International Code Council.

It was created by the organizations listed on the cover page with the support of the Northern Nevada Chapter of the International Code Council as a document to be adopted by reference. These provisions are not code unless adopted and codified by governmental jurisdictions. This document is available to be adopted as code by any jurisdiction without permission or approval from the organizations listed.

To obtain copies of this document, please contact the Northern Nevada Chapter of the International Code Council at PO Box 2481 Reno, NV 89505 or visit nnicc.org.

Note: Deleted language has been ~~stricken through~~.
Added language has been underlined.

TABLE OF CONTENTS

2012 International Energy Conservation Code

2012 International Energy Conservation Code

IECC – Commercial Provisions

Section C102.1.1 Above code programs.

Amend section C102.1.1 to read as follows:

C102.1.1 Above code programs. The *code official* or other authority having jurisdiction shall be permitted to deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Programs seeking approval must submit all requested supporting documentation, including program guidelines, protocols, calculations and program simulation performance software, if applicable, to the NNICC and/or jurisdictions for review for use as acceptable software. Buildings *approved* in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as "mandatory" in Chapter 4 shall be met.

Section C202 Definitions.

Amend section C202 to include the following definitions:

AIR CURTAIN. A device, installed at the building entrance, that generates and discharges a laminar air stream intended to prevent the infiltration of external, unconditioned air into the conditioned spaces, or the loss of interior, conditioned air to the outside.

CASINO. A structure that houses a business with a Non-restricted Gaming License from the Nevada Gaming Commission and State Gaming Control Board. It includes the gaming area(s) as well as the adjacent area(s) within the building envelope.

CASINO GAMING AREA. The space within a *casino* wherein gaming is conducted. The gaming area shall also include accessory uses within the same room(s) as, or substantially open to the gaming floor(s). Such areas shall include, but not be limited to lobbies, balconies, public circulation areas, assembly areas, restaurants, bars, lounges, food courts, retail spaces, mezzanines, convention pre-function areas, cashiers' cages, players' clubs, customer support, conservatories and promenades that share the same atmosphere, spillover lighting and theme lighting with the adjacent gaming floor area.

For accessory areas situated on the perimeter of the gaming floor to be considered substantially open, the walls(s) or partitions(s) separating an accessory space from the gaming area must be a minimum of 50% open, as measured from the interior side of the accessory space, with no doors, windows and other obstructions, other than roll up security grills, installed within the opening.

LUMINAIRE. A complete lighting unit consisting of a light source, such as a lamp or lamps, together with parts designed to position the light source and connect it to the power supply. It may also include parts to protect the light source, ballast, or distribute the light. A lampholder itself is not a luminaire.

OCCUPANT SENSOR (LIGHTING). A device that detects the presence or absence of people within an area and causes lighting to be regulated accordingly. The term "occupant sensor" applies to a device that controls indoor lighting systems. When the device is used to control outdoor lighting systems, it is defined as a motion sensor. This definition also applies to "occupancy sensor" and "occupant-sensing device".

Section C402.4. Air leakage (Mandatory).

Amend Section C402.4 to read as follows:

C402.4. Air leakage (Mandatory). The thermal envelope of buildings shall comply with Sections C402.4.1 through C402.4.9~~8~~.

Section C402.4.7 Vestibules.

Add the following exception to C402.4.7:

7. Doors that have an *air curtain* with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.

Section C402.4.9 Air curtains.

Add the following section to C402.4:

C402.4.9 Air curtains. Where doorway, passageway or pass-thru openings in the building thermal envelope are intended to be normally opened to the exterior environment, an approved air curtain tested in accordance with ANSI/AMCA 220 shall be used to separate conditioned air from the exterior.

Section C408.2 Mechanical systems commissioning and completion requirements.

Amend section C408.2 to read as follows:

C408.2 Mechanical systems commissioning and completion requirements. Prior to

passing the final mechanical inspection, the registered design professional shall provide evidence of mechanical systems commissioning and completion in accordance the provisions of this section.

A properly licensed contractor that is the designer and has prepared the mechanical or plumbing drawing for the project may perform the commissioning as required in C408.2.1 and C408.2.4 of this code. The contractor shall be required to carry insurance in the form of Professional Liability or Error and Omissions Insurance.

Construction document notes shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Copies of all documentation shall be given to the owner and made available to the code official upon request in accordance with sections C408.2.4 and C408.2.5.

Exception: The following systems are exempt from the commissioning requirements:

1. Mechanical systems in buildings where the total mechanical equipment capacity is less than 480,000 Btu/h (140 690 W) cooling capacity and 600,000 Btu/h (175 860 W) heating capacity.
2. Systems included in section C403.3 that serve dwelling units and sleeping units in hotels, motels, boarding houses or similar units.

Section C408.2.5 Documentation requirements.

Amend section C408.2.5 to read as follows:

C408.2.5 Documentation requirements. The construction documents shall specify that the documents described in this section be provided to the building owner ~~within 90 days of the date of~~ and the Building Official prior to receipt of the Certificate of Occupancy.

Chapter 5 Referenced Standards

Add the following reference standards to Chapter 5:

IAPMO International Association of Plumbing & Mechanical Officials
5001 E. Philadelphia Street
Ontario, CA 91761

Standard reference number	Title	Reference in code section number
UMC-2012	Uniform Mechanical Code®	C201.3, C303.2, C402.2.10, C403.2.2, C403.5
UPC-2012	Uniform Plumbing Code®	C201.3

IECC – Residential Provisions

Section R102.1.1 Above code programs.

Amend section R102.1.1 to read as follows:

R102.1.1 Above code programs. The *code official* or other authority having jurisdiction shall be permitted to deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Programs seeking approval must submit all requested supporting documentation, including program guidelines, protocols, calculations and program simulation performance software, if applicable, to the NNICC and/or jurisdictions for review for use as acceptable software. Buildings *approved* in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as "mandatory" in Chapter 4 shall be met.

Section R401.3 Certificate.

Amend section R401.3 to read as follows:

R401.3 Certificate. (Mandatory) ~~A permanent~~ The builder shall provide to the owner a certificate ~~shall be completed and posted on or near the electrical distribution panel by the builder or registered design professional~~ approved by the jurisdiction~~. The certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels.~~ The certificate shall list the predominant *R*-values of insulation installed in or on ceiling/roof, walls, foundation (slab, *basement wall*, crawlspace wall and/or floor) and ducts outside conditioned spaces; *U*-factors for fenestration and solar heat gain coeffivient (SHGC) of fenestration, and the results from any required duct system and building envelope air leakage testing done on the building. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the types and efficiencies of heating, cooling and service water heating equipment. ~~Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be listed for gas-fired unvented room heaters, electric furnaces or electric baseboard heaters.~~

Section R402.4.1.2 Testing.

Amend section R402.4.1.2 to read as follows:

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour~~ in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8~~. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascal's). Where required by the *code official,* testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official.* Testing

shall be performed at any time after creation of all penetrations of the *building thermal envelope.*

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weather-stripping or other infiltration control measures;
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of test, shall be open;
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
5. Heating and cooling systems, if installed at the time of test, shall be turned off; and supply and return registers, if installed at the time of test, shall be fully open.

Section R403.2.2 Sealing (Mandatory).

Amend section R403.2.2 to read as follows:

R403.2.2 Sealing (Mandatory). Ducts air handlers and filter boxes shall be sealed. Joints and seams shall comply with either the International Mechanical Code or International Residential Code, as applicable.

Exceptions:

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. Continuously welded and locking type longitudinal joints and seams in ducts operating at static pressures less the 2 inches of water column (500 pa) pressure classification shall not require additional closure systems.

Duct tightness shall be verified by either of the following:

1. Postconstruction test: Total leakage shall be less than or equal to ~~4 cfm (113.3 L/min)~~ 6 cfm (169.9 L/Min) or Total leakage to outside shall be less than or equal to 4 cfm (113.3 L/Min) per 100 square feet (9.29M2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.
2. Rough-in test: Total leakage shall be less than or equal to ~~4 cfm (113.3 L/min)~~ 6 cfm (169.9 L/Min) per 100 square feet (9.29M2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the

manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to ~~3 cfm at (85 L/min)~~ 5 cfm (141.6 L/Min) per 100 square feet (9.29 m2) of the conditioned floor area.

Exception: The total leakage test is not required for ducts and air handlers located entirely within the building thermal envelope.

Section R403.5 Mechanical ventilation (Mandatory).

Amend section R403.5 to read as follows:

Section R403.5 Mechanical ventilation (Mandatory). The building (dwelling) shall be provided with ventilation that meets one of the following requirements: ~~of *International Residential Code* or *International Mechanical Code*, as applicable, or with other~~

1. Mechanical ventilation rate shall provide outdoor air as calculated using the following formula; [0.01 x CFA + 7.5 x (N_{br} + 1)] where: CFA = conditioned floor area, N_{br} = number of bedrooms;
2. Minimum outdoor air ventilation rate may be achieved by using 2012 IRC table M1507.3.3(1); or
3. Other approved means of ventilation using ASHRAE 62.2-2013.

The mechanical system shall have a readily accessible on-off control switch allowing control of the mechanical system. Utilization of outside air temperature sensors, carbon dioxide sensors, humidity sensors, motion sensors or similar interment controls to activate the outside air mechanical equipment is permitted. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not working.

Section R406 Energy Rating Index Compliance.

Add following section R406 to Chapter 4:

SECTION R406 ENERGY RATING INDEX COMPLIANCE ALTERNATIVE

R406.1 Scope. This section establishes criteria for compliance using an Energy Rating Index (ERI) analysis.

R406.2 Mandatory requirements. Compliance with this section requires that the mandatory provisions identified in Sections R401.2 and R403.5.3 be met. The building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table 402.1.2 or 402.1.4 of the 2009 International Energy Conservation Code.

Exception: Supply and return ducts not completely inside the building thermal envelope

shall be insulated to a minimum of R-6.

R406.3 Energy Rating Index. The Energy Rating Index (ERI) shall be a numerical integer value that is based on a linear scale constructed such that the ERI reference design has an Index value of 100 and a residential building that uses no net purchased energy has an Index value of 0. Each integer value on the scale shall represent a 1-percent change in the total energy use of the rated design relative to the total energy use of the ERI reference design. The ERI shall consider all energy used in the residential building.

R406.3.1 ERI reference design. The ERI reference design shall be configured such that it meets the minimum requirements of the 2006 International Energy Conservation Code prescriptive requirements.

The proposed residential building shall be shown to have an annual total normalized modified load less than or equal to the annual total loads of the ERI reference design.

R406.4 ERI-based compliance. Compliance based on an ERI analysis requires that the rated design be shown to have an ERI less than or equal to 63.

R406.5 Verification by approved agency. Verification of compliance with Section R406 shall be completed by an approved third party.

R406.6 Documentation. Documentation of the software used to determine the ERI and the parameters for the residential building shall be in accordance with Sections R406.6.1 through R406.6.3.

R406.6.1 Compliance software tools. Documentation verifying that the methods and accuracy of the compliance software tools conform to the provisions of this section shall be provided to the code official.

R406.6.2 Compliance report. Compliance software tools shall generate a report that documents that the ERI of the rated design complies with Sections R406.3 and R406.4. The compliance documentation shall include the following information:

1. Address or other identification of the residential building.
2. An inspection checklist documenting the building component characteristics of the rated design. The inspection checklist shall show results for both the ERI reference design and the rated design, and shall document all inputs entered by the user necessary to reproduce the results.
3. Name of individual completing the compliance report.
4. Name and version of the compliance software tool.

Exception: Multiple orientations. Where an otherwise identical building model is offered in multiple orientations, compliance for any orientation shall be permitted by documenting that the building meets the performance requirements in each of the four (north, east, south and west) cardinal orientations.

R406.6.3 Additional documentation. The code official shall be permitted to require the following documents:

1. Documentation of the building component characteristics of the ERI reference design.
2. A certification signed by the builder providing the building component characteristics of the rated design.
3. Documentation of the actual values used in the software calculations for the rated design.

R406.7 Calculation software tools. Calculation software, where used, shall be in accordance with Sections R406.7.1 through R406.7.3.

R406.7.1 Minimum capabilities. Calculation procedures used to comply with this section shall be software tools capable of calculating the ERI as described in Section R406.3, and shall include the following capabilities:

1. Computer generation of the ERI reference design using only the input for the rated design. The calculation procedure shall not allow the user to directly modify the building component characteristics of the ERI reference design.
2. Calculation of whole building, as a single zone, sizing for the heating and cooling equipment in the ERI reference design residence in accordance with Section R403.7.
3. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air-conditioning equipment based on climate and equipment sizing.
4. Printed code official inspection checklist listing each of the rated design component characteristics determined by the analysis to provide compliance, along with their respective performance ratings.

R406.7.2 Specific approval. Performance analysis tools meeting the applicable sections of Section R406 shall be approved. Tools are permitted to be approved based on meeting a specified threshold for a jurisdiction. The code official shall approve tools for a specified application or limited scope.

R406.7.3 Input values. When calculations require input values not specified by Sections R402, R403, R404 and R405, those input values shall be taken from an approved source.

Chapter 5 Referenced Standards

Add the following reference standards to Chapter 5:

IAPMO	International Association of Plumbing & Mechanical Officials 5001 E. Philadelphia Street Ontario, CA 91761	
Standard reference number	Title	Reference in code section number
UMC-2012	Uniform Mechanical Code®	R201.3, R303.2, R402.2.10, R403.2.2, R403.5
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