



STAFF REPORT

Report To: Board of Supervisors

Meeting Date: January 21, 2016

Staff Contact: Shawn Keating

Agenda Title: For Possible Action: To introduce, on first reading, Bill No. ____, an ordinance amending the Carson City Municipal Code Title 15, Buildings and Construction, Chapter 15.05 Building Code, Section 15.05.020, adoption and administration of building codes, by adopting the 2012 International Energy Conservation Code and the 2015 Northern Nevada Energy Code Amendments. (Shawn Keating, skeating@carson.org)

Staff Summary: The proposed language would modify the text of the Carson City Municipal Code by replacing the current Code & Amendments to the current adopted codes with 2012 International Energy Conservation Code and the 2015 Northern Nevada Energy Code Amendments. This will bring Carson City into compliance with Nevada Revised Statutes (NRS) 701.220. These changes will go into effect on July 1, 2016.

Agenda Action: Ordinance - First Reading

Time Requested: 20 minutes

Proposed Motion

I move to introduce, on first reading, Bill No. ____, an ordinance amending the Carson City Municipal Code Title 15, Buildings and Construction, Chapter 15.05 Building Code, Section 15.05.020, adoption and administration of building codes, by adopting 2012 International Energy Conservation Code and 2015 Northern Nevada Code Amendments.

Board's Strategic Goal

Safety

Previous Action

N/A

Background/Issues & Analysis

In July 2015, Nevada adopted the 2012 International Energy Conservation Code per NRS 701.220. The Northern Nevada Amendments would allow alternatives that are tailored to the region with the day-to-day working of the codes and would provide for consistency of building code requirements throughout the region.

Applicable Statute, Code, Policy, Rule or Regulation

CCMC Title 15.

Financial Information

Is there a fiscal impact? Yes No

If yes, account name/number:

Is it currently budgeted? Yes No

Explanation of Fiscal Impact:

Alternatives

If not adopted, the 2012 International Energy Conservation Code will be enforced as written.

Board Action Taken:

Motion: _____

1) _____

2) _____

Aye/Nay

(Vote Recorded By)

ORDINANCE NO. _____

BILL NO. _____

AN ORDINANCE AMENDING TITLE 15, BUILDINGS AND CONSTRUCTION, CHAPTER 15.05, BUILDING CODE, SECTION 15.05.020, ADOPTION AND ADMINISTRATION OF BUILDING AND CONSTRUCTION CODES, BY ADOPTING THE 2012 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE AND THE 2015 NORTHERN NEVADA ENERGY CODE AMENDMENTS.

THE BOARD OF SUPERVISORS OF CARSON CITY DO ORDAIN:

SECTION I:

That Section 15.05.020 of the Carson City Municipal Code is hereby amended as follows:

15.05.020 - Adoption and administration of Building and Construction Codes.

100	Adopted Codes
101	General
102	Applicability
103	Department of Building Safety
104	Duties and Powers of Building Official
105	Permits
106	Floor and Roof Design Loads
107	Submittal Documents
108	Temporary Structures and Uses
109	Fees
110	Inspections

111	Certificate of Occupancy
112	Service Utilities
113	Board of Appeals
114	Violations
115	Stop Work Order
116	Unsafe Structures and Equipment
117	Workmanship and Fabrication
118	Moving and Demolition

Carson City hereby adopts the following codes and appendices and the amended administrative provision from the International Building Code which are applicable to all of the adopted codes as follows:

SECTION 100 - ADOPTED CODES

100.10 Adopted codes. The following nationally recognized codes are hereby adopted by Carson City, together with the supplements, listed changes, additions and deletions as noted below:

1. 2012 Edition, International Building Code ("IBC"), chapters 2 through 34 and Appendices C, H, I and J as amended.
2. 2012 Edition, Uniform Plumbing Code ("UPC"), chapters 2 through 17 and IAPMO Installation Standards and Appendices A, B, C, D, E, G, H, I, J, K and L.
3. 2012 Edition, International Residential Code ("IRC"), chapters 2 through 43 and Appendices A, B, C, G, H, J and K as amended.
4. 2012 Edition, Uniform Mechanical Code ("UMC"), chapters 2 through 17 and Appendices B, C and F as amended.
5. 2012 Edition, International Mechanical Code ("IMC"), chapters 2 through 15 and Appendix A.
6. 2011 Edition, National Electrical Code ("NEC").
7. ~~2009~~ 2012 Edition, International Energy Conservation Code, ("IECC").
8. 2012 International Property Maintenance Code, ("IPMC"), chapters 2 through 7.
9. 2012 International Existing Building Code, ("IEBC"), chapters 1 through 15.
10. 2012 International Fuel Gas Code, ("IFGC"), chapters 2 through 7 and Appendices A, B and C.
11. 2012 International Swimming Pool and Spa Code, ("ISPSC"), chapters 2 through 11.
12. 2012 Northern Nevada Amendments.
13. ~~2014~~ 2015 Northern Nevada Energy Code Amendments.

100.20 Definition of words and terms. As used in the adopted codes and sections 100.010 to 116.10, inclusive, of the Carson City Code.

1. "Jurisdiction" and other similar terms shall be construed to mean Carson City.

Part 1—Scope and Application

SECTION 110 - INSPECTIONS

110.1 General. Construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the building official nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection. The address of the building shall be posted by the contractor in the location designated by the building official.

110.2 Preliminary inspection. Before issuing a permit, the building official is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

110.3 Required inspections. The building official, upon notification, shall make the inspections set forth in Sections 109.3.1 through 109.3.12.

110.3.1 Footing and foundation inspection. Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94, the concrete need not be on the job. Approved property corners shall be in place at time of foundation inspection unless otherwise approved by the building official.

110.3.2 Concrete slab and under-floor inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

110.3.3 Lowest floor elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in Section 1612.5 shall be submitted to the building official.

110.3.4 Exterior shear wall inspection. To be made prior to the application of exterior siding or cover.

110.3.5 Roof Nail Inspection. Roof nail inspection to be made after the roof sheathing is fastened to the roof structural framing components and before the underlay and roof covering is installed. Roof nailing inspections will be done at the discretion of the building official based on diaphragm design and structural straps.

110.3.6 Frame inspection. Framing inspections shall be made after the roof deck or sheathing, all framing, fire blocking and bracing are in place and pipes, chimneys and vents to be concealed are complete and the rough electrical, plumbing, heating wires, pipes and ducts are approved. The roof and walls shall be made weather tight prior to frame inspection.

110.3.7 Insulation inspection. Insulation inspection to be made after rough frame, plumbing, mechanical and electrical inspections have been approved.

110.3.8 Lath and gypsum board inspection. Lath and gypsum board inspections shall be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or gypsum board joints and fasteners are taped and finished.

110.3.9 Fire-resistant assemblies and penetrations. Fire-resistant assemblies and protection of joints and penetrations in fire-resistance-rated assemblies shall not be concealed from view until inspected and approved.

110.3.10 Energy efficiency inspections. Inspections shall be made to determine compliance with **Chapter 43 the current adopted Energy Conservation Code** and shall include, but not be limited to, inspections for: envelope insulation R and U values, fenestration U-value, duct system R-value, and HVAC and water-heating equipment efficiency.

110.3.11 Other inspections. In addition to the inspections specified above, the building official is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced by the building division.

110.3.12 Special inspections. For special inspections, see Section 17.

110.3.13 Final inspection. The final inspection shall be made after all work required by the building permit is completed.

110.4 Inspection agencies. The building official is authorized to accept reports of approved inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

110.5 Inspection requests. It shall be the duty of the holder of the building permit or their duly authorized agent to notify the building official when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

110.6 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the building official. The building official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the building official.

110.7 Reinspections. A reinspection fee may be assessed for each inspection or reinspection when such portion of work for which inspection is called is not complete or when corrections called for are not made. This section is not to be interpreted as requiring reinspection fees for the first time a job is rejected for failure to comply with the requirements of the technical codes, but as controlling the practice of calling for inspections before the job is ready for such inspection or reinspection. Reinspection fees may be assessed when the inspection record card is not posted or otherwise available on the work site, the approved plans are not readily available to the inspector, for failure to provide access on the date for which inspection is requested, or for deviating from plans requiring the approval of the building official.

To obtain a reinspection, the applicant shall pay the reinspection fee as set forth in the fee schedules in Section 108.2. In instances where reinspection fees have been assessed, additional inspection of the work will not be performed until the required fees have been paid.

SECTION II:

The 2015 Northern Nevada Energy Code Amendments, attached as Exhibit A, are hereby included in this ordinance

PROPOSED this _____ day of _____ 2016.

PROPOSED BY Supervisor _____

PASSED on the _____ day of _____ 2016.

VOTE: AYES: _____

NAYS: _____

ABSENT: _____

ROBERT L. CROWELL, Mayor

ATTEST:

SUSAN MERRIWETHER, Clerk-Recorder

This ordinance shall be in force and effect from and after the _____ of _____, 2016

BRIAN SANDOVAL
Governor

STATE OF NEVADA

Angie Dykema
Director



755 North Roop Street, Suite 202
Carson City, NV 89701
Office: (775) 687-1850
Fax: (775) 687-1869

NEVADA GOVERNOR'S OFFICE OF ENERGY

December 3, 2015

Mr. Mark Miranda
City of Sparks, Building & Safety
431 Prater Way
Sparks, NV 89431

Dear Mr. Miranda;

Please accept this letter as the Governor's Office of Energy (GOE) acknowledgement of amendments to the 2012 International Energy Conservation Code (IECC) developed by the Northern Nevada Chapter of the International Code Council. GOE has determined that these proposed amendments either meet or exceed the 2012 IECC and therefore are found to be acceptable.

As you are aware, GOE adopted the 2012 IECC as the statewide minimum standard for the conservation of energy and energy efficiency in buildings effective July 1, 2015. However, the governing body of a local government that is authorized by law to adopt and enforce a building code may make amendments to the Code, which will not materially lessen the effective energy savings requirements of the Code and are deemed necessary to support Code compliance and enforcement, pursuant to NRS 701.220.

The proposed code amendments were reviewed by appointed energy code councils, local building officials, building inspectors, energy raters, engineers and builders. The results of the review process are incorporated into the proposed code amendments.

GOE staff participated in the Northern Nevada ICC 2012 IECC Committee meetings to increase understanding of the code amendments being considered. GOE reviewed the revisions and solicited comments regarding the adoption of the energy code amendments and based on the comments received, it was determined that it will not reduce the effective energy savings requirements and also support effective compliance and enforcement of the Code.

Thank you for the opportunity to participate in this important process. If you have any questions, please contact Deana Cotroneo, Management Analyst at (775) 687-1850, extension 7320.

Best regards,

A handwritten signature in black ink, appearing to read "Angie Dykema".

Angie Dykema
Director

Enclosure NRS 701.220

2015 NORTHERN NEVADA ENERGY CODE AMENDMENTS

2012 INTERNATIONAL ENERGY CONSERVATION CODE

Published by the Northern Nevada Chapter of the International Code Council:

November 2, 2015

ABC
240 S Rock Blvd.
Suite 121
Reno, NV 89502

AGC
5400 Mill Street
Reno, NV 89502

BANN
5484 Corporate Dr.
Suite 100
Reno, NV 89511

Carson City
108 E Proctor Street
Carson City, NV 89701

City of Fernley
595 Silver Lace Blvd.
Fernley, NV 89408

City of Reno
1 E First Street
Reno, NV 89501

City of Sparks
431 Prater Way
Sparks, NV 89431

Lyon County
27 S Main Street
Yerington, NV 89447

Nevada Builders Alliance
806 Randell Dr.
Carson City, NV 89701

Northern Nevada ASHRAE
P.O. Box 21195
Reno, NV 89515

Storey County
110 Toll Road
Virginia City, NV 89440

Washoe County
1001 E. Ninth Street
Reno, NV 89512

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.

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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 C402.4.98.

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 coefficient (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: $[0.01 \times \text{CFA} + 7.5 \times (\text{N}_{\text{br}} + 1)]$ 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
UPC-2012	Uniform Plumbing Code®	R201.3