



**SOUTHERN NEVADA
AMENDMENTS
TO THE
2021 INTERNATIONAL
ENERGY CONSERVATION CODE**

PREFACE

This document was developed by the Southern Nevada Building Officials' International Energy Conservation Code Committee and presents recommended amendments to the *2021 International Energy Conservation Code* (IECC) as published by the International Code Council (ICC).

Participation in the 2021 International Energy Conservation Code Committee was open to all interested parties. However, voting on amendment proposals was limited to one vote each for the seven Southern Nevada municipalities (Clark County, Henderson, Las Vegas, North Las Vegas, Boulder City, Pahrump, and Mesquite), the Clark County School District, and three industry representatives. All International Energy Conservation Code Committee proceedings were conducted in accordance with Robert's Rules of Order.

The recommended amendments contained herein are not code unless adopted and codified by governmental jurisdictions. These amendments are not intended to prevent the use of any material or method of construction not specifically prescribed herein, provided any alternates have been approved and their use authorized by the Building Official. This document may be copied and used in whole or in part without permission or approval from the organizations listed on the cover page.

ADOPTION BY CLARK COUNTY

Adopted by action of the Clark County Commission on April 18, 2023, for correlation with the 2021 International Energy Conservation Code. This document and the 2021 International Energy Conservation Code shall be effective on October 16, 2023.

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Commercial Energy Code Provisions

Section C108.1 Referenced Codes and Standards

Revise Section C108.1, as follows:

C109.1 Referenced codes and standards. The codes and standards referenced in this code shall be those listed in Chapter 6, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections C108.1.1 and C108.1.2.

Any references to the International Mechanical Code (IMC) shall be replaced by the 2018 Uniform Mechanical Code (UMC) and the 2018 UMC Amendments. For specified sections and tables in the IMC, the corresponding sections or tables in the UMC will apply. If none are available, the UMC shall apply.

Any references to the International Plumbing Code (IPC) shall be replaced by the 2018 Uniform Plumbing Code (UPC) and the 2018 UPC Amendments. For specified sections and tables in the IPC, the corresponding sections or tables in the UPC shall apply. If none are available, the UPC shall apply.

Section C202 General Definitions

Amend Section C202, as follows:

LUMINAIRE. A complete lighting unit consisting of a light source such as a lamp or lamps, together with the parts designed to position the light source and connect it to the power supply. It may also include parts to protect the light source or the ballast or to distribute the light. The individual components of a luminaire (i.e., lamp, ballast, driver, reflector, etc.) do not constitute a luminaire.

Section C301.1 General

Amend Section C301.1, as follows:

C301.1 General. *Climate zones* from Figure C301.1 or Table C301.1 shall be used for determining the applicable requirements from Chapter 4. Locations not indicated in Table C301.1 shall be assigned a *climate zone* in accordance with Section C301.3.

Exception: Areas within Clark County above altitudes of 4,000 feet shall be considered in Climate Zone 5B. Areas within Nye County below altitudes of 4,000 feet shall be considered in Climate Zone 3B.

Section C402.5.2 Dwelling and Sleeping Unit Enclosures Testing

Add Exceptions to Section C402.5.2, as follows:

C402.5.2 Dwelling and sleeping unit enclosure testing. The *building thermal envelope* shall be tested in accordance with ASTM E 779, ANSI/RESNET/ICC 380, ASTM E1827 or an equivalent method approved by the *code official*. The measured air leakage shall not exceed 0.30 cfm/ft² (1.5 L/s x m²) of the testing unit enclosure area at a pressure differential of 0.2 inch water gauge (50 Pa). Where multiple dwelling units or sleeping units or other occupiable conditioned spaces are contained within one *building thermal envelope*, each unit shall be considered an individual testing unit, and the building air leakage shall be the weighted average of all testing unit results, weighted by each testing unit's enclosure area. Units shall be tested separately with an unguarded blower door test as follows:

1. Where buildings have fewer than eight testing units, each testing unit shall be tested.
2. For buildings with eight or more testing units, the greater of seven units or 20 percent of the testing units in the building shall be tested, including a top floor unit, a ground floor unit and a unit with the largest testing unit enclosure area. For each tested unit that exceeds the maximum air leakage rate, an additional two units shall be tested, including a mixture of testing unit types and locations.

Exceptions:

1. A building or dwelling unit tested in accordance with the requirements of this section that is verified as having an air leakage rate not exceeding four air changes per hour when nonsprinklered, or 4.5 air changes per hour when sprinklered or attached or an equivalent cfm/ft² rate as demonstrated by the design professional or *approved agency*.
2. Building using an *approved* above code program, testing shall be allowed to conform to the program requirements when the following documentation is submitted to the jurisdiction by the developer:
 1. *Approved* software per Section C407.
 2. A copy of the contractual agreement between the developer and an *approved agency* to perform all mandatory field testing, sampling protocols and program verifications.
 3. Additional documentation as deemed necessary by the jurisdiction.

Section C402.5.3 Building Thermal Envelope Testing

Add new Exceptions 2 and 3 to Section C402.5.3, as follows:

C402.5.3 Building thermal envelope testing. The *building thermal envelope* shall be tested in accordance with ASTM E779, ANSI/RESNET/ICC 380, ASTM E3158 or ASTM E1827 or an equivalent method approved by the *code official*. The measured air leakage shall not exceed 0.40 cfm/ft² (2.0 L/s x m²) of the *building thermal envelope* area at a pressure differential of 0.3 inch water gauge (75 Pa). Alternatively, portions of the building shall be tested and the measured air leakages shall be area weighted by the surface areas of the building envelope in each portion. The weighted average test results shall not exceed the

whole building leakage limit. In the alternative approach, the following portions of the building shall be tested:

1. The entire envelope area of all stories that have any spaces directly under a roof.
2. The entire envelope area of all stories that have a building entrance, exposed floor, or loading dock, or are below grade.
3. Representative above-grade sections of the building totaling at least 25 percent of the wall area enclosing the remaining conditioned space.

Exceptions:

1. Where the measured air leakage rate exceeds 0.40 cfm/ft² (2.0 L/s x m²) but does not exceed 0.60 cfm/ft² (3.0 L/s x m²), a diagnostic evaluation using smoke tracer or infrared imaging shall be conducted while the building is pressurized along with a visual inspection of the air barrier. Any leaks noted shall be sealed where such sealing can be made without destruction of existing building components. An additional report identifying the corrective actions taken to seal leaks shall be submitted to the code official and the building owner, and shall be deemed to comply with the requirements of this section.
2. A building or dwelling unit tested in accordance with the requirements of this section that is verified as having an air leakage rate not exceeding four air changes per hour when nonsprinklered, or 4.5 air changes per hour when sprinklered or attached, or an equivalent cfm/ft² rate as demonstrated by the design professional or *approved agency*.
3. Building using an *approved* above code program, testing shall be allowed to conform to the program requirements when the following documentation is submitted to the jurisdiction by the developer:
 1. *Approved* software per Section C407.
 2. A copy of the contractual agreement between the developer and an *approved agency* to perform all mandatory field testing, sampling protocols and program verifications.
 3. Additional documentation as deemed necessary by the jurisdiction.

Section C402.5.11 Operable Openings Interlocking

Add new Exceptions 4 and 5 to Section C402.5.11, as follows:

C402.5.11 Operable openings interlocking. Where occupancies utilize operable openings to the outdoors that are larger than 40 square feet (3.7 m²) in area, such openings shall be interlocked with the heating and cooling system so as to raise the cooling setpoint to 90°F (32°C) and lower the heating setpoint to 55°F (13°C) whenever the operable opening is open. The change in heating and cooling setpoints shall occur within 10 minutes of opening the operable opening.

Exceptions:

1. Separately zoned areas associated with the preparation of food that contain appliances that contribute to the HVAC loads of a restaurant or similar type of occupancy.
2. Warehouses that utilize overhead doors for the function of the occupancy, where approved by the code official.
3. The first entrance doors where located in the exterior wall and are part of a vestibule system.
4. Arenas, Nightclubs, Day Clubs, Exhibition Halls, Banquet Halls, other Assembly Group A-1, A-2, A-3, and A-4 venues used for Sports or Entertainment purposes, and similar uses as approved by the building official.
5. 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 the 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 C403.1 General

Add an Exception to Section C403.1, as follows:

C403.1 General. Mechanical systems and equipment serving the building heating, cooling, ventilating or refrigerating needs shall comply with this section.

Exceptions:

1. Data center systems are exempt from the requirements of Section C403.4 and C403.5.
2. Equipment dedicated to the function of smoke management and smoke removal.

Section C405.2.5 Specific Application Controls

Add Exception No. 3 to Item 2 in Section C405.2.5, as follows:

C405.2.5 Specific application controls. Specific application controls shall be provided for the following:

1. *Unchanged.*
2. *Sleeping units* shall have control devices or systems that are configured to automatically switch off all permanently installed luminaires and switched receptacles within 20 minutes after all occupants have left the unit.

Exceptions:

1. Lighting and switched receptacles controlled by card key controls.
2. Spaces where patient care is directly provided.
3. Bathroom lighting within *sleeping units*.
3. *Unchanged.*
4. *Unchanged.*
5. *Unchanged.*

Section C405.2.8 Parking Garage Lighting Control

Add Exception 4 to Section C405.2.8, as follows:

C405.2.8 Parking garage lighting control. Parking garage lighting shall be controlled by an *occupant sensor* complying with Section C405.2.1.1 or a *time-switch control* complying with Section C405.2.2.1. Additional lighting controls shall be provided as follows:

1. Lighting power of each luminaire shall be automatically reduced by not less than 30 percent when there is no activity detected within a lighting zone for 20 minutes. Lighting zones for this requirement shall be not larger than 3,600 square feet (334.5 m²).

Exception: Lighting zones provided with less than 1.5 footcandles of illumination on the floor at the darkest point with all lights on are not required to have automatic light-reduction controls.
2. Where lighting for eye adaptation is provided at covered vehicle entrances and exits from buildings and parking structures, such lighting shall be separately controlled by a device that automatically reduces lighting power by at least 50 percent from sunset to sunrise.
3. The power to luminaires within 20 feet (6096 mm) of perimeter wall openings shall automatically reduce in response to daylight by at least 50 percent.

Exceptions:

1. Where the opening to-wall ratio is less than 40 percent as viewed from the interior and encompassing the vertical distance from the driving surface to the lowest structural element.
2. Where the distance from the opening to any exterior daylight blocking obstruction is less than one-half the height from the bottom of the opening or fenestration to the top of the obstruction.
3. Where openings are obstructed by permanent screens or architectural elements restricting daylight entering the interior space.
4. Parking garages constructed to requirements of 2021 IBC Chapter 10 or 2021 IFC.

Section C405.3.1 Total Connected Interior Lighting Power

Add new item #21 to the second paragraph of Section C405.3.1, as follows:

21. Theme/entertainment elements in theme/amusement parks and casinos.

Section C405.5.1 Total Connected Exterior Building Exterior Lighting

Amend Application 11 in the Exception to Section C405.5.1, as follows:

C405.5.1 Total connected exterior building exterior lighting power. The total exterior connected lighting power shall be the total maximum rated wattage of all lighting that is powered through the energy service for the building.

Exception: Lighting used for the following applications shall not be included.

1. through 10. *(Remain unchanged)*
11. Theme/entertainment elements in theme/amusement parks and casinos.
12. through 14. *(Remain unchanged)*

Section C405.6 Dwelling Electrical Meter

Add an Exception to Section C405.6, as follows:

C405.6 Dwelling electrical meter. Each dwelling unit located in a Group R-2 building shall receive a separate electrical meter.

Exception: Vacation timeshares, as approved by the Building Official.

Chapter 6 [CE] Referenced Standards

Revise the referenced standards in Chapter 6 [CE] to include the IAPMO codes and updates to standards used in Southern Nevada, as follows:

IAPMO	International Association of Plumbing and Mechanical Officials 5001 E. Philadelphia Street Ontario, CA 91761
UMC-18: Uniform Mechanical Code® C403.2.2, C403.6, C403.6.6, C403.7.1, C403.7.2, C403.7.4.2, C403.7.5, C403.7.7, C403.12.1, C403.12.2.1, C403.12.2.2, C406.6, C501.2	
UPC-18: Uniform Plumbing Code® C201.3, C501.2	

Revise the referenced edition of the IBC and IFC in the ICC standards, as follows:

ICC	International Code Council 500 New Jersey Avenue NW 6 th Floor Washington, DC 20001
IBC-18: International Building Code® C201.3, C303.2, C402.5.6, C501.2	
IFC-18: International Fire Code® C201.3, C501.2	
<i>(All other referenced ICC standards remain unchanged.)</i>	

Revise the referenced edition of NFPA 70 in the NFPA standards, as follows:

NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471
NFPA 70-17: National Electrical Code C501.2	

Residential Energy Code Provisions

Section R108.1 Referenced Codes and Standards

Revise Section R108.1, as follows:

R108.1 Referenced codes and standards. The codes and standards referenced in this code shall be those indicated in Chapter 6, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R108.1.1 and R108.1.2.

Any references to the International Mechanical Code (IMC) shall be replaced by the 2018 Uniform Mechanical Code (UMC) and the 2018 UMC Amendments. For specified sections and tables in the IMC, the corresponding sections or tables in the UMC will apply. If none are available, the UMC shall apply.

Any references to the International Plumbing Code (IPC) shall be replaced by the 2018 Uniform Plumbing Code (UPC) and the 2018 UPC Amendments. For specified sections and tables in the IPC, the corresponding sections or tables in the UPC shall apply. If none are available, the UPC shall apply.

Section R301.1 General.

Add Exception to Section R301.1, as follows:

R301.1 General. *Climate zones* from Figure R301.1 or Table R301.1 shall be used for determining the applicable requirements from Chapter 4. Locations not indicated in Table R301.1 shall be assigned a *climate zone* in accordance with Section R301.3.

Exception: Areas within Clark County above altitudes of 4,000 feet shall be considered in Climate Zone 5B. Areas within Nye County below altitudes of 4,000 feet shall be considered in Climate Zone 3B.

Section R402.4.1.2 Testing.

Revise Section R402.4.1.2 and add two Exceptions, as follows:

R402.4.1.2 Testing. The *building or dwelling unit* shall be tested for air leakage. The maximum air leakage rate for any *building or dwelling unit* under any compliance path shall not exceed 5.0 air changes per hour or 0.28 cubic feet per minute (CFM) per square foot [0.0079 m³/(s x m²)] of dwelling unit enclosure area. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). 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* have been sealed.

Exceptions:

1. For heated, attached private garages and heated, detached private garages accessory to one-and two-family dwellings and townhouses not more than three stories above grade plane in height, building envelope tightness and insulation installation shall be considered acceptable where the items in Table R402.4.1.1, applicable to the method of construction, are field verified. Where required by the code official, an approved third party independent from the installer shall inspect both air barrier and insulation installation criteria. Heated, attached private garage space and heated, detached private garage space shall be thermally isolated from all other habitable, conditioned spaces in accordance with Sections R402.2.12 and R402.3.5, as applicable.

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, where installed at the time of the test, shall be open.
4. Exterior or interior terminations for continuous ventilation systems shall be sealed.
5. Heating and cooling systems, where installed at the time of the test, shall be turned off.
6. Supply and return registers, where installed at the time of the test, shall be fully open.

Exception: When testing individual dwelling units, an air leakage rate not exceeding 0.30 cubic feet per minute per square foot [0.008 m³/(s × m²)] of the dwelling unit enclosure area, tested in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pa), shall be an accepted alternative permitted in all climate zones for:

1. Attached single and multiple-family building dwelling units.
 2. Buildings or dwelling units that are 1,500 square feet (139.4 m²) or smaller.
2. The *building* or *dwelling unit* shall be tested and verified as having an air leakage rate not exceeding five air changes per hour in *Climate Zones* 1 and 2, and four air changes per hour, or 4.5 air changes per hour for sprinklered or attached residential homes, in *Climate Zones* 3 through 8.

3. For residential tract developments using an approved above code program, testing shall be allowed to conform to the program requirements when the following documentation is submitted to the jurisdiction by the developer:
 1. *Approved* software per Section R406.6.1.
 2. A copy of the contractual agreement between the developer and a certified HERS rater to perform all mandatory field testing, sampling protocols, and program verifications.
 3. Detailed program protocol shall be submitted, plan checked and approved, and included in the approved construction documents.

Mechanical ventilation shall be provided in accordance with Section M1505 of the International Residential Code or Section 403.3.2 of the International Mechanical Code, as applicable, or with other approved means of ventilation.

Section R402.4.1.3 Leakage Rate

Revise Section R402.4.1.3 and add new Exception, as follows:

R402.4.1.3 Leakage rate. When complying with Section R401.2.1, the building or dwelling unit shall have an air leakage rate not exceeding 5.0 air changes per hour in Climate Zones 0, 1 and 2, and 3.0 4 air changes per hour or 4.5 air changes per hour for sprinklered or attached buildings or dwelling units in Climate Zones 3 through 8, when tested in accordance with Section R402.4.1.2.

Exception: *A building or dwelling unit tested in accordance with the requirements of this section that is verified as having an air leakage rate not exceeding an equivalent cfm/ft² rate as demonstrated by the design professional or approved agency.*

Section R403.6 Mechanical Ventilation

Add Exception to Section R403.6, as follows:

R403.6 Mechanical ventilation. *Buildings and dwelling units shall be provided with mechanical ventilation that complies with the requirements of the International Residential Code or Uniform Mechanical Code, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.*

Exception: *Where clothes dryer exhaust vents terminate vertically at the roof, back draft dampers are not permitted.*

Chapter 6 [RE] Referenced Standards.

Revise the referenced standards in Chapter 6 [RE] to include the IAPMO codes and updates to standards used in Southern Nevada, as follows:

IAPMO	International Association of Plumbing and Mechanical Officials 5001 E. Philadelphia Street Ontario, CA 91761
<p>UMC-18: Uniform Mechanical Code® R201.3, R403.3.3, R403.3.4, R403.6, R501.4</p> <p>UPC-18: Uniform Plumbing Code® R201.3, R501.4</p>	

Revise the referenced ICC standards, as follows:

ICC	International Code Council 500 New Jersey Avenue NW 6 th Floor Washington, DC 20001
<p>ANSI/APSP/ICC 14-2019: American National Standard for Portable Electric Spa Energy Efficiency R403.11</p> <p>ANSI/APSP/ICC 15a-2020: American National Standard for Residential Swimming Pool and Spa Energy Efficiency R403.12</p> <p>ANSI/RESNET/ICC 301-2019: Standard for the Calculation and Labeling of the Energy Performance of Dwelling and Sleeping Units using an Energy Rating Index R406.4</p> <p>ANSI/RESNET/ICC 380-2019: Standard for Testing Airtightness of Building, Dwelling Unit and Sleeping Unit Enclosures; Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems R402.4.1.2</p> <p>IBC-18: International Building Code® R201.3, R303.1.1, R303.2, R402.1.1, R501.4</p> <p>ICC 400-17: Standard on the Design and Construction of Log Structures R402.1</p> <p>ICC 500-20: ICC/NSSA Standard for the Design and Construction of Storm Shelters R402.5</p> <p>IEBC-18: International Existing Building Code® R501.4</p> <p>IECC-06: 2006 International Energy Conservation Code® R202</p>	

IECC-09: 2009 International Energy Conservation Code® R406.2
IECC-15: 2015 International Energy Conservation Code® Table R406.5
IFC-18: International Fire Code® R201.3, R501.4
IRC-18: International Residential Code® R201.3, R303.1.1, R303.2, R402.1.1, R402.2.10.1, R403.3, R403.3.4, R403.6, R501.4

Revise the referenced edition of NFPA 70 in the NFPA standards, as follows:

NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471
NFPA 70-17: National Electrical Code R501.4	