ATTENTION

Effective July 1, 2019
Douglas County Community Development Department
has adopted the following building codes:

2018 International Building Code
2018 International Residential Code
2018 Uniform Mechanical Code
2018 Uniform Plumbing Code
2017 National Electrical Code
2018 International Energy Conservation Code
2018 International Fuel Gas Code

All plans submitted shall be designed to these codes.

COMMUNITY DEVELOPMENT
1594 Esmeralda Avenue
P.O. Box 218
Minden, Nevada 89423

Public Counter:
Open: Monday – Friday (8:00 AM to 3:00 PM)

Building Department: 775.782.6224
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BUILDING CODES AND DESIGN CRITERIA

Douglas County Board of County Commissioners adopted the following codes on June 6, 2019. **It will be effective for all submittals on or after July 1, 2019**.

Adopted Building Codes:

- 2018 International Building Code (IBC)
- 2018 International Residential Code (IRC)
- 2018 Uniform Plumbing Code (UPC)
- 2018 Uniform Mechanical Code (UMC)
- 2017 National Electrical Code (NEC)
- 2018 International Energy Conservation Code (IECC)
- 2018 International Fire Code (IFC)
- 2018 International Fuel Gas Code (IFGC)
- 2018 International Urban Wildfire Interface Fire Code for the Lake Tahoe area (WUI)

Amendments to these codes are available on the County website: www.douglascountynv.go
or Douglas County Code Title 20-Appendix B

Site elevations of 5,999 Feet and under:

- **Seismic Zone:** IBC = D / IRC = D2 & E for some site specific areas
- ***Wind Speed:** Minimum 120 MPH V ult' – Exposure C (see footnotes)
- ****Snow Load:** 40 PSF Ground snow load**
- **Frost Depth:** 18" (inches) minimum
- **Soil Bearing:** 1,500 PSF maximum or site specific

Site elevations 6,000 Feet and above:

- **Seismic Zone:** IBC = D / IRC = D2 & E for some site specific areas
- ***Wind Speed:** Minimum 120 MPH V ult' – Exposure C
  (Exposure B may be used in areas between ¼ mile of the lakeshore & below the elevation of 7,200 feet)
- ****Snow Load:** 190 PSF ground snow load (Design Reductions Allowed)
- **Frost Depth:** 24" (inches) minimum
- **Ice Shields Required** above 6,000 feet elevation
- **Soil Bearing:** 1,500 PSF maximum or site specific

Single Family Dwelling (SFD) Design: Per Title 20.XXXXX.

- Minimum Roof Pitch: 4:12 (inches) – Maximum Building Height: 35'-0" (feet)
- Minimum Soffit Eaves (overhang): 18" (inches)
- 3 or more gable ends and building offsets recessed/alcove or similar features
- Minimum of 2-car off-street covered parking (carport or garage)

***Wind Speed:** (SFD's) Minimum basic wind speed for risk category II shall be 120 mph V ult'
Minimum basic wind speed for category III shall be 130 mph V ult'
Minimum basic wind speed for category 1 shall be 110 mph V ult'

**** Snow Load:** County policy requires that the 40 PSF ground snow load must be used as the minimum design snow load. Design reductions will not be allowed to reduce below 31 PSF.

ORDINANCE 2019-1551

SUMMARY

An ordinance amending Sections 20.800.040 and 20.820.020 of Douglas County Code and Title 20 – Appendix B of the Consolidated Development Code by adopting with stated revisions the: 2018 International Building Code; 2018 International Residential Code; 2018 Uniform Mechanical Code; 2018 Uniform Plumbing Code; 2017 National Electric Code; 2018 International Energy Conservation Code; 2018 International Existing Building Code; 2018 International Fuel Gas Code; the 2018 International Mechanical Code; and other properly related matters.

TITLE

Ordinance 2019-1551, an ordinance to amend Sections 20.800.040 and 20.820.020 of Douglas County Code and Title 20 – Appendix B of the Consolidated Development Code by adopting, with stated revisions, the: 2018 International Building Code; 2018 International Residential Code; 2018 Uniform Mechanical Code; 2018 Uniform Plumbing Code; 2017 National Electric Code; 2018 International Energy Conservation Code; 2018 International Existing Building Code; 2018 International Fuel Gas Code; the 2018 International Mechanical Code; and other properly related matters.

The Board of County Commissioners of County of Douglas in the State of Nevada hereby ordains as follows:

SECTION I: Section 20.800.040 of Douglas County Code, "Specialized or uniform codes adopted," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

20.800.040 Specialized or uniform codes adopted.

A. The board adopts the following nationally recognized codes together with the supplements, listed changes, additions and deletions as noted:

1. The International Building Code (IBC), 2018~~2~~ Edition, and Appendices C, E, I and J as amended, except the portions deleted, modified or amended by Appendix B.

2. The International Residential Code (IRC), 2018~~2~~ Edition, and Appendices A, B, C, G, H, J, K, P and Q as amended, except the portions deleted, modified or amended by Appendix B.

3. The board adopts the Uniform Mechanical Code ("UMC"), 2018~~2~~ Edition including Appendix Chapter A, B and C.

4. The board adopts the Uniform Plumbing Code ("UPC"), 2018~~2~~ Edition and the IAPMO Installation Standards and Appendices A, B, C, D, E, F, I, J and L except for the portions deleted, modified or amended by Appendix B.

5. The board adopts the National Electrical Code ("NEC"), 2017~~1~~ Edition, except for the portions deleted, modified or amended by Appendix B.

6. The International Energy Conservation Code, 2018~~2~~ Edition, ~~International Energy Conservation Code,~~ except the portions deleted, modified or amended by Appendix B.

7. The International Existing Building Code, 2018 Edition, except the portions deleted, modified or amended by Appendix B.

8. The International Fuel Gas Code, 2018 Edition, except the portions deleted, modified or amended by Appendix B.

9. The International Mechanical Code, 2018 Edition, except the portions deleted, modified or amended by Appendix B.

10. The Board adopts the 2018 International Fire Code (IFC) for the entirety of Douglas County, except portions deleted, modified or amended by Appendix B.

11. The Board adopts the 2018 International Wildland Urban Interface Code (WUI) for all land within the Tahoe Douglas Fire Protection District only, except the portions deleted, modified or amended by Appendix B.

B. Subsequent editions of the 2018~~2~~ International Building Code, 2018~~06~~ International Residential Code, 2018~~12~~ Uniform Plumbing Code, 2018~~12~~ Uniform Mechanical Code, 2017~~1~~ National Electrical Code, 2018~~2~~ International Energy Conservation Code, the 2018 International Existing Building Code, the 2018 International Fuel Gas Code, the 2018 International Mechanical Code, the 2018 International Fire Code, and the 2018 International Wildland Urban Interface Code may be adopted following the annual date of the most current edition. All the provisions of this chapter and in Appendix B that are more restrictive than those contained in any subsequent edition of the currently adopted editions will remain in full force and effect.

SECTION II: Section 20.820.020 of Douglas County Code, "Work exempt from permit," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

20.820.020 Work exempt from permit.

Section 105.2 and R105.2 of the IBC and IRC are replaced by the following language:

A. A building permit will not be required for the following:

1. One-story detached accessory buildings used as tool and storage sheds, playhouses and similar uses, provided the projected floor area does not exceed 200~~120~~ square feet (18.58~~11.15~~ m^2).

2. Fences not over 7~~6~~ feet (2134~~1829~~ mm) in height.

3. Oil derricks.

4. Movable cases, counters, and partitions not over 5 feet 9 inches (1753 mm) high.

5. Retaining walls which are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or III-A liquids.

6. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18927 L) and the ratio of height to diameter or width does not exceed 2 to 1.

7. Platforms, walks and driveways not more than 30 inches (762 mm) above grade and not over any basement or story below.

8. Painting, papering and similar finish work.

9. Temporary motion picture, television and theater stage sets and scenery.

10. Window awnings supported by an exterior wall of Group R, Division 3, and

Group U Occupancies when projecting not more than 54 inches (1372 mm).

11. Prefabricated swimming pools accessory to a Group R, Division 3 Occupancy in which the pool walls are entirely above the adjacent grade and if the capacity does not exceed 5,000 gallons (18927 L).

12. Non-structural work up to $2,000 valuation or a re-roof up to ten roofing squares in any 12 month period for Group R, Division 3 and Group U occupancies is exempt from the building permit requirement.

B. Unless otherwise exempted, separate plumbing, electrical and mechanical permits will be required for the above exempted items.

C. Exemption from the permit requirements of this code does not grant authorization for any work to be done in a manner in violation of the provisions of this code or any other local, state, or federal requirements.

SECTION III: Title 20 – Appendix B of the Douglas County Code, "International Building Code Revisions," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

TITLE 20

APPENDIX B

Sections:

International Building Code Revisions.
International Residential Code Revisions.
Uniform Mechanical Code Revisions.
Uniform Plumbing Code Revisions.
National Electric Code Revisions.
International Energy Conservation Code Revisions.
International Existing Building Code Revisions.
International Fuel Gas Code Revisions.
International Mechanical Code Revisions.
International Fire Code Revisions.
International Wildland Urban Interface Code Revisions (for the Tahoe Douglas Fire Protection District)

INTERNATIONAL BUILDING CODE REVISIONS

110.3 Required inspections. The building official, upon notification, shall make the inspections set forth in Sections 110.3.1 through 110.3.11~~2~~.

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.

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 sub-floor.

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 1612.4~~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.

110.3.4.1~~5~~ Frame inspection: Framing inspections shall be made after the structure is dried-in, exterior windows installed, roof deck or sheathing and weather protected, all framing has been completed along with all fire blocking, all penetrations have been installed and sealed, chimneys and vents to be concealed are complete and the rough electrical, plumbing, mechanical ducting, heating wires are completed and ready for required testing.

~~**110.3.6 Insulation inspection**: To be made after frame inspection has been approved or certification issued by a Nevada licensed insulation contractor.~~

110.3.5~~7~~ 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.

110.3.6 Weather-exposed balcony and walking surface waterproofing: Where balconies or other elevated walking surfaces are exposed to water from direct or blowing rain, snow or irrigation, and the structural framing is protected by an impervious moisture barrier, all elements of the impervious moisture barrier system shall not be concealed until inspected and approved.

110.3.7~~8~~ Fire-resistant penetrations: Protection of joints and penetrations in fire-resistance-rated assemblies shall not be concealed from view until inspected and approved.

110.38~~9~~ Energy efficiency inspections: Inspections shall be made to determine compliance with chapter 13 and shall include, but not limited to, inspections for: envelope insulation R and U values, penetration U value, duct system R value, and HVAC and water-heating equipment efficiency or provide a certification from the licensed contractor or certified insulation installer.

110.3.9~~10~~ 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 department.

110.3.10~~11~~ Special inspections: For special inspections, see Chapter 17.

110.3.11~~12~~ Final inspection: The final inspection shall be made after all work required by the building permit is completed.

112.4 Newly constructed separately owned multiple residential and commercial buildings.

Section 112 of the IBC is amended by adding a new subsection as follows: Section 112.4. Construction of buildings for separately owned multiple commercial and residential condominiums on a single lot must comply with the following:

1. Each unit must have a separate electric meter and an accessible disconnect.
2. Each unit must have a separate water service and an accessible shut-off.
3. Each unit must have a separate heating system.
4. Where gas or propane is provided for use each unit must have a separate service and accessible shut-off.

202 Definitions. Section 202 of the IBC is amended to add the following definitions:

HIGH-RISE BUILDING. A building with an occupied floor located more than 55 feet (16,764 mm) above the lowest level of fire department vehicle access.

International Electrical Code. The Electrical Code, whether the National Electrical Code or the International Electrical Code, as amended and adopted by the local jurisdiction.

International Mechanical Code. The Mechanical Code, whether the Uniform Mechanical Code or the International Mechanical Code as amended and adopted by the local jurisdiction.

International Plumbing Code. The Plumbing Code, whether the Uniform Plumbing Code or the International Plumbing Code, as amended and adopted by the local jurisdiction.

International Fuel Gas Code. The Fuel Gas Code, whether NFPA 54 or the International Fuel Gas Code, as amended and adopted by the local jurisdiction.

Surcharge. A vertical load imposed on the retained soil that may impose a lateral force in addition to the lateral earth pressure of the retained soil. Examples include:

- Sloped retained soil.
- Structure footings supported by the retained soil.
- Adjacent vehicle loads supported by the retained soil.

305.2 Group E, day care facilities. This group includes buildings and structures, or portions thereof occupied by more than six children older than 2 ½ years of age who receive educational, supervision or *personal care services* for fewer than 24 hours per day.

305.2.2 Six or fewer children. A facility having six or fewer children receiving such day care shall be classified as part of the primary occupancy.

305.2.3 Six or fewer children in a dwelling unit. A facility such as the above within a *dwelling unit* and having six or fewer children receiving such day care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

308.2.5 Board of Health. All portions of a care facility which houses patients or residents which is classified by the State Board of Health as 'Category 2,' and which has an occupant load of more than 10 residents, is classified as an 'I- 1' occupancy classification.

308.5 Institutional Group I-4, day care facilities. Institutional Group I- 4 occupancy shall include buildings and structures occupied by more than six persons of any age who receive custodial care for fewer than 24 hours per day by persons other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for. This group shall include, but not be limited to, the following:

Adult day care
Child day care

308.5.1 Classification as Group E. A child day care facility that provides care for more than six but not more than 100 children 2 ½ years or less of age, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.

308.5.3 Six or fewer persons receiving care. A facility having six or fewer persons receiving custodial care shall be classified as part of the primary occupancy.

308.5.4 Six or fewer persons receiving care in a dwelling unit. A facility such as the above within a *dwelling unit* and having six or fewer persons receiving custodial care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code.*

310.2 Residential Group R-1. Residential Group R-1 occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient) with more than 10 occupants
Brothels
Congregate living facilities (transient) with more than
10 occupants Hotels (transient)
Motels (transient)

311.2 Moderate-Hazard storage, Group S-1. Storage Group S-1 occupancies are buildings occupied for storage uses that are not classified as Group S-2, including, but not limited to, storage of the following:

Aerosol products, Levels 2 and 3
Aircraft hangar (storage and repair)
Bags: cloth, burlap and paper
Bamboos and rattan
Baskets
Belting: canvas and leather

Books and paper in rolls or packs
Boots and shoes
Buttons, including cloth covered, pearl or bone
Cardboard and cardboard boxes
Clothing, woolen wearing apparel
Cordage
Furniture
Furs
Glues, mucilage, pastes and size
Grains
Horns and combs, other than celluloid
Leather
Linoleum
Lumber
Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1) (see Section 406.8)
Photo engravings
Resilient flooring
Self-service storage facility (mini-storage)
Silks
Soaps
Sugar
Tires, bulk storage of
Tobacco, cigars, cigarettes and snuff
Upholstery and mattresses
Wax candles

403.5.4 Smokeproof enclosures. Every required interior exit stairway serving floors more than 55 feet (16,764 mm) above the lowest level of fire department vehicle access shall be a smokeproof enclosure in accordance with Sections 909.20 and 1023.11.

901.89. Automatic fire extinguishing systems--Special provisions.

Section 901 of the IBC is amended by adding new subsections as follows: 901.9. All buildings or structures outside the jurisdiction of the Tahoe-Douglas Fire Protection District having a total building area of 5,000 square feet or more, and all buildings or structures three stories high or in excess of 45 feet in height, whichever is less, must be provided with automatic fire sprinkler protection, except as provided for in this section. Exceptions. New buildings or structures designated as R-3, Group U occupancies are exempted from the sprinkler system requirements.

901.89.1. No other exceptions to the requirements of section 901.9 will be permitted except by the approval of the building official and fire marshal. If the building official or fire marshal do not approve, no exception will be allowed unless approved by majority of the building and fire board of appeals, if there is no board of appeals appointed, the applicant may appeal the decision to disapprove under section 901.9.4 and .5 to the board of county commissioners. In instances where buildings or structures are exempted from the requirements of

section 901.9 by the approval of the building official and fire marshal or an affirmative vote of the board of appeals, the buildings or structures must be equipped with an acceptable alternate method of providing fire protection.

901.89.2. Installation, inspection, maintenance and testing of sprinkler systems or any alternative extinguishing system approved pursuant to section 901.9.1 must meet the requirements set forth in the current edition of the National Fire Protection Association (NFPA) standard for the installation of sprinkler systems, NFPA 13, 13D, or 13R as applicable.

901.89.3. Habitable space is defined for the purpose of this section as the total habitable floor area in square feet for all floor levels within the exterior walls. Addition means to add additional habitable square footage to an existing structure.

901.89.4. All new buildings or structures within the jurisdiction of the Tahoe-Douglas Fire Protection District must be provided with automatic fire sprinkler system as outlined in Chapter 9, Section 903.3 of the adopted edition of the International Fire and Building Codes, except for single family dwellings (R-3 and U occupancy) with less than 3,600 square feet of habitable space that meet fire flow requirements of the International Fire Code.

901.89.5. All existing buildings or structures within the jurisdiction of the Tahoe-Douglas Fire Protection District must be provided with an automatic fire sprinkler system as outlined in Chapter 9, Section 903.3 of the adopted edition of the International Fire and Building Codes, when changing use or when increasing the habitable space of a single family dwelling to more than 3,600 square feet.

901.89.6. No other exceptions to the requirement of sections 901.9.4 and 901.9.5 will be permitted except by an affirmative majority vote of the board of appeals or the board of county commissioners. To grant an exemption the board of appeals must either: (i) require the buildings of structures to have an alternative extinguishing system, or (ii) require an acceptable alternative method of providing fire protection which will provide additional safety for occupants, better access for the fire department and other improved fire safety conditions when the board makes the finding that the exemption is based on low risk to life safety and property value. No exemption is allowed by the board unless the building or structure meets the minimum requirements of the current adopted edition of the International Fire and Building Code.

901.89.7. Installation, inspection, maintenance and testing of sprinkler systems or any alternative extinguishing system approved pursuant to section 901.9.6 must meet the requirements as set forth in the current edition of the NFPA standard for the installation of sprinkler systems, NFPA 13, 13D, or 13R, as applicable.

901.89.8 Total building area is defined for the purpose of this section as the total floor area in square feet for all floor levels within the exterior walls, or under the horizontal projection of the roof of a building.

906. Portable Fire Extinguishers. *Refer to the 2018 Edition of the International Fire Code as amended.*

910.2 Where required. Smoke and heat vents or a mechanical smoke removal system shall be installed as required by Sections 910.2.1 and 910.2.2.

Exceptions:

1. Frozen food warehouses used solely for storage of Class I and II commodities where protected by an approved automatic sprinkler system.
2. Automatic smoke and heat vents are not required within areas of buildings equipped with early suppression fast-response (ESFR) sprinklers unless the area of Group F-1 or S-1 occupancy protected with the ESFR sprinklers has an exit access travel distance of more than 250 feet (76 200mmn).

Smoke and heat removal shall not be required in areas of buildings equipped with control mode special application sprinklers with a response time index of 50 $(m \times S)^{1/2}$ or less that are listed to control a fire in stored commodities with 12 or fewer sprinklers.

1010.1.10 Panic and fire exit hardware. Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

Exceptions:

1. A main exit of a Group A occupancy shall be permitted to have locking devices in accordance with Section 1010.1.9.4, Item 2.
2. Doors provided with panic hardware or fire exit hardware and serving a Group A or E occupancy shall be permitted to be electrically locked in accordance with Section 1010.1.9.9 or 1010.1.9.10.

Electrical rooms with equipment rated 800 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel.

1023~~2~~.9.1 Interior exit stairways and Ramps. Section 1022.9.1 of the IBC is amended by adding the following section: 1022.9.1 #7 All signs on doors leading to stairways that extend to the roof must be green in color. All other signs on doors leading to stairways must be red in color.

1209.4 Baby Changing Tables. Diaper changing tables are required to be installed in both male, female and other restrooms, in permanent buildings that contain public restrooms as defined in chapter 29 of the 2018 IBC. Changing tables are required when any of the following occur: new buildings, tenant improvements, new restrooms, alteration of existing restrooms, new additions, change of uses that require updating existing restrooms with additions to those facilities. Shall meet the guidelines of 603.5, 309 and 902 of ANSI/ICC A117.1- 2009.

Exception: A building or facility that does not have public restrooms or has been issued a permit or license which restricts the admission of children on the basis of age, shall be exempt from this requirement.

1503.1 Weather protection. Section 1503.1 of the IBC is amended by adding the following language: Roof decks shall be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof coverings shall be designed, installed in accordance with this code and the approved manufacturer's instructions such that the roof covering shall serve to protect the building or structure. Roof ice build-up protection is required at an elevation of 6,000 feet and above throughout the County.

1507 Requirements for Roof Coverings. Section 1507 of the IBC is amended by adding the following language to section 1507.8 to apply to all structures within the jurisdiction of the Tahoe Douglas Fire Protection District.

~~**1507.8 Class A roofing and siding materials required in Tahoe Douglas Fire Protection District.**~~

~~1. All new roofs in the Tahoe Douglas Fire Protection District must have Class "A" material applied. Wood shingles and wood shakes fire retardant treated or non-treated are not allowed, shall not be allowed as an alternative material and shall not be installed or used on any new construction, reproofing, repairs, or siding of any structure.~~

~~2. Repairs and reroofing involving less than 25% of the roof area shall be exempt from the requirements of subsection 1, but Class 'B' Fire Retardant treated material must be used. This exception is allowed only once per structure.~~

~~3. Fire retardant treated wood shingles and wood shake siding shall not be applied to the exterior surface of a structure within 8 feet of the adjacent ground level, and fire retardant treated wood shingle and wood shake siding material may not exceed 10% of the total area of the structure side. Fire retardant treated wood shingles and wood shake siding must be rated at Class 'B' or higher. Wood shingle and wood shake siding currently on a structure shall only be repaired with Class 'B' or higher rated material.~~

1608.2 Snow loads. Section 1608.2 of the IBC is amended by adding the following table~~language~~: ~~For areas in Douglas County above 6,000 feet elevation, roof live loads are 150 pounds per square foot throughout. Elsewhere in county, roof live loads are 30 pounds per square foot throughout.~~

TABLE 1608.2.1 Ground Snow Loads P_g, for Northern Nevada Locations

Elevation In Feet	West of U.S. Hwy 395 Sierra Slope, Douglas, County, Pg (Pounds Per Square Foot)	East of U.S. Hwy 395 Douglas, County, Pg (Pounds Per Square Foot)			
4500	40	40			
5000	40	40			
5100	40	40			
5200	40	40			
5300	40	40			
5400	40	40			

5500	**40**	**40**			
6000	**40**	**40**			
6500	**190**	**190**			
7000	**190**	**190**			
7500	**190**	**190**			
8000	**229**	**190**			
8500	**243**	**190**			
9000	**271**	**190**			
9500	**300**	**190**			
10000	**357**	**190**			

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance with Chapter 26 to 30 of ASCE 7. The type of opening protection required, the basic design wind speed, V, and the exposure category for a site is permitted to be determined in accordance with section 1609 or ASCE 7. The wind speed in Douglas County shall be per the Special Wind Region Table 1609.3.2 Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. Subject to limitations of section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R- 2 and R- 3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AWC WFCM.
3. Subject to the limitations of Section 1609.1.1.1 residential structures using the provisions of AISI S230.
4. Designs using NAAMM FP 1001.
5. Designs using TIA- 222 for antenna- supporting structures and antennas, provided that the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA- 222 shall be 16 times the height of the escarpment.
6. Wind tunnel tests in accordance with ASCE 49 and Sections 31.4 and 31.5 of ASCE 7.

The wind speeds in Figures 1609.3(1) through 1609.3(8) are basic design wind speeds, V, and shall be converted in accordance with Section 1609.3.1 to allowable stress design wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions 4 and 5 are used. The wind speed in Douglas County shall be per the Special Wind Region Table 1609.3.2

1609.1.1.1 Applicability. The provisions of ICC 600 are applicable only to buildings located within Exposure B or C as defined in section 1609.4. The wind speed in Douglas County shall be per the Special Wind Region Table 1609.3.2. The provisions of ICC 600, AWC WFCM and AISI S230 shall not apply to buildings sited on the upper half of an isolated hill, ridge, or escarpment meeting all of the following conditions:

1. The hill, ridge or escarpment is 60 feet (18288 mm) or higher if located in Exposure B or 30 feet (9144 mm) or higher if located in Exposure C.
2. The maximum average slope of the hill exceeds 10 percent.
3. The hill, ridge or escarpment is unobstructed upwind by other such topographic

features for a distance from the high point of 50 times the height of the hill or 2 miles (3.22 km), whichever is greater.

1609.3 Basic design wind speed~~design~~. Section 1609.3 of the IBC is amended by substituting the following language: ~~The minimum basic wind speed at any site in the County is 105 miles per hour (three second gust) for determining design wind pressure.~~ The basic design wind speed, V, in mph, for the determination of the wind loads shall be determined by figures 1609.3(1) through (8). The basic design wind speed, V, for use in the design of Risk Category II buildings and structures shall be obtained from Figures 1609.3(1) and 1609.3(5). The basic design wind speed, V, for use in the design of Risk Category III buildings and structures shall be obtained from Figures 1609.3(2) and 1609.3(6). The basic design wind speed, V, for use in the design of Risk Category IV buildings and structures shall be obtained from Figures 1609.3(3) and 1609.3(7). The basic design wind speed, V, for use in the design of Risk Category I buildings and structures shall be obtained from Figures 1609.3(4) and 1609.3(8). No altitude density reduction shall be taken.

The basic design wind speed, V, for the special wind regions indicated near mountainous terrain and near gorges shall be in accordance with local jurisdiction requirements. The basic design wind speeds, V, determined by the local jurisdiction shall be in accordance with Chapter 26 of ASCE 7. Utilizing Special wind region Table 1609.3.2.

TABLE 1609.3.2 SPECIAL WIND REGION DEFINED: MINIMUM BASIC WIND SPEEDS. For Douglas County, the design wind speed values shall be:

Risk Category	Ultimate Wind Speed V_{ult} (mph)	V_{asd} Wind Speed 3-sec gust
I	110	85
II & 2018 IRC	120	93
III	130	101
IV	135	104

Table notes:

a) Air density corrections to design wind pressures are prohibited.
The conversions from Vult to Vasd are based on Table 1609.3.1

1609.4 Exposure category. Section 1609.4 of the IBC, first paragraph, is amended to read as follows: An exposure of "C" shall be used as a minimum in the design of all structures within the County. All structures within ¼ mile from the shoreline at Lake Tahoe shall be designed as minimum exposure "C". Exposure B may be used for all structures in the Lake Tahoe basin area between ¼ mile of the lake and below the elevation of 7200 feet and meeting the requirements of exposure B. When applying the simplified wind load method, a single exposure category shall be used based upon the most restrictive for any given wind direction.

1704.2 Special inspections and tests. Where application is made to the building official for construction as specified in Section 105, the owner or the owner's authorized agent, other than the contractor, shall employ one or more approved agencies to provide

special inspections and tests during construction on the types of work specified in Section 1705 and identify the approved agencies to the building official. These special inspections and test are in addition to the inspections by the building official that are identified in Section 110.

Exceptions:

1. Special inspections and tests are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.
2. Unless otherwise required by the building official, special inspections and test are not required for Group R-3 occupancies as applicable in section 101.2 and Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. Special inspections and test are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.1.2 or the conventional light-frame constructions provisions of Section 2308.
4. The contractor is permitted to employ the approved agencies where the contractor is also the owner.

1803.1 Geotechnical Investigations--General. Section 1803.1 of the IBC is amended by adding the following sentence: The building official may require a soils investigation and foundation engineering on construction sites sloping in excess of 15 percent.

1803.2 Investigations required. Geotechnical investigations shall be conducted in accordance with Sections 1803.3 through 1803.5.

Exception: The building official need not require a geotechnical investigation where satisfactory data from adjacent areas is provided by a licensed design professional that demonstrates an investigation is not necessary for any of the conditions in Sections 1803.5.1 through 1803.5.6 and Sections 1803.5.10 and 1803.5.11.

1803.6 Reporting. Where geotechnical investigations are required, a written report of the investigations shall be submitted to the building official by the permit applicant at the time of permit application. This geotechnical report shall include, but need not be limited to, the following information:

1. A plot showing the location of the soil investigations
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of the soil profile.
4. Elevation of the water table, if encountered.
5. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement, and varying soil strength; and the effects of adjacent loads
6. Expected total and differential settlement.
7. Deep foundation information in accordance with Section 1803.5.5.
8. Special design and construction provisions for foundations of structures founded

on expansive soils, as necessary.

9. Compacted fill material properties and testing in accordance with Section 1803.5.8.
10. Controlled low- strength material properties and testing in accordance with Section 1803.5.9.
11. Where required by 1803.5.11, investigation of liquefaction hazards shall be performed in accordance with "Guidelines for Evaluating Liquefaction Hazards in Nevada;" investigation of hazards associated with surface displacement due to faulting or seismically induced lateral spreading or lateral flow shall be performed in accordance with "Guidelines for Evaluating Potential Surface Fault Rupture/Land Subsidence Hazards in Nevada."

1807.2.1.1 Rockery retaining walls. Rockery retaining walls or rockery soil stabilization walls shall not be subject to surcharges, such as building foundations, adjacent retaining structures, slopes or vehicle surcharge unless approved by AHJ . Rockery walls over four feet in height shall be engineered and shall have special inspection. The special inspection shall verify all of the specified items listed below. Wall height is determined from the bottom of the footing to the adjacent grade at the top of the wall. Structures adjacent to rockery wall shall be set back a minimum distance equal to the height of the wall. As described above, drainage shall be provided behind all engineered rockery walls. A global stability analysis shall be performed for all rockery walls that are terraced. No single tier shall exceed 8 feet in height. The Engineer shall specify on the construction documents:

1. Type and quality of rock.
2. Unit weight, if design exceeds 155 pcf.
3. Rock size in approximate diameter
4. Rock placement
5. Voids greater than 3" shall be filled
6. Drainage swale and system
7. Embedment
8. Wall face slope (batter 6v:1H recommended)
9. Mechanically stabilized earth, if specified

A Global Stability Analysis shall include the following:

1. Shall be stamped by a licensed geotechnical engineer.
2. Shall include a seismic evaluation representative of the location.
3. All results of the analysis shall be included in the report.

1808.6.1 Foundations. Foundations placed on or within the active zone of expansive soils shall be designed to resist differential volume changes and to prevent structural damage to the supported structure. Deflection and racking of the supported structure shall be limited to that which will not interfere with the usability and serviceability of the structure.

Foundation placed below where volume change occur or below expansive soil shall comply with the following provisions:

1. Foundations extending into or penetrating expansive soils shall be designed to prevent uplift of the supported structure.
2. Foundations penetrating expansive soils shall be designed to resist forces exerted on the foundation due to soil volume changes or shall be isolated from the expansive soil.

Post-tensioned slabs shall not be utilized in place of frost depth footing design unless super structure deflection and differential movement calculations are provided. The deflection calculations would need to show that the maximum combined frost and expansive soil heaving, as localized at slab edges, with resultant non-uniformly distributed deflections, as well as whole slab deflections would not result in super structure racking or excessive truss, roof or wall frame movement.

1809.1 Footings and foundations. Section 1809.1 of the IBC is amended to add the following: Footings and foundations, unless otherwise specifically provided, shall be constructed of masonry, concrete or treated wood in conformance with International Building Code and shall in all cases extend below the frost line. Footings of concrete and masonry shall be of solid material. Foundations supporting wood shall extend at least 6 inches (152 mm) above the adjacent finish grade.

1809.5: **Frost protection.** Section 1809.5(#1) of the IBC is amended to read~~by adding the following sentence~~: ~~The frost line referred to shall be defined as 24 inches below finished grade, at elevations of 6,000 feet or more and 18" below finished grade at elevations of less than 6,000 feet.~~ Except where otherwise protected from frost, foundations and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extending below the frost line of the locality. Refer to 2018 Northern Nevada Amendments Appendix Table R201.2(1) for requirements of local Authorities Having Jurisdiction.
2. Constructing in accordance with ASCE 32.
3. Erecting on solid rock.

Exception: Free-standing buildings meeting all of the following conditions shall not be required to be protected:

1. Assigned to Risk Category I.
2. Area of 600 square feet (56 m^2) or less for light-frame construction or 400 square feet (37 m^2) or less for other than light-frame construction.
3. Eave height of 10 feet (3048 mm) or less.

Shallow foundations shall not bear on frozen soil unless such frozen condition is of a permanent character.

Table 1809.7: Prescriptive Footings Supporting Walls of Light Frame Construction. Table 1809.7 of the IBC is amended to read as follows:

TABLE 1809.7 FOUNDATIONS FOR STUD BEARING WALLS
MINIMUM REQUIREMENTS [1, 2, 3, 4, 5]

Number of Stories Supported by the Foundations	Minimum Thickness of Foundation Wall (Inches)		Minimum Width of Footing (Inches)	Minimum Thickness of Footing (Inches)	Minimum Depth of Foundation Below Natural Surface of Ground and Finish Grade (Inches)
	Concrete	Unit Masonry			
1	8	8	16	8	18
2	8	8	16	8	18
3	10	10	18	10	18

1. Where unusual conditions or frost conditions are found, footings and foundations shall be as required in Section 1806.1.
2. The ground under the floor may be excavated to the elevation of the bottom of the footing.
3. Foundations may support a roof in addition to the stipulated number of floors. Foundations supporting roofs only, shall be as required for supporting one floor.
4. Foundations may support a roof in addition to the allowed number of floors. Foundations supporting roofs only must be the same as those required for supporting one floor.
5. Exterior non-bearing walls must be supported by a foundation. Foundations supporting exterior non-bearing walls must be the same as those required for supporting one floor.

1808.10 Weathered foundations. Section1808 is amended by adding a new subsection1808.10 to read as follows: 1808.10 Any foundation which has weathered through two or more winters without any structure built on it to give protection must have an inspection by a structural or civil engineer licensed by the State of Nevada who must certify that the foundation is structurally sufficient to carry the load to be imposed on it, or certify specifications necessary for repairs which may be required to bring it to an acceptable condition where it will adequately support the structure to be built upon it.

2304.9.1: Fastener requirement. Section 2304.9.1 of the IBC is amended to read as follows: Connections for wood members shall be designed in accordance with the appropriate methodology in Section 2301.2. The number and size of nails connecting wood members shall not be less than that set forth in Table 2304.10~~9~~.1. Roof trusses and rafter ties shall be fastened to the top plate at all points of bearing by approved truss ties.

2901.1 Scope. The provisions of this chapter and the *Uniform Plumbing Code* shall govern the design, construction, erection and installation of plumbing components, appliances, equipment and systems used in *buildings* and structures covered by this code. Toilet and bathing rooms shall be constructed in accordance with Section 1209. The *International Fire Code*, the *International Property Maintenance Code* and the *International Plumbing Code* shall govern the use and maintenance of plumbing components, appliances, equipment and systems. The *International Existing Building code* and the *International Plumbing Code* shall govern the alteration, repair, relocation, replacement and addition of plumbing components, appliances, equipment and systems.

2902.1 Minimum number of fixtures. Plumbing fixtures shall be provided in the minimum number as shown in Table 2902.1 based on the actual use of the building or space. Uses not shown in Table 2902.1 shall be considered individually by the code official. The number of occupants shall be determined by this code. Suitable toilet facilities shall be provided and maintained in a sanitary condition for the use of workers during construction.

TABLE 2902.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 424.2 OF THE *INTERNATIONAL PLUMBING CODE*)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE)*	OTHER
			Male	Female	Male	Female			
1	Assembly	Theaters and other buildings for the performing arts and motion pictures[d]	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Nightclubs, bars, taverns, dance halls and buildings for similar purposes[d]	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts[d]	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		Casino gaming areas	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink
		Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities[d]	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

1	Assembly	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities[f]	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial, ambulatory	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink[e]
3	Educational	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	Structures in which occupants are engaged in work fabricating, assembly or processing of	1 per 100		1 per 100		—	1 per 400	1 service sink
5	Institutional	Custodial care facilities	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		Medical care recipients in hospitals and nursing homes[b]	1 per room[c]		1 per room[c]		1 per 15	1 per 100	1 service sink
		Employees in hospitals and nursing	1 per 25		1 per 35		—	1 per 100	—
		Visitors in hospitals and	1 per 75		1 per 100		—	1 per 500	—
5	Institutional	Reformatories, detention centers and correctional centers[b]	1 per 15		1 per 15		1 per 15	1 per 100	1 servic
		Employees in reformatories, detention centers and correctional centers[b]	1 per 25		1 per 35		—	1 per 100	—
		Adult day care and child day care	1 per 15		1 per 15		1	1 per 100	1 servic
6	Mercantile	Retail stores, service stations, shops, sales-rooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 servic e sink[e]
		Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 servic e sink

7	Residential	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink
		Apartment house	1 per dwelling unit	1 per dwelling unit	1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per
		One- and two-family dwellings and lodging houses with five or fewer guestrooms	1 per dwelling unit	1 per 10	1 per dwelling unit	—	1 kitchen sink per dwelling unit;
		Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink
8	Storage	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100	1 per 100	—	1 per 1,000	1 service sink

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code.
b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted, provided that each patient sleeping unit has direct access to the toilet room and provisions for privacy for the toilet room user are provided.
d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
e. For business and mercantile classifications with an occupant load of 30 or fewer, a service sink shall not be required.
f. The required number and type of plumbing fixtures for outdoor swimming pools shall be in accordance with Section 609 of the International Swimming Pool and Spa Code.
g. Drinking fountains are not required for an occupant load of 30 or fewer.
h. For business and mercantile classifications with an occupant load of 30 or fewer, a service sink shall not be required.
i. In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets in assembly and educational occupancies. Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies.
j. The minimum number of required drinking fountains shall comply with Table 2902.1 and Chapter 11.

2903 Temporary toilets. Chapter 29 of the IBC is amended by adding the following section: Section 2903. During construction, unless alternative facilities are made available, temporary toilets must be provided on the basis of the following rate of toilets to the number of workers on the job at a ratio of one for each 30 workers. In addition, urinals must be provided on the basis of one for each 30 men. The toilets must be available within 300 feet of the structure

under construction.

3001 Elevators and conveying systems. Section 3001.1 of the IBC is amended to read as follows: The provisions of this chapter shall apply to the design, installation, operation, alteration and repair of elevators, dumbwaiters, escalators and moving walks and their hoist ways. Additional provisions may be required, regulated and enforced through chapter 618 of the Nevada Revised Statutes and NAC 618.400 - 618.507 by the State of Nevada Department of Business and Industry. When conflicts arise between the provisions of the International Building Code, chapter 30 and NRS chapter 618, the most restrictive shall govern.

3102.7 Engineering design. The structure shall be designed and constructed to sustain dead loads; loads due to tension or inflation; live loads including wind, snow, flood and seismic loads and in accordance with Chapter 16.

Exception: Membrane structures intended to be in place for 30 days or less may be engineered to risk category I loads provided the installation and use are per the manufacturer's recommendations.

3103 Temporary structures. Section 3103.1 of the IBC is amended to add the following language: Temporary construction facilities, which are located on site in conjunction with valid building permits and occupied by job site personnel, which have connection only to electrical power, may be exempt from the provisions of section 3103.

3315 4 Safety and security. Chapter 33 of the IBC is amended by adding a new section as follows: Section 3314.1. The building official may require fencing around the construction site to make the property safe for the public.

3316 5 Debris on construction site. Chapter 33 of the IBC is amended by adding a new section as follows: Section 3315.1. All debris on construction sites must be contained and removed periodically as required for safety and cleanliness.

~~**3408.5 Conversion of existing buildings into separately owned multiple commercial and residential buildings.**~~

~~Section 3406 of the IBC is amended by adding the following subsection: Section 3408.5. Conversion of existing buildings to separately owned multiple commercial and residential condominiums on a single lot must comply with the following:~~

~~1. Each unit must have a separate electric meter and an accessible disconnect.~~

~~2. Each unit must have a separate water service and an accessible shut off.~~

~~3. Each unit must have a separate heating system.~~

~~4. Where gas or propane is provided for use each unit must have a separate service and accessible shut off. (Ord. 1399, 2013; Ord. 1131, 2005; Ord. 802, 1998; Ord. 711, 1995; Ord. 641, 1994; Ord. 558, 1992)~~

International Building Code Appendix Amendments.

Appendix I105.2 Patio covers-Footings. I105.2 of the IBC is amended to read as follows: An unenclosed patio cover that projects 14 feet or less from the main structure is permitted to be supported on a concrete slab on grade without footings, provided the slab conforms to the provisions of Chapter 19 of this code, is not less than 3-1/2 inches (89 mm) thick, and further provided that the columns do not support loads in excess of 750 pounds (3.36 kN) per column.

Appendix J103.2 Exemptions; Private Property Only. J103.2.1 is amended to read as follows: Grading up to one tenth (0.1) of an acre is an isolated, self-contained area, provided there is no danger to the public, and that such grading will not adversely affect adjoining properties.

J109.2 Deleted

J109.3 Deleted

SECTION IV: Title 20 – Appendix B of the Douglas County Code, "International Residential Code Revisions," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

INTERNATIONAL RESIDENTIAL CODE REVISIONS

R202 Definitions. Section R202 shall be amended by adding the following definitions:

International Electrical Code. The Electrical Code, whether the National Electrical Code or the International Electrical Code, as amended and adopted by the local jurisdiction.

International Mechanical Code. The Mechanical Code, whether the Uniform Mechanical Code or the International Mechanical Code as amended and adopted by the local jurisdiction.

International Plumbing Code. The Plumbing Code, whether the Uniform Plumbing Code or the International Plumbing Code, as amended and adopted by the local jurisdiction.

International Fuel Gas Code. The Fuel Gas Code, whether NFPA 54 or the International Fuel Gas Code, as amended and adopted by the local jurisdiction.

Surcharge. A vertical load imposed on the retained soil that may impose a lateral force in addition to the lateral earth pressure of the retained soil. Examples include:

- Sloped retained soil.
- Structure footings supported by the retained soil.
- Adjacent vehicle loads supported by the retained soil.

Table R301.2 (1): Climatic and geographic design criteria.

TABLE R301.2 (1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA
is replaced by the following:

TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

GROUND SNOW LOAD[o]	WIND DESIGN				SEISMIC DESIGN CATEGORY[f]	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP[e]	ICE BARRIER UNDERLAYMENT REQUIRED[h]	FLOOD HAZARDS[g]	AIR FREEZING INDEX[i]	MEAN ANNUAL TEMP[j]
	Speed[d] (mph)	Topographic effects[k]	Special wind region[l]	Windborne debris zone[m]		Weathering[a]	Frost line depth[b]	Termite[c]					
SEE IBC TABLE 1608.2	SEE APPENDIX	NO	YES	NO	SEE APPENDIX	SEVERE	SEE APPENDIX	MODERATE TO HEAVY	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

a. Where weathering requires a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code, the frost line depth strength required for weathering shall govern. The weathering column shall be filled in with the weathering index, "negligible," "moderate" or "severe" for concrete as determined from Figure R301.2(4). The grade of masonry units shall be determined from ASTM C34, C55, C62, C73, C90, C129, C145, C216 or C652.

b. Where the frost line depth requires deeper footings than indicated in Figure R403.1(1), the frost line depth strength required for weathering shall govern. The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.

c. The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.

d. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(5)A]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.

e. The outdoor design dry-bulb temperature shall be selected from the columns of 97½-percent values for winter from Appendix D of the *International Plumbing Code*. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local

~~GROUND SNOW LOAD~~	~~WIND SPEED (mph)~~	~~SEISMIC DESIGN CATE-GORY~~	~~SUBJECT TO DAMAGE FROM~~				~~WINTER DESIGN TEMP~~	~~ICE SHIELD UNDER-LAYMENT REQUIRED~~	~~FLOOD HAZARDS~~	~~AIR FREEZ-ING INDEX~~	~~MEAN ANNUAL TEMP~~
			~~Weather-ing~~	~~Frost line depth~~	~~Termite~~	~~Decay~~					
~~See Amended Sec 1608.2~~	~~105~~	~~D2 D2~~	~~SEVERE SEVERE~~	~~24" > 6,000 ft. elev., 18"< 6,000 elev. ft.~~	~~MODER-ATE TO HEAVY~~	~~NONE TO SLIGHT~~	~~10° F~~	~~YES ABOVE 6000 '~~	~~SEE TITLE 20 CHAPTER 20.50~~	~~594~~	~~49.4°F~~

R309 Opening protection. Section R309 of the IRC is amended by adding a new subsection as follows: **R309.6** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with self closing solid wood doors not less than 1¾ inches in thickness, self closing solid or honeycomb core steel doors not less than 1¾ inches thick, or self closing 20-minute fire-rated doors.

R309 Separation required. Section R309 of the IRC is amended by adding a new subsection as follows: **R309.7** The garage shall be separated from the residence and its attic area by not less than ⅝ inch type "X" gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than ⅝ inch type "X" gypsum board of equivalent. Where the separation is a ceiling assembly, the structure supporting the separation shall also be protected by not less than ⅝ inch type "X" gypsum board or equivalent.

R309 Driveways. Section R309 of the IRC is amended by adding a new subsection as follows: **R309.8** For every private access from a public provided with a driveway, the driveway must not exceed a maximum gradient between vertical transitions of 14% (i.e., 1¾ vertical inches per horizontal foot), this maximum gradient shall be determined from the proposed finish garage floor elevation to the public-way or street access. The alignment must be safe and convenient to back a car out, or an adequate turnaround must be provided.

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in townhouses.

Exceptions:

1. An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.
2. An automatic residential fire sprinkler system shall not be required in townhouses less than 5,000 sq. ft. of living space unless the AHJ has amended the International Fire Code to include provisions pertaining to townhouses in accordance with NRS 278.586.

R313.2 One- and two-family dwellings automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in one- and two-family dwellings.

Exceptions:

1. An automatic residential sire sprinkler system shall not be required when additions or alterations are made to existing building that do not have an automatic residential fire sprinkler system installed.
2. An automatic residential fire sprinkler system shall not be required in one- and two-family dwellings less than 5,000 sq. ft. of living space unless the AHJ has amended the International Fire Code to include provisions pertaining to one- and two- family dwellings in accordance with NRS 278.586.

Table R403.1: Minimum footing and foundation requirements.
Table R403.1 of the IRC is amended to read as follows:

TABLE R403.1 MINIMUM FOOTING & FOUNDATION REQUIREMENTS [1, 2, 3, 4, 5]

Number of Stories Supported by the Foundations	Minimum Thickness of Foundation Wall (Inches)		Minimum Width of Footing (Inches)	Minimum Thickness of Footing (Inches)	Minimum Depth of Foundation Below Natural Surface of Ground and Finish Grade (Inches)
	Concrete	Unit Masonry			
1	8	8	16	8	18
2	8	8	16	8	18
3	10	10	18	10	18

1. Where unusual conditions or frost conditions are found, footings and foundations shall be as required in Section R403.1.4.1.
2. The ground under the floor may be excavated to the elevation of the bottom of the footing.
3. Foundations may support a roof in addition to the stipulated number of floors. Foundations supporting roofs only, shall be as required for supporting one floor.
4. Foundations may support a roof in addition to the allowed number of floors. Foundations supporting roofs only must be the same as those required for supporting one floor.

R403.1.1 Minimum footing size. Section R403.1.1 is amended by adding the following language: Minimum footing dimension shall be specified in IBC Table 1809.7. There shall be a minimum of one #4 continuous reinforcing bar in the top of all foundation walls, and two #4 continuous reinforcing bar in the footing. When the footing and foundation wall are placed separately or when the foundation wall exceeds 24 inches in height, #4 vertical bars, at 48 inches on center (48" O/C) or 32 inches on center when using concrete block, shall be used to connect the footing with the foundation wall. When engineering data is provided, the footing and foundation wall steel requirements may be reduced. Foundation walls greater than 48 inches in height shall be designed by a Nevada professional engineer.

R1007 Appliance emissions. Chapter 10 of the IRC is amended by adding the following sections: R1007.1 General. No person shall install any wood burning stove or fireplace insert that emits more than the emission standards set by this section. A permit shall not be issued to any person who wishes to install a wood burning stove or fireplace insert that does not meet the emission standards of this section.

R1007.2 Certification. Each wood burning stove or fireplace insert shall bear a certification from the manufacturer that the appliance meets the emission standards set forth in this section.

R1007.3 Standards. Wood burning stove and fireplace inserts certified to meet the emission standards set by United States Environmental Protection Agency under 40 CFR Part 60 are deemed in compliance with the requirements of this section.

R1007.4 Required emissions. For wood burning stoves and fireplace inserts the minimum emissions are as follows: For non-catalytic appliances the emissions shall not exceed 7.5 grams, for catalytic equipped appliances the emissions shall not exceed 4.1 grams.

~~**Chapter 11 Energy Conservation.**~~ Chapter 11, Energy Conservation is deleted in its entirety. For residential energy efficiency requirements, reference the residential amendments of the International Energy Conservation Code (IECC)

M1503.6 Makeup air required. Exhaust hood systems capable of exhaust in excess of 600 cubic feet per minute (0.28 m^3/s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

Exception: Makeup air is not required for exhaust systems installed for the exclusive purpose of space cooling and intended to be operated only when windows or other air inlets are open.

~~**G2401.1 (101.2) Application**. Section G2401.1 (101.2) of the IRC is amended to add section G2401.1.1.~~

G2404.1 (301.1) Scope. This section shall govern the approval and installation of all equipment and appliances that comprise parts of the installations regulated by this code in accordance with Section G2401.

G2404~~1~~.1.1 Whenever there is a conflict between this code and NFPA 54 and NFPA 58 as adopted by the Nevada LP-Gas Board for LP-Gas installations, the adopted codes of the Nevada LP-Gas Board shall govern.

G2417.4.1 (406.4.1) Test pressure. The test pressure to be used shall be no less than 1- 1/2 times the proposed maximum working pressure, but not less than 25 psig (172.4 kPa gauge), irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe. This test shall be made before any fixtures, appliances or shut- off valves have been attached and before being concealed.

G2417.4.2 (406.4.2) Test duration. Test duration shall be not less than 30 minutes.

G2417.6.2 (406.6.2) Before turning gas on. During the process of turning gas on into a system of new gas piping or into a system or portion of a gas system that has been restored after an interruption of service, the entire system shall be inspected to determine that there are no open fittings or ends and that all valves at unused outlets are closed and plugged or capped. In the City of Fernley, City of Reno, City of Sparks, Storey County and Washoe County, a manometer test shall be made after all valves, unions, connectors and piping to the appliances are complete. A pressure test shall be made with the use of a manometer gauge measuring inches of water column. With all valves including gas cock and gas control valves in the open position, a

pressure of at least eleven (11) to fifteen (15) inches of water column shall be measured for at least fifteen (15) minutes, with no perceptible drop in pressure.

G2417.6.2.1 (406.6.2.1) For medium pressure gas systems: Where the appliance is rated for seven (7) to eleven (11) inches of water column, a manometer test of eleven (11) to fifteen (15) inches of water column will be conducted between the pressure regulating valve and the appliance and shall be measured for at least fifteen (15) minutes with no perceptible drop in pressure.

G2417.6.2.2 (406.2.2) For appliances or equipment requiring pounds of gas pressure. A pressure test using a pressure gauge measuring in one tenth (1/10) increments shall be conducted on the gas train of that appliance or equipment. The pressure shall be equal to the appliance's normal operating pressure for a period of thirty (30) minutes with no perceptible drop in pressure.

G2417.6.2.3 (406.2.3) Manometer testing. Manometer testing shall be performed by a person holding a valid Washoe County manometer tester card for which the number is to be provided at the time of request for inspection. A visual manometer test to be witnessed by the authority having jurisdiction may be allowed by the Building Official. A manometer test does not need to be reported when the serving gas utility performs a manometer or clock test prior to providing service.

P2503.5.1 Rough plumbing. DWV systems shall be tested on completion of the rough piping installation by air with no evidence of leakage. Either test shall be applied to the drainage system in its entirety or in sections after rough piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than 10 feet (1524 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) (34 kPa) or 10 inches of mercury column (34 kPa). This pressure shall be held without introduction of additional air for a period of 15 minutes.

P2503.8: Inspection and testing of backflow prevention devices. Section P2503.7 of the IRC is amended to read as follows: Inspection and testing of backflow prevention devices shall comply with section P2503.7.1 and section P2503.7.2.

P2503~~.8~~7.1 Inspections. Inspections shall be made of all backflow prevention assemblies to determine whether they are operable.

P2503.8~~7~~.2 Testing. The owner of the premises or the responsible person shall have the backflow prevention assembly tested by a certified backflow assembly tester at the time of installation, repair or relocation and at least annually thereafter unless required more frequently

by the water purveyor, or utility or the State Health Department. The periodic testing shall be performed in accordance with procedures referenced in the University of Southern California manual of Cross-Connection Control (Latest Edition) by a tester qualified in accordance with those standards and with the standards in the CA-NV section of the AWWA backflow prevention assembly testers and cross-connection control program.

P2603.5: Freezing. Section P2603.5 of the IRC is amended to read as follows: In localities having a winter design temperature of 32ºF (0ºC) or lower as shown in Table R301.2 (1) of this code, a water, soil or waste pipe shall not be installed outside of a building, in exterior walls, in attics or crawl spaces, or in any other place subjected to freezing temperature unless adequate provision is made to protect it from freezing by insulation or heat or both. Water service pipe shall be installed not less than 6 inches (762 mm) deep below the frost line.

P2603.5.1 Sewer depth. Building sewers that connect to private sewage disposal systems shall be a not less than twelve (12) inches (305 mm) below finished grade at the point of septic tank connection. Building sewers shall be not less than twelve (12) inches (305 mm) below grade.

P2903.3.1: Maximum pressure. Section P2903.3.1 of the IRC is amended to read as follows: Maximum static pressure shall be 80 psi (551 kPa). When main pressure exceeds 65 psi (448 kPa), an approved pressure-reducing valve conforming to ASSE 1003 preceded by an adequate strainer shall be installed and the static pressure reduced to sixty one (61) pounds per square inch (421 kPa) or less. Where pressure regulators are required, the pressure regulator shall be installed between the source of water and after the meter and back-flow prevention device (if installed at the meter), and before all exterior and interior fixtures and outlets.

For potable water services up to and including one and one-half (1-½) inch regulators, provision shall be made to prevent pressure on the building side of the regulator from exceeding main supply pressure. Approved regulators with integral bypasses shall be acceptable. Each such regulator and strainer shall be accessibly located and shall have the strainer readily accessible for cleaning without removing the regulator or strainer body or disconnecting the supply piping. Pressure regulators shall not be the type that can be adjusted to provide static water pressure more than seventy five (75) pounds per square inch (518 kPa).

P2903.7 Size of water-service mains, branch mains, and risers. Section P2903.7 of the IRC is amended to read as follows: The minimum size water service pipe shall be ¾ inch. The size of water service mains, branch mains and risers shall be determined according to water supply demand [gpm (L/m)], available water pressure [psi (kPa)] and friction loss due to the water meter and developed length of pipe [feet (m)], including equivalent length of fittings. The size of each water distribution system shall be determined according to the procedure outlined in this section or by other design methods conforming to acceptable engineering practice and approved by the administrative authority:

1. Obtain the minimum daily static service pressure [psi (kPa)] available (as determined by the local water authority) at the water meter or other source of supply at the installation location. Adjust this minimum daily static pressure [psi (kPa)] for the following conditions:

1.1. Determine the difference in elevation between the source of supply and the highest water supply outlet. Where the highest water supply outlet is located above the source of supply, deduct 0.5 psi (3.4 kPa) for each foot of difference in elevation. Where the highest water supply outlet is located below the source of supply, add 0.5 psi (3.4 kPa) for each foot of difference in elevation.

1.2. Where a water pressure reducing valve is installed in the water distribution system, the minimum daily static water pressure available is 80 percent of the minimum daily static water pressure at the source of supply or the set pressure downstream of the pressure reducing valve, whichever is smaller.

1.3. Deduct all pressure losses due to special equipment such as a backflow preventer, water filter and water softener. Pressure loss data for each piece of equipment shall be obtained through the manufacturer of such devices.

1.4. Deduct the pressure in excess of 8 psi (55 kPa) due to installation of the special plumbing fixture, such as temperature controlled shower and flushometer tank water closet. Using the resulting minimum available pressure, find the corresponding pressure range in Table P2903.7.

2. The maximum developed length for water piping is the actual length of pipe between the source of supply and the most remote fixture, including either hot (through the water heater) or cold water branches multiplied by a factor of 1.2 to compensate for pressure loss through fittings. Select the appropriate column in Table P2903.7 equal to or greater than the calculated maximum developed length.

3. To determine the size of water service pipe, meter and main distribution pipe to the building using the appropriate table, follow down the selected maximum developed length column to a fixture unit equal to, or greater than the total installation demand calculated by using the combined water supply fixture unit column of Table P2903.6. Read the water service pipe and meter sizes in the first left-hand column and the main distribution pipe to the building in the second left-hand column on the same row.

4. To determine the size of each water distribution pipe, start at the most remote outlet on each branch (either hot or cold branch) and, working back toward the main distribution pipe to the building, add up the water supply fixture unit demand passing through each segment of the distribution system using the related hot or cold column of Table P2903.6. Knowing demand, the size of each segment shall be read from the second left-hand column of the same table and a maximum developed length column selected in Steps 1 and 2, under the same or next smaller size meter row. In no case does the size of any branch or main need to be larger than the size of the main distribution pipe to the building established in Step 3.

5. The size of pipes from the hot water heater and all hot water branches shall not less than the minimum size necessary to meet the water supply requirements, as outlined in this section.

6. All above determinations shall be clearly noted on the plans, specifications, drawings or a worksheet submitted to the Administrative Authority whenever pipes from the hot water heater exceed one half (½) inch in diameter.

P3002.2.2 Building sewer. In no event shall building sewer be less than four (4) inches in diameter.

P3005.4 Drain pipe sizing.

Section P3005.4 of the IRC is amended to read as follows: Drain pipes shall be sized according to drainage fixture unit (d.f.u.) loads. The size of the drainage piping shall not be reduced in size in the direction of flow. The following general procedure is permitted to be used:

1. Draw an isometric layout or riser diagram denoting fixtures on the layout.
2. Assign d.f.u. values to each fixture group plus individual fixtures using Table P3004.1.
3. Starting with the top floor or most remote fixtures, work downstream toward the building drain accumulating d.f.u. values for fixture groups plus individual fixtures for each branch. Where multiple bath groups are being added, use the reduced d.f.u. values in Table P3004.1, which take into account probability factors of simultaneous use.
4. Size branches and stacks by equating the assigned d.f.u. values to pipe sizes shown in Table P3005.4.1.
5. Determine the pipe diameter and slope of the building drain and building sewer based on the accumulated d.f.u. values, using Table P3005.4.2, but in no event shall the building sewer be less than four (4) inches in diameter.

P3012~~0~~ Private sewage disposal system.

Section P3012~~0~~ of the IRC is added.

P3012~~0~~.1 Private system. Whenever a private sewage disposal system is required, the type, size, construction and its location of the system must comply with the requirements of the State of Nevada Bureau of Health Protection. Examination and approval of any proposed private sewage disposal system by the State of Nevada Bureau of Health Protection or the authorized county inspector may be required before issuance of any permit.

P3012~~0~~.2 Fees.

A fee set by resolution of the board must be paid when application is made for a private sewage disposal system.

~~**P3012~~0~~.3 Engineered system**.~~

~~If a private sewage disposal system needs or requires an engineered design because of high ground water or percolation problems, an application for its approval must be submitted to the State of Nevada Bureau of Health Protection. After the application and the engineered system are approved by the State of Nevada Bureau of Health Protection, the applicant must secure a letter of approval from the agency. Upon submitting the letter of approval to the building official, the permit for the structure may be issued. Only after the State of Nevada Bureau of Health Protection has issued a written approval for the completion of the engineered system, the building official may issue a certificate of occupancy for the structure it serves. Douglas County assumes no responsibility whatsoever for the engineered system.~~

~~**E3501.1 Administrative Provisions**.~~

~~Section E3501.1 of the IRC is amended by adding the following: The administrative provisions of NFPA 70 article 80 are adopted for use with this code. Where, in any specific case,~~

~~a conflict occurs between this code and NFPA Article 80, the requirements of the most restrictive provision shall govern.~~

E36~~5~~01.2 Number of services.

Section E36~~5~~01.2 of the IRC is amended by adding a subsection to read as follows: Properties determined to be one acre or less shall only be supplied by one service, unless special permission is granted by the building official in the form of a waiver.

~~**E3501.3: Service disconnect required**.~~

~~Section E3501.3 of the IRC is amended to read as follows: The disconnecting means shall be physically installed and attached to the outside of the building or structure served or where the conductors pass through the building or structure. The disconnecting means shall be at a readily accessible location nearest the point of entrance of the conductors. For the purpose of this section, the requirements in NEC article 230.6 shall be permitted to be utilized.~~

~~Exception #1: Manufactured housing, as regulated by NRS 489 and NEC article 550. When the disconnecting means is mounted independently of the manufactured structure, it shall be readily identified by a 6-inch equilateral triangle, red in color that complies with the Fire Code.~~

~~Exception #2: The disconnecting means may be mounted independently of the structure served, when mounted in direct line of sight, but no greater than 50-feet from the structure, and the independent disconnecting means is identified by a red triangle that complies with the Fire Code.~~

E36~~5~~01.6~~3~~.1 Marking of service equipment and disconnects.

Service disconnects shall be permanently marked as a service disconnect. Service equipment shall be listed for that purpose. Individual meter socket enclosures shall not be considered service equipment.

~~**E3501.3.2 Service disconnect location**.~~

~~The service disconnecting means shall be installed at a readily accessible location outside of a building or other structure nearest the point of entrance of the service conductors. The service disconnecting means shall be located not more than 50 feet from the building or structure it serves. Installation of the disconnecting means shall not be more than 6 feet – 6 inches above finish grade or front access level to the top of the operating handle. The feeder or supply conductors to a building or other structure, other than a detached Group U occupancy, when located more than 50 feet from the service disconnecting means, shall have an exterior disconnect placed at a point readily accessible nearest the point of entrance of the feeder conductor installed not more than 6 feet above finish grade or front access level to the top of the operating handle.~~

~~Exception: The service disconnecting means may be installed within a building when an external, remote shunt trip switch is provided. All shunt trip switches shall be located a maximum of 6 feet – 6 inches above finish grade at a location approved by the fire department. All shunt trip switches shall be located within a 6-inch equilateral triangle, red in color. Service disconnecting means shall not be installed in bathrooms. Each occupant shall have access to the disconnect serving the dwelling unit in which they reside.~~

E3601.6.2 Service disconnect location. The service disconnecting means shall be installed at a readily accessible location outside of a building or structure inside nearest the

point of entrance of the service conductors. The disconnecting means may be located independent of the building or structure served, in direct line of sight, but not to exceed thirty (30) feet.

Exception: The service disconnecting means may be installed within a building when an external remote shunt trip switch is provided. All shunt trip switches shall be located at seven feet (7') above finish grade at a location approved by the fire department. All shunt trip switches shall be located within twelve inches (12") equilateral triangle, red in color.

E36~~5~~01.8 Service group. Section E36~~5~~01 of the IRC is amended by adding a subsection to read as follows: E36~~5~~01.8 Service group. Multiple services, which supply more than one building or structure on the same property, shall be grouped together with distances between panels not to exceed 10 feet of separation, unless special permission is granted by the building official in the form of a waiver.

~~**E3601.98 Feeder disconnect required**.~~

~~Section E3601 of the IRC is amended adding a subsection to read as follows: E3601.8 Feeder disconnect required. The disconnecting means shall be physically installed and attached to the outside of the building or structure served or where the conductors pass through the building or structure. The disconnecting means shall be at a readily accessible location nearest the point of entrance of the conductors. For the purpose of this section, the requirements in NEC article 230.6 shall be permitted to be utilized.~~

~~Exception #1: Manufactured housing, as regulated by NRS 489 and NEC Article 550. When the disconnecting means is mounted independently of the manufactured structure, it shall be readily identified by a 6-inch equilateral triangle, red in color that complies with the Fire Code.~~

~~Exception #2: The disconnecting means may be mounted independently of the structure served, when mounted in direct line of sight, but no greater than 50-feet from the structure, and the independent disconnecting means is identified by a red triangle that complies with the Fire Code.~~

E3705.6.1 Edison fuses. Plug fuses of the Edison- based shall be used only for replacement in existing installations where there is no evidence of overfusing or tampering. In any existing building where alterations or additions are made to any of the premises wiring, all fuse holders shall be made to comply with the requirements for a Type S fuse holder through the installation of a tamper proof (rejection type) base.

E3901.2.2 Wall space.

1. Any space 2 ft. (610mm) or more in width, including space measured around corners, and that is unbroken along the floor line by doorways and similar opening, fireplaces, and fixed cabinets that do not have countertops or similar work surfaces.
2. The space occupied by fixed panels in exterior walls, excluding sliding panels.
3. The space created by fixed room dividers such as railings and freestanding bar-type counters.

Exception No. 1: *The space behind operable doors.*

Exception No. 2*: Vestibules, hallways, and similar areas less than 5 ft. wide in bedrooms.*

E3902.2 Garage and accessory building receptacles. 125- volt, single- phase, 15 or 20 ampere receptacles installed in garages and grade- level portions of unfinished accessory buildings used for storage or work areas shall have ground- fault circuit- interrupter protections for personnel.

Exception: Single receptacle for a fixed in place heating appliance only (example: fuel- fired FAU, heat pump or water heater) when located within an attached garage.

~~**E3902.12 Bedrooms outlets**.~~

~~Section E3902.12 of the IRC is amended to read as follows: With the exception of smoke detectors, carbon monoxide detectors, and home security systems installed on individual branch circuits, all branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in dwelling unit bedrooms shall be protected by an arc-fault circuit interrupter (AFCI) listed to provide protection of the entire branch circuit.~~

~~E3902.17 Arc-fault circuit-interrupter protection for branch circuit extensions or modifications~~. Section E3902.17 is deleted.

E4209.~~43~~ Accessibility.

Section E4209.3 of the IRC is amended to read as follows: Hydromassage bathtub electrical equipment access shall not be from a crawl space. The electrical equipment shall be accessible without damaging the building structure or interior and exterior building finish, no access shall be allowed through the under floor.

~~**H105.2 Footings.**~~

~~Section H105.2 of the IRC is added to read as follows: A patio cover shall be permitted to be supported on a concrete slab on grade without footings, provided the slab conforms to the provisions of Chapter 19 of this code, is not less than 3½ inches (89 mm) thick and further provided that the columns do not support loads in excess of 750 pounds (3.36 kN) per column.~~

AH105.2 Footings. For patio covers supported on a concrete slab- on- grade without footings, the slab shall conform to the provisions of Section R506, shall be not less than 3.5 inches (89 mm) thick and the columns shall not support live or dead loads in excess of 750 pounds (3.34 kN) per column.

SECTION V: Title 20 – Appendix B of the Douglas County Code, "Uniform Mechanical Code Revisions," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

UNIFORM MECHANICAL CODE REVISIONS

107~~10~~ Appeals. Section 107~~10~~ of the UMC is deleted and amended by substituting the following language: The building official's determination of the suitability of alternate materials or other means of construction may be appealed to the building and fire board of appeals in accordance with section 20.810.040.

104~~12.1~~ Permits. Section 104 ~~12.1~~ of the UMC is amended by adding the following language: A separate permit is not required under this code if a valid building permit has been issued under the IBC or IRC for the permitted structure.

104.5 Fees. Section 115.2 of the UMC is deleted and the following language added: Fees are computed on the basis of the work to be performed as set by resolution of the board.

304.3 Access to appliances on roofs. Appliances located on roofs or other elevated locations above 30 inches shall be accessible.

304.3.1 Access. Buildings exceeding 15 feet (4572 mm) in height shall have an inside means of access to the roof unless other means acceptable to the Authority Having Jurisdiction are used.

304.3.1.1 Access Type. The inside means of access shall be a permanent, or foldable inside stairway or ladder, terminating in an enclosure, scuttle, or trap door. Such scuttles or trap doors shall be not less than 22 inches by 24 inches (559 mm by 610 mm) in size, shall open easily and safely under all conditions, especially snow; and shall be constructed so as to permit access from the roof side unless deliberately locked on the inside.

Not less than 10 feet (3048 mm) of clearance shall be between the access opening and the edge of the roof or similar hazard or rigidly fixed rails or guards not less than 42 inches (1067 mm) in height shall be provided on structures are utilized in lieu of guards or rails, they shall be not less than 42 inches (1067 mm) in height.

403.7.2 Enclosed parking garages. Mechanical ventilation systems for enclosed parking garages shall operate continuously.

Exceptions:

1. Mechanical ventilation systems for enclosed parking garages shall be permitted to operate intermittently where the system is designed to operate automatically upon detection of vehicle operation or presence of occupants by approved automatic detection devices.

2. Automatic carbon monoxide sensing devices shall be permitted to be employed to modulate the ventilation system to maintain a maximum average concentration of carbon monoxide of 50 parts per million during an eight-hour period, with a concentration of not more than 200 parts per million for a period not exceeding one hour. Automatic carbon monoxide sensing devices installed to modulated parking garages ventilation systems shall be approved.

504.4.2.1 Length Limitation. Unless otherwise permitted or required by the dryer

manufacturer's instructions and approved by the Authority Having Jurisdiction, domestic dryer moisture exhaust ducts shall not exceed a total combined horizontal and vertical length of 14 feet (4267 mm), including two 90- degree (1.57 rad) elbows. Two (2) feet (610 mm) shall be deducted for each 90- degree (1.57 rad) elbow in excess of two. The maximum length of a clothes dryer exhaust duct shall not exceed 35 feet (10 668 mm) from the dryer location to the wall or roof termination. The maximum length of the duct shall be reduced 2.5 (762 mm) for each 45- degree (0.8 rad) bend and 5 feet (1524 mm) for each 90- degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Exceptions:

1. Where the make and model of the clothes dryer to be installed is known and the manufacture's installation instructions for the clothes dryer are provided to the Authority Having Jurisdiction, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacture's installation instructions.
2. Where large- radius 45- degree (0.8 rad) and 90- degree (1.6 rad) bends are installed, determination of the equivalent length of clothes dryer exhaust duct for each bend by engineering calculation in accordance with ASHRAE Fundamentals Handbook shall be permitted.

505.10 Makeup Air. Makeup air shall be provided to replenish air exhausted by the ventilator system. Exhaust hood systems capable of exhausting in excess of 600 cfm (0.28 m3/s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system. Makeup air intakes shall be located so as to avoid recirculation of contaminated air within enclosures.

508.3.5.4.1 Evaporative cooling systems. Evaporative cooling systems will comply with this chapter. Evaporative coolers shall not be used for makeup air units on commercial kitchen hoods and kitchen ventilation systems.

Exception: Evaporative cooling systems that are part of a listed heating air system for kitchen make up air systems. The temperature differential between the makeup air and the air in the conditioned space shall not exceed 10ºF (6ºC) except where the added heating and cooling load of makeup air do not exceed the capacity if the HVAC system.

511.2.2.2 Capture and Containment Test. The permit holder shall verify the capture and containment performance of Type I hoods. A field test shall be conducted with all appliances under the hood at operating temperatures, all the hoods operating at design airflows, and with all sources of replacement air operating at design airflows for the restaurant. Capture and containment shall be verified by observing smoke or steam produced by actual cooking operation or by simulating cooking using devices such as smoke candles or smoke puffers. Smoke bombs shall not be used.

Exception: Capture and containment test not required if hood is UL and NFPA listed and manufacturer data lists the individual equipment below hood.

604.1 General. Supply- air ducts, return air- ducts, and plenum of a heating or cooling system shall be insulated to achieve the minimum thermal (R) value in accordance with the 2018 International Energy Conservation Code Section 403.2.1 for residential and 503.2.7 for commercial.

608.1 Air-moving systems and smoke detectors. Air- moving systems supplying air in excess of 2000 cubic feet per minute (ft. 3 /min) (0.9439 m 3 /s) to enclosed spaces within buildings shall be equipped with an automatic shutoff. Automatic shutoff shall be accomplished by interrupting the power source of the air- moving equipment upon detection of smoke in the main return- air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances served by such equipment. Duct smoke detectors shall comply with UL 268A and shall be installed in accordance with the manufacturer's installation instructions. Such devices shall be compatible with the operating velocities, pressures, temperatures, and humidities of the system. Where fire- detection or alarm systems are provided for the building, the smoke detectors shall be supervised by such systems in an approved manner.

Exceptions:

1. Where the space supplied by the air- moving equipment is served by a total coverage smoke- detection system in accordance with the fire code, interconnection to such system shall be permitted to be used to accomplish the required shutoff.
2. Automatic shutoff is not required where occupied rooms served by the air- handling equipment have direct exit to the exterior and the travel distance does not exceed 100 feet (30 480 mm).
3. Automatic shutoff is not required for Group R, Division 3 and Group U Occupancies.
4. Automatic shutoff is not required for approved smoke control systems or where analysis demonstrates shutoff would create a greater hazard, such as shall be permitted to be encountered in air- moving equipment supplying specialized portions of Group H Occupancies. Such equipment shall be required to have smoke detection with remote indication and manual shutoff capability at an approved location. (5) Smoke detectors that are factory installed in listed air moving equipment shall be permitted to be used in lieu of smoke detectors installed in the main supply- air duct served by such equipment.

609.0 Performance test for automatic shut-offs. Upon completion and before final approval of the air- moving system, provide with the required smoke detectors, a performance test shall be performed to verify compliance of detector installation to manufacturer's instructions and system compatibility as specified in this chapter. The permittee shall furnish the necessary test equipment and devices required to perform the tests and shall provide the jurisdiction with an accurate, completed, and signed test report. The report shall provide the jurisdiction a form containing equivalent information. At the discretion of the Authority Having

Jurisdiction, the performance test may be required to be witnessed by the Authority Having Jurisdiction or performed by an approved third- party testing agency.

902.1 Appliance emissions. Section 902.1 of the UMC is amended to read as follows: No person shall install any wood burning stove or fireplace insert that emits more than the emission standards set by this section. A permit shall not be issued to any person who wishes to install a wood burning stove or fireplace insert that does not meet the emission standards of this section.

A. Each wood burning stove or fireplace insert shall bear a certification from the manufacturer that the appliance meets the emission standards set forth in this section.

B. Wood burning stove and fireplace inserts certified to meet the emission standards set by United States Environmental Protection Agency under 40 CFR Part 60 are deem in compliance with the requirements of this section.

C. For wood burning stoves and fireplace inserts the minimum emissions are as follows: For non-catalytic appliances the emissions shall not exceed 7.5 grams, for catalytic equipped appliances the emissions shall not exceed 4.1 grams.

Any person failing to provide the statement required under this section or installing a wood burning heater, stove, or fireplace insert without a permit is guilty of a misdemeanor pursuant to section 20.800.090.

939.1 Sauna heaters

939.2 General. Sauna heaters shall be listed and installed in accordance with the manufacturer's installation instructions. Approved guards or barriers shall be installed to prevent accidental contact with the sauna heater. Ventilation shall be provided in accordance with its listing and combustion air for gas- fired sauna heaters shall comply with chapter 7.

1001.1 Applicability. For boilers and water heaters less than 120 gallon capacity, or a BTU input rating less than 200,000, or less than 160 pounds per square inch of pressure, see Chapter 5 of the Uniform Plumbing Code. For all other units, contact the Mechanical Compliance Section of the Nevada Division of Industrial Relations, part of the Department of Business and Industry.

1301.1 Applicability. The regulations of this chapter shall govern the installation of fuel gas piping in or in connection with a building, structure or within the property lines of premises up to 5 pounds- force per square inch (psi) (34 kPa), other than service pipe.

Fuel oil piping systems shall be installed in accordance with NFPA 31. Whenever there is a conflict between this code and NFPA 54 and NFPA 58 as adopted by the Nevada LP- Gas Board for LP- Gas installations, the adopted codes of the Nevada LP- Gas Board shall govern.

1313.3 Test pressure. This inspection shall include an air, CO2, or nitrogen pressure test, at which time the gas piping shall stand a pressure of not less than 25 psi (172.4 kPa) gauge pressure. Test pressures shall be held for a length of time satisfactory to the Authority Having

Jurisdiction but in no case less than 30 minutes with no perceptible drop in pressure. For welded piping, and for piping carrying gas at pressures in excess of 14 inches water column (3.5 kPa) pressure, the test pressure shall be not less than 60 psi (414 kPa) and shall be continued for a length of time satisfactory to the Authority Having Jurisdiction, but in no case for less than 30 minutes. These tests shall be made using air, CO2, or nitrogen pressure and shall be made in the presence of the Authority Having Jurisdiction. Necessary apparatus for conducting tests shall be furnished by the permit holder. Test gauges used in conducting test shall be in accordance with Section 318.0.

1313.5.1 Turning Gas On. During the process of turning gas on into a system of new gas piping or portion of a gas system that has been restored after an interruption of service, the entire system shall be inspected to determine that there are no open fittings or ends and that all valves at unused outlets are closed and plugged or capped. During the process of turning gas on into a system of new gas piping or into a system or portion of a gas system that has been restored after an interruption of service; in the City of Fernley, City of Reno, City of Sparks, Storey County and Washoe County a manometer test shall be made after all valves, unions, connectors and piping to the appliances are complete. A pressure test shall be made with the use of a manometer gauge measuring inches of water column. With all valves including gas cock and gas control valves in the open position, a pressure of at least eleven (11) to fifteen (15) inches of water column shall be measured for at least fifteen (15) minutes with no perceptible drop in pressure.

For medium pressure gas systems: Where the appliance is rated for seven (7) to eleven (11) inches of water column, a manometer test of eleven (11) to fifteen (15) inches of water column will be conducted between the pressure regulating valve and the appliance and shall be measured for at least fifteen (15) minutes with no perceptible drop in pressure.

For appliances or equipment requiring pounds of gas pressure: A pressure test using a pressure gauge measuring in one tenth (1/10) increments shall be conducted on the gas train of that appliance or equipment. The pressure shall be equal to the appliance's normal operating pressure for a period of thirty (30) minutes with no perceptible drop in pressure.

Manometer testing. Manometer testing shall be performed by a person holding a valid Washoe County manometer tester card for which the number is to be provided at the time of request for inspection. A visual manometer test to be witnessed by the authority having jurisdiction may be allowed by the Building Official. A manometer test does not need to be reported when the serving gas utility performs a manometer or clock test prior to providing service.

SECTION VI: Title 20 – Appendix B of the Douglas County Code, "Uniform Plumbing Code Revisions," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

UNIFORM PLUMBING CODE REVISIONS

713.2~~102.2.7~~ Engineered private sewage system. Subsection 713.2~~102.2.7~~ is added to read as follows: If a private sewage disposal system needs or requires an engineered design because of high ground water or percolation problems, an application for its approval must be submitted to the State of Nevada Bureau of Health Protection. After the application and the engineered system are approved by the State of Nevada Bureau of Health Protection, the applicant must secure a letter of approval from the agency. Upon submitting the letter of approval to the building official, the permit for the structure may be issued. Only after the State of Nevada Bureau of Health Protection has issued a written approval for the completion of the engineered system, the building official may issue a certificate of occupancy for the structure it serves. Douglas County assumes no responsibility whatsoever for the engineered system.

107.1.2~~2.2.8~~ Appeals. The building official's determination of the suitability of alternate materials or other means of construction may be appealed to the building and fire board of appeals in accordance with section 20.810.040.

104.1~~3.11~~ Permit required. Section 104.1~~3.11~~ of the UPC is amended by adding the following language: A separate permit is not required under this code if a valid building permit has been issued under the IBC or IRC for the permitted structure.

104.5~~3.4.1~~ Fees. Section 104.5~~3.4.1~~ of the UPC is amended by deleting the schedule of fees and substituting the following language: Plumbing permit fees must be computed on the basis of the work to be performed as set by resolution of the board.

216.0 Definitions. Non-Combustible material. Materials that, when tested in accordance with ASTM E136, have at least three of four specimens tested meeting all of the following criteria:

1. The recorded temperature of the surface and interior thermocouples shall not at any time during the test rise more than 54ºF (30ºC) above the furnace temperature at the beginning of the test.
2. There shall not be flaming from the specimen after the first 30 seconds.
3. If the weight loss of the specimen during testing exceeds 50 percent, the recorded temperature of the surface and interior thermocouples shall not at any time during the test rise above the furnace air temperature at the beginning of the test, and there shall not be flaming of the specimen.

~~**Section 218.0 Definition. Penetration Firestop System.**Penetration Firestop System. A specific assemblage of field-assembled materials, or a factory-made device, which has been tested to a standard test method and, where installed properly on penetrating piping materials, is capable of maintaining the fire-resistance rating of assemblies penetrated.~~

~~**Section 222.0 Definitions. T Rating.** The time period that the penetration firestop system, including the penetrating item, limits the maximum temperature rise of 325° (163°C) above its initial temperature through the penetration on the non-fire side, where tested in accordance with ASTM E 814 or UL 1479.~~

Section 312.7 Fire-Resistant Construction. Fire-Resistant Construction. Piping penetrations of fire-resistance-rated walls, partitions, floors, floor/ceiling assemblies, roof/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the building code.

Section 422.0 Minimum Number of Required Fixtures. This section is intentionally deleted.

Table 422.1 Minimum Plumbing Facilities. This table is intentionally deleted.

603.21 Approval of devices or assemblies. Section 603.21 of the UPC is amended to read as follows: The owner of the premises or the responsible person shall have the backflow prevention assembly tested by a certified backflow assembly tester at the time of installation, repair or relocation and at least annually thereafter unless required more frequently by the water purveyor, or utility and/or the State Health Department. The periodic testing shall be performed in accordance with procedures referenced in the University of Southern California manual of Cross-Connection Control (Ninth Edition) by a tester qualified in accordance with those standards and with the standards in the CA-NV section of the AWWA backflow prevention assembly testers and cross-connection control program.

604.76 Materials. Section 604.76 of the UPC is amended as follows: All malleable iron water fittings shall be galvanized. All galvanized water pipe and fittings shall be kept at least six (6) inches above final grade.

608.2 Excessive water pressure. Section 608.2 of the UPC is amended to read as follows: Where local static water pressure is in excess of sixty-five (65) pounds per square inch (448 kPa), an approved type pressure regulator preceded by an adequate strainer shall be installed and the static pressure reduced to sixty-one (61) pounds per square inch (421 kPa) or less. Where pressure regulators are required, the pressure regulator shall be installed between the source of water and after the meter and back-flow prevention device (if installed at the meter), and before all exterior and interior fixtures and outlets.

For potable water services up to and including one and one-half (1-½) inch (40 mm) regulators, provision shall be made to prevent pressure on the building side of the regulator from exceeding main supply pressure. Approved regulators with integral bypasses shall be acceptable. Each such regulator and strainer shall be accessibly located and shall have the strainer readily accessible for cleaning without removing the regulator or strainer body or disconnecting the supply piping. Pressure regulators shall not be the type that can be adjusted to provide static water pressure more than seventy-five (75) pounds per square inch (518 kPa). All pipe size determinations shall be based on eighty (80) percent of the reduced pressure when using Table 6-5.

609.1 Installation. Section 609.1 of the UPC is amended to read as follows: All water piping shall be adequately supported in accordance with Table 313.3Section 314.0. Burred ends shall be reamed to the full bore of the pipe or tube. Changes in direction shall be made by the appropriate use of fittings, except that changes in direction in copper or copper alloy tubing may be made with bends, provided that such bends are made with bending equipment which does not deform or create a loss in the cross-sectional area of the tubing. Changes in direction are allowed with flexible pipe and tubing without fittings in accordance with the manufacturer's installation

instructions. Provisions shall be made for expansion in hot-water piping. All piping, equipment, appurtenances, and devices shall be installed in a workmanlike manner in conformity with the provisions and intent of the code. Building supply ~~All water service~~ yard piping shall be at least six (6) inches (152 mm) below the average local frost depth.

610.1 Size of potable water piping. Section 610.1 of the UPC is amended to read as follows: The size of each water meter and each potable water supply pipe from the meter or other source of supply to the fixture supply branches, risers, fixtures, connections, outlets, or other uses shall be based on the total demand and shall be determined according to the methods and procedures outlined in this section. The size of pipes from the hot water heater and all hot water branches shall not exceed the minimum size necessary to meet the water supply requirements, as outlined in this section. Other than systems sized by the use of Table 6-5, the system shall be designed to assure that the maximum velocities allowed by the code and the applicable standard are not exceeded.

610.7 Water pipe sizing. Section 610.7 of the UPC is amended to read as follows: 610.7 On any proposed water piping installation sized using Table 6-5, the following conditions shall be determined:

1. Total number of fixture units as determined from Table 6-4, Equivalent Fixture Units, for the fixtures to be installed.
2. Developed length of supply pipe from meter to most remote outlet.
3. Difference in elevation between the meter and other source of supply and the highest fixture or outlet.
4. Pressure in the street main or other source of supply at the locality where the installation is to be made.
5. In localities where there is a fluctuation of pressure in the main throughout the day, the water piping system shall be designed on the basis of the minimum pressure available.

All above determinations shall be clearly noted on the plans, specifications, drawings or a worksheet submitted to the Administrative Authority whenever pipes from the hot water heater exceed one half (½) inch in diameter.

712.1 Media. The piping of the plumbing, drainage and venting systems shall be tested with water or air. The authority having jurisdiction shall be permitted to require the removal of cleanouts, etc., to ascertain whether the pressure has reached all parts of the system. After the plumbing fixtures have been set and their traps filled with water, they shall be submitted to a final test.

717.10 Size of building sewers; General. Section 717.10 of the UPC is amended to read as follows: The minimum size of any building sewer shall be determined on the basis of the total number of fixture units drained by such sewer, in accordance with Table 717.17 ~~8~~, but in no event shall be less than the building drain or four (4) inches in diameter. No building sewer shall be smaller than the building drain. For alternate methods of sizing building sewers, see Appendix C~~L~~.

723.1 Building Sewer Test; General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage

disposal system and completely filling the building sewer with water from the lowest to highest point thereof, or by approved equivalent low- pressure air test. The building sewer shall be watertight.

1101.6~~5~~ Subsoil drains. Section 1101.6~~5~~.1 of the UPC is amended to read as follows: Where required by the geotechnical engineer or the building official, subsoil drains shall be provided around the perimeter of buildings having basements, cellars, or crawl spaces or floors below grade. Such subsoil drains may be positioned inside or outside of the footing, shall be of perforated or open-jointed approved drain tile or pipe not less than three (3) inches (80 mm) in diameter, and shall be laid in gravel, slag, crushed rock, approved three-quarter (¾) inch (19.1 mm) crushed recycled glass aggregate, or other approved porous material with a minimum of four (4) inches (102 mm) surrounding the pipe on all sides. Filter media shall be provided for exterior subsoil piping.

1107.2 Methods of Testing storm Drainage Systems. Except for outside leaders and perforated or open-jointed drain tile, the piping of storm drain systems shall be tested upon completion of the rough piping installation or air, and proved tight. The authority having jurisdiction shall be permitted to require the removal of cleanout plugs to ascertain whether the pressure has reached parts of the system. One of the following test methods shall be used in accordance with Section 1109.2.1 through Section 1109.2.3.

1201.1 Installation. The regulations of this chapter shall govern the installation of fuel gas piping in or in connection with a building, structure or within the property lines of premises up to 5 pounds- force per square inch (34 kPa), other than service pipe. Fuel oil piping systems shall be installed in accordance with NFPA31. Whenever there is a conflict between this code and NFPA 54 and NFPA 58 as adopted by the Nevada LP- Gas Board for LP- Gas installations, the adopted codes of the Nevada LP- Gas Board shall govern.

1208.6.1.3 Snow Hazard. Protection of utilities shall be per requirements of local utility.

1213.3 Test Pressure. This inspection shall include an air, CO2, or nitrogen pressure test, at which time the gas piping shall stand a pressure of not less than 25 psi (172.4 kPa) gauge pressure. Test pressures shall be held for a length of time satisfactory to the Authority Having Jurisdiction, but in no case less than 30 minutes with no perceptible drop in pressure. For welded piping, and for piping carrying gas at pressures in excess of 14 inches water column pressure (3.5 kPa), the test pressure shall be not less than 60 psi (414 kPa) and shall be continued for a length of time satisfactory to the Authority Having Jurisdiction, but in no case for less than 30 minutes. These tests shall be made using air, CO2, or nitrogen pressure and shall be made in the presence of the Authority Having Jurisdiction. Necessary apparatus for conducting tests shall be furnished by the permit holder. Test gauges used in conducting tests shall be in accordance with Section 318.0.

1213.5.1 Turning Gas On. During the process of turning gas on into a system of new gas piping or into a system of new gas piping or into a system or portion of a gas system that has been restored after an interruption of service, the entire system shall be inspected to determine that there are no open fittings or ends and that the valves at unused outlets are closed

and plugged or capped.

Chapter 14~~5~~, **Firestop protection,** of the UPC is repealed.

SECTION VII: Title 20 – Appendix B of the Douglas County Code, "National Electric Code Revisions," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

NATIONAL ELECTRIC CODE REVISIONS

Article 100 Definitions. Article 100 of the NEC is amended by amending the following language:

Authority having jurisdiction. The organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure.

Electrical inspector. An individual authorized to perform electrical inspections by the building official.

Article 80.13 Authority. Article 80.13 of the NEC is amended by amending the following language:

Where used in this article, the term authority having jurisdiction shall include the building official or other individuals designated by the building official. This code shall be administered and enforced by the building official as designated by the governing authority as follows.

1. The authority having jurisdiction shall be permitted to render interpretations of this code in order to provide clarification to its recommendations, as permitted by 90.4.

2. When the use of electrical equipment or its installation is found to be dangerous to human life or property, the authority having jurisdiction shall be empowered to have the premises disconnected from its source of electrical supply.

The remainder of Article 80.13 will remain as adopted.

Article 80.15 Electrical board. Article 80.15 is repealed.

Article 80.19 Permits and approvals. Article 80.19 subsection (C) Issuance of Permits is amended by adding the following: (3) Or such items designated in writing by the building official.

Article 80.19 (D) Annual permits subsection is repealed.

Article 80.19 (F) Inspections and approvals subsection is amended to read as follows:

1. Upon the completion of any installation of electrical equipment that has been made under a permit, it shall be the duty of the person, firm, or corporation making the installation to

notify the electrical inspector having jurisdiction, who shall inspect the work within a reasonable time.

2. Where the inspector finds the installation to be in conformity with the statutes of all applicable local ordinances and all rules and regulations, the inspector shall issue to the person, firm or corporation making the installation a certificate of approval, authorizing the connection to be supplied of electricity. When a certificate of temporary approval is issued authorizing the connection of an installation, such certificates shall be issued to expire at a time to be stated therein and shall be revocable by the electrical inspector for cause.

3. When any portion of the electrical installation within the jurisdiction of an electrical inspector is to be hidden from view by the permanent placement of parts of the building, the person, firm, or corporation installing the equipment shall notify the electrical inspector, and such equipment shall not be concealed until it has been approved by the electrical inspector. Where the concealment of the equipment proceeds continuously, the person, firm, or corporation installing the equipment shall give the electrical inspector due notice in advance, and inspections shall be made periodically during the progress of work.

4. If, upon inspection, any installation is found not to be fully in conformity with the provisions of Article 80, and all applicable ordinances, rules, and regulations, the electrical inspector making the inspection shall at once forward to the person, firm, or corporation making the installation a written correction notice stating the defects that have been found to exist.

Article 80.19 subsection (**H) Applications and extensions** is repealed.

Article 80.23 Notice of violation, penalties. Article 80.23 subsection (B) Responsibility of the Authority Having Jurisdiction is repealed.

Article 80.25 Connection to electrical supply. Article 80.25 is amended to read as follows: Connections to the electrical supply shall be conformed to Article 80.25 (A) through (C).

A. Authority. It shall be unlawful for any person, firm, or corporation to make connection to a supply of electricity or to supply electricity to any electrical equipment installation for which a permit is required or that has been disconnected or ordered to be disconnected.

B. Special Consideration. By special permission of the authority having jurisdiction, temporary power shall be permitted to be supplied to the premises for specific needs of the construction project. The building official shall determine what needs are permitted under this prevision.

C. Disconnection. Where a connection is made to an installation that has not been inspected, as outlined in the proceeding paragraphs of this section, the supplier of the electricity shall immediately report such connection to the authority having jurisdiction. If, upon subsequent inspection, it is found that the installation is not in conformity with the provisions of Article 80, the building official shall notify the person, firm, or corporation making the installation to rectify the defects and, if such work is not completed within (15) business days, the building official shall have the authority to cause the disconnection of the portion of the installation that is not in conformity.

Article 80.27 Inspector's qualifications. Article 80.27 is amended to read as follows:

A. Certification. All electrical inspectors shall be certified by a nationally recognized inspector certification program accepted by the building official. The certification program shall specifically qualify the inspector in electrical inspections. No person shall be employed as an Electrical Inspector unless that person is the holder of an electrical inspector's certification.

B. Experience. Electrical Inspector applicants shall demonstrate the following:

1. Having demonstrated knowledge of the standard materials and methods used in the installation of electrical equipment.

2. Be well versed in the approved methods of construction for safety to persons and property.

3. Be well versed in the statutes of all related electrical work and the National Electrical Code, as approved by the American National Standard Institute.

C. Renovation and Suspension of Authority. The building official shall have the authority to revoke an inspector's authority to conduct inspections within a jurisdiction.

Article 80.29 Liability for damages. Article 80.29 is amended to read as follows: Article 80 shall not be construed to affect the responsibility or liability of any party owning, designing, operating, controlling, or installing any electrical equipment for damages to persons or property caused by a defect therein, nor shall Douglas County or any of its employees be held as assuming any such liability by reason of the inspection, reinspection, or other examination authorized.

Article 90.2 Scope. Article 90.2(D) of the N.E.C. is added to read as follows: 90.2(D) Exempted work. An electrical permit shall not be required for the following:

1. Repair or replacement of fixed motors, transformers or fixed approved appliances of the same type and rating in the same location.

2. Temporary decorative lighting.

3. Repair or replacement of current-carrying parts of any switch, contactor or control device.

4. Reinstallation of attachment plug receptacles, but not the outlets.

5. Repair or replacement of any overcurrent device of the required capacity in the same location.

6. Repair or replacement of electrodes or transformers of the same size and capacity for signs or gas tube systems.

7. Removal of electrical wiring.

8. The wiring for temporary (not to exceed 90 days) theater, motion picture or television stage sets and scenery.

9. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts.

10. Temporary Carnivals and circus equipment.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

~~**Article 210.12 (B) Dwelling unit bedrooms.** Article 210.12 (B) is amended to read as follows: With the exception of smoke detectors, carbon monoxide detectors, and home security~~

~~systems installed on individual branch circuits, all branch circuits that supply 125-volt, single-phase, 15-and 20-ampere outlets installed in dwelling unit bedrooms shall be protected by an arc-fault circuit interrupter to provide protection of the entire branch circuit.~~

Article 210.52(A)(2) Wall Spacing. As used in this section, a wall space shall include any of the following:

1. Any space 600 mm (2 ft.) or more in width (including space measured around corners) and unbroken along the floor line by doorways and similar openings, fireplaces, and fixed cabinets that do not have countertops or similar work surfaces.
2. The space occupied by fixed panels in walls, excluding sliding panels.
3. The space afforded by fixed room dividers, such as free-standing bar-type counters or railings.

Exceptions:

1. *The space behind operable doors.*
2. *Vestibules, hallways, and similar areas less than 5 ft. wide in bedrooms.*

Article 225.32 Location. The disconnecting means shall be attached to the outside of the building or structure served or where the conductors pass through the building or structure. The disconnecting means shall be at a readily accessible location nearest the point of entrance of the conductors. For the purposes of this section, the requirements in 203.6 shall be utilized.

Exceptions:

1. For installations under single management, where documented safe switching procedures are established and maintained for disconnection, and where the installation is monitored by qualified individuals, the disconnecting means shall be permitted to be located elsewhere on the premises.
2. For buildings or other structures qualifying under the provisions of Article 685, the disconnecting means shall be permitted to be located elsewhere on the premises.
3. For towers or poles used as lighting standards, the disconnecting means shall be permitted to be located elsewhere on the premises.
4. For poles or similar structures used only for support of signs installed in accordance with Article 600, the disconnecting means shall be permitted to be located elsewhere on the premises.
5. The disconnecting means shall be located independent of the building or structure served, in direct line of sight, but not to exceed thirty feet (30').
6. The service disconnecting means may be installed within a building when an external remote shunt switch is provided. All shunt trip switches shall be located at seven feet (7') above finish grade at a location approved by the fire department. All shunt trip switches shall be located within a twelve inch (12") equilateral triangle, red in color.

Article 230.2 Number of services. Article 230.2 is amended to read as follows: With the exception of 230.4, a building or other structure served shall be supplied by only one service

unless permitted in Article 230.2 (A) through sets of conductors, 1/0 AWG and larger, running to the same location and conducted together at the supply end shall be considered to be supplying one service.

Article 230.2(D)~~4~~ Residential or agricultural properties. Article 230.4 is added to read as follows: Residential or agricultural properties determined to be one-acre or less shall only be supplied by one service, unless special permission has been granted by the building official.

Exception: An accessory dwelling approved by the County, with the electrical service installed per Article 230.62~~63 and 230.64~~.

Article 230.63 Group. Article 230.63 is added to read as follows: Multiple services, which supply more than one building or structure on the same property, shall be grouped together with a distance between panels not to exceed 10-feet of separation.

Exception: As determined by the building official, commercial or industrial properties with multi structures where each structure is supplied by a separate service may not be required to have all services centrally located and grouped.

Article 230.64 Identification.

Article 230.64 is added to read as follows: Service equipment that is grouped in centralized locations to comply with Article 230.63 shall have a permanent affixed plaque identifying the structure or equipment served. The disconnecting means shall be readily identified by a 6-inch equilateral triangle, red in color that complies with the Fire Code, as adopted by the County.

~~**Article 230.70(A) Service equipment-disconnecting means.**~~

~~Article 230.70(A) of the NEC is amended to read as follows: The service disconnection means shall be installed at a readily accessible location physically attached to the exterior of a building or structure nearest to the point of entrance of the service conductors. Multiple services shall comply with Articles 230.63 and 230.64.~~

~~Exception #1: Manufactured housing, as regulated by NRS 489 and NEC Article 550. When the disconnecting means is mounted independently of the manufactured structure, it shall be readily identified by a six-inch (6) equilateral triangle, red in color that complies with the Fire Code.~~

~~Exception #2: The disconnecting means may be mounted independently of the structure served, when mounted in direct line of sight, but no greater than 50-feet from the structure, and the independent disconnecting means is identified by a red triangle that complies with the Fire Code.~~

Article 230.70(A)(1) Readily Accessible Location. The service disconnecting means shall be installed at a readily accessible location either outside of a building or structure ~~or inside~~ nearest the point of entrance of the service conductors. The disconnecting means may be located independent of the building or structure served, in direct line of sight, but not to exceed thirty feet (30').

Exception: The service disconnecting means may be installed within a building when an external remote shunt switch is provided. All shunt trip switches shall be located at seven

feet (7') above finish grade at a location approved by the fire department. All shunt trip switches shall be located within a twelve inch (12") equilateral triangle, red in color.

Article 240.51(B) Edison-Base Fuses; Replacement Only. Plug fuses of the Edison-base type shall be used only for replacements in existing installations where there is no evidence of overfusing or tampering. In any existing building where alterations or additions are made to aby of the premises wiring, all fuse holders shall comply with Article 240.54.

Article 250.118(4) Types of Equipment Grounding Conductors.

(4) Electrical metallic tubing with the exception of where the metallic raceway is subject to either damage or likely to be disturbed in the future under normal operating conditions, this determination shall be made by the Authority Having Jurisdiction.

FPN: An example of "subject to damage" is a surface installed conduit running along a traffic path. An example of "likely to be disturbed" is a surface installed conduit running across a rooftop, where future re- roofing operations will require the conduit to shifted, damaged, removed or relocated.

Article 250.120 Equipment Grounding Conductor Installation. All raceways installed on roofs shall contain an equipment grounding conductor sized per Table 250.122 installed with the circuit conductors.

Exception: Low voltage, communication and similar type systems unless required elsewhere in the Code.

Article 314.17(C) Nonmetallic Boxes and Conduit Bodies. Nonmetallic boxes and conduit bodies shall be suitable for the lowest temperature-rated conductor entering the box. Where nonmetallic boxes and conduit bodies are used with messenger-supported wiring, open wiring on insulators, or concealed knob-and- tube wiring, the conductors shall enter the box through individual holes. Where flexible tubing is used to enclose the conductors, the tubing shall extend from the last insulating support to not less than 6 mm (1/4 in.) inside the box and beyond any cable clamp. Where non-metallic sheathed cable or multiconductor Type UF cable is used, the sheath shall extend not less than 6 mm (1/4 in.) inside the box and beyond any cable clamp. In all instances, all permitted wiring methods shall be secured to the boxes.

Exception: where non-metallic sheathed cable or multiconductor Type UF cable is used with boxes mounted in walls or ceilings, and where the cable is fastened within 200 mm (8 in.) of the box measured along the sheath and where the sheath extends through a cable knockout not less than 6 mm (1/4 in.), securing the cable to the box shall not be required. Multiple cable entries shall be permitted in a single cable knockout opening.

Article 358.12 Uses Not Permitted. EMT shall not be used under the following conditions:

1. Where subject to severe physical damage.
2. For the support of luminaires or other equipment except conduit bodies no larger than the largest trade size of the tubing.

3. In direct contact with earth.

Article 680.73 Accessibility. Article 680.73 is amended to read as follows: Hydromassage bathtub electrical equipment access shall be on the same floor level as the bathtub. The electrical equipment shall be accessible without damaging the building structure or interior and exterior building finish, no access shall be allowed through the underfloor.

Article 700.12 General Requirements. Current supply shall be such that, in the event of failure of the normal supply to, or within, the building or group of buildings concerned, emergency lighting, emergency power, or both shall be available within the time required for the application but not to exceed 10 seconds. The supply system for emergency purposes, in addition to the normal services to the building and meeting the general requirements of this section, shall be one or more of the types of systems described in 700.12(A) through (E). Unit equipment in accordance with 700.12(F) shall satisfy the applicable requirements of this article.

In selecting an emergency source of power, consideration shall be given to the occupancy and the type of service to be rendered, whether of minimum duration, as for evacuation of a theater, or longer duration, as for supplying emergency power and lighting due to an indefinite period of current failure from trouble either inside or outside the building.

Equipment shall be designed and located so as to minimize the hazards that might cause complete failure due to flooding, fires, icing, and vandalism.

Equipment for sources of power as described in 700.12(A) through (E) shall be installed either in spaces fully protected by approved automatic fire suppression systems (sprinklers, carbon dioxide systems, and so forth) or in spaces with a 2- hour fire rating where located within the following:

1. Assembly occupancies for more than 1000 persons.
2. Buildings above 55 feet in height with any of the following occupancy classes- assembly, educational, residential, detention and correctional, business, and mercantile
3. Health care occupancies where persons are not capable of self- preservation
4. Educational occupancies with more than 300 occupants.

SECTION VIII: Title 20 – Appendix B of the Douglas County Code, "International Energy Conservation Code Revisions," is amended with the new language shown underlined and deleted language shown as ~~strikethrough~~ below:

INTERNATIONAL ENERGY CONSERVATION CODE REVISIONS

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 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 jurisdiction for review for use as acceptable software. Buildings approved in writing by such an energy efficiency shall be considered to be in compliance with this code. The requirements identified as "mandatory" in Chapter 4 shall be met.

Section C201.3 Terms defined in other codes. Terms that are defined in this code but are defined in the International Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, Uniform Mechanical Code, International Plumbing Code, Uniform Plumbing Code, or the International Residential Code shall have the meanings ascribed to them in those codes.

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 C402.5.3 Rooms containing fuel-burning appliances. In Climate Zones 3 through 8, where combustion air is supplied through openings in an exterior wall to a room or space containing a space-conditioning fuel-burning appliance, one of the following shall apply:

1. The room or space containing the appliance shall be located outside of the building thermal envelope.
2. The room or space containing the appliance shall be enclosed and isolated from conditioned spaces inside of the building thermal envelope. Such rooms shall comply with all of the following:
   2.1. The walls, floors and ceilings that separate the enclosed room or space from conditioned spaces shall be insulated to be not less than equivalent to the insulation requirement of below- grade walls as specified in Table C402.1.3 or C402.1.4.
   2.2. The walls, floors and ceilings that separate the enclosed room or space from conditioned spaces shall be sealed in accordance with Section C402.5.1.1.
   2.3. The doors into the enclosed room or space shall be fully gasketed.
   2.4. Water lines and ducts in the enclosed room or space shall be insulated in accordance with Section 403.
   2.5. Where an air duct supplying combustion air to the enclosed room or space passes through conditioned space, the duct shall be insulated to an R- value not less than R-8.

Exception: Fireplaces and stoves complying with Sections 901 through 905 of the International Mechanical Code, Section 911, 912, 913 of the Uniform Mechanical Code, and Section 2111.14 of the International Building Code.

Section C402.5.4 Air leakage (Mandatory). Amend Section C402.5~~4~~ to read as follows:

C402.5.4. Air leakage (Mandatory). The thermal envelope of buildings shall comply with Sections C402.5~~4~~.1 through C402~~5~~.9.~~4.9.~~

Section C402.5~~4~~.7 Vestibules. Add the following exception to C402.5~~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 C402.54.9 Air curtains. Add the following section to C402.4:

C402.54.9 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 C403.2.2 Ventilation (Mandatory). Ventilation, either natural or mechanical, shall be provided in accordance with Chapter 4 of the International Mechanical Code and Uniform Mechanical Code. Where mechanical ventilation is provided, the system shall provide the capability to reduce the outdoor air supply to the minimum required by Chapter 4 of the International Mechanical Code and Uniform Mechanical Code.

Section C403.6.1 Variable air volume and multiple-zoned systems. Supply air systems serving multiple zones shall be variable air volume (VAV) systems that have zone controls configured to reduce the volume of air that is reheated, re-cooled or mixed in each zone to one of the following:

1. Twenty percent of the zone design peak supply for systems with DDC and 30 percent for other systems.
2. Systems with DDC where all of the following apply:
3. The outdoor airflow rate required to meet the minimum ventilation requirements of Chapter 4 of the International Mechanical Code and Uniform Mechanical Code.
4. Any higher rate that can be demonstrated to reduce overall system annual energy use by offsetting reheat/re-cool energy losses through reduction in outdoor air intake for the system as approved by the code official.
5. The airflow rate required to comply with applicable codes or accreditation standards such as pressure relationships or minimum air change rates.

Exception: The following individual zones or entire air distribution systems are exempted are from the requirement for VAV control:

1. Zones or supply air systems where not less than 75 percent of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered, including condenser heat, or site- solar energy source.
2. Systems that prevent reheating, re- cooling, mixing or simultaneous supply of air that has been previously cooled, either mechanically or through the use of economizer systems, and air that has been previously mechanically heated.

Section C403.6.6 Multiple-zone VAV system ventilation optimization control. Multiple-zone VAV systems with direct digital control of individual zone boxes reporting to a central control panel shall have automatic controls configured to reduce outdoor air intake flow below design rates in response to changes in system ventilation efficiency (Ev) as defined by the International Mechanical Code and Uniform Mechanical Code.

Exceptions:

1. VAV systems with zonal transfer fans that recirculate air from other zones without directly mixing it with outdoor air, dual-duct dual-fan VAV systems, and VAV systems with fan-powered terminal units.
2. Systems where total design exhaust airflow is more than 70 percent of the total design outdoor air intake flow requirements.

Section C403.7.1 Demand control ventilation (Mandatory). Demand control ventilation (DCV) shall be provided for spaces larger than 500 square feet (46.5m^2) and with an average occupant load of 25 people or greater per 1,000 square feet (93m^2) of floor area, as established in Table 403.3.1.1 of the International Mechanical Code and Table 402.1 Uniform Mechanical Code, and served by systems with one or more of the following:

1. An air-sided economizer.
2. Automatic modulating control of the outdoor air damper.
3. A design outdoor airflow greater than 3,000 cfm (1416 L/s).

Exceptions:

1. Systems with energy recovery complying with Section C403.7.4.
2. Multiple-zone systems without direct digital control of individual zones communicating with a central control panel.
3. Systems with a design outdoor airflow less than 1,200 cfm (566 L/s).
4. Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirements is less than 1,200 cfm (566 L/s).
5. Ventilation provided only for process loads.

Section C403.7.2 Enclosed parking garage ventilation controls (Mandatory) Enclosed parking garages used for sorting or handling automobiles operating under their own power shall employ contamination- sensing devices and automatic controls configured to stage fans or modulate fan average airflow rates to 50 percent or less of design capacity, or intermittently operate fans less than 20 percent of the occupied time or as required to maintain acceptable contaminant levels in accordance with International Mechanical Code and Uniform Mechanical Code provisions. Failure of contamination- sensing devices shall cause the exhaust fans to operate continuously at design airflow.

Exceptions:

1. Garages with a total exhaust capacity less than 22,500 cfm (10 620 L/s) with ventilation systems that do not utilize heating or mechanical cooling.
2. Garages that have a garage area to ventilation system motor nameplate power ratio that exceeds 1125 cfm/hp (710 L/kW) and do not utilize heating or mechanical cooling.

Section C403.7.4 Energy recovery ventilation systems (Mandatory). Where the supply airflow rate of a fan system exceeds the values specified in Tables C403.7.4(1) and C403.7.4(2), the system shall include an energy recovery system. The energy recovery system shall be configured to provide a change in the enthalpy of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and return air enthalpies, at design conditions. Where an air economizer is required, the energy recovery system shall include a bypass or controls that permit operation of the economizer as required by Section C403.5.

Exception: An energy recovery ventilation system shall not be required in any of the following conditions:

1. Where energy recovery systems are prohibited by the International Mechanical Code and Uniform Mechanical Code.
2. Laboratory fume hood systems that include not fewer than one of the following features:
   2.1. Variable-air- volume hood exhaust and room supply systems configured to reduce exhaust and makeup air volume to 50 percent or less of design value.
   2.2. Direct makeup (auxiliary) air supply equal to or greater than 75 percent of the exhaust rate, heated not warmer than 2ºF (1.1ºC) below room setpoint, with no humidification added, and no simultaneous heating and cooling used for dehumidification control.
3. Systems serving spaces that are heated to less than 60ºF (15.5ºC) and that are not cooled.
4. Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site-solar energy.
5. Heating energy recovery in Climate Zones 1 and 2.
6. Cooling energy recovery in Climate Zones 3C, 4C, 5B, 5C, 6B, 7, and 8.
7. Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
8. Where the largest source of air exhausted at a single location at the building exterior is less than 75 percent of the design outdoor air flow rate.
9. Systems expected to operate less than 20 hours per week at an outdoor percentage covered by Table C403.7.4(1).
10. Systems exhausting toxic, flammable, paint or corrosive fumes or ducts.
11. Commercial kitchen hoods used for collecting and removing grease vapors and smoke.

Section C403.7.7 Shutoff dampers (Mandatory). Outdoor air intake and exhaust openings and stairway and shafts vents shall be provided with Class I motorized dampers. The dampers shall have an air leakage rate not greater than 4 cfm/ft.^{2} (20.3 L/s * m^2) of damper surface area at 1.0inch water gauge (249 Pa) and shall be labeled by an approved agency when tested in accordance with AMCA 500D for such purpose.

Outdoor air intake and exhaust dampers shall be installed in automatic controls configured to close when the systems or spaces served are not in use or during unoccupied period warm- up and setback operation, unless the systems served require outdoor or exhaust air in accordance with the International Mechanical Code and Uniform Mechanical Code, or the dampers are opened to provide intentional economizer cooling.

Stairway and shaft vent dampers shall be installed with automatic controls configured to open upon the activation of any fire alarm initiating device of the building's fire alarm system or the interruption of power to the damper.

Exception: Nonmotorized gravity dampers shall be an alternative to motorized dampers for exhaust and relief openings as follows:

1. In buildings less than three stories in height above grade plane.
2. In buildings of nay height located in Climate Zones 1,2or 3.
3. Where the design exhaust capacity is not greater than 300 cfm (142 L/s).

Nonmotorized gravity dampers shall have an air leakage rate not greater than 20 cfm/ft.^{2} (101 L/s*m^2) where not less than 24 inches (610 mm) in either dimension and 40 cfm/ft.^{2} (203.2 L/s*m^2) where less than 24 inches (610 mm) in either dimension. The rate of air leakage shall be determined at 1.0 inch water gauge (249 Pa) when tested in accordance with AMCA 500D for such purpose. The dampers shall be labeled by an approved agency.

Section C403.11.1 Duct and plenum insulation and sealing (Mandatory). Supply and return air ducts and plenums shall be insulated with not less than R-6 insulation where located in unconditioned spaces and where located outside of the building with not less than R-8 insulation in Climate Zones 1 through 4 and not less than R-12 insulation in Climate Zones 5 through 8. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by not less thanR-8 insulation in Climate Zones 1 through 4 and not less than R-12 insulation in Climate Zones 5 through 8

Exceptions:

1. Where located within equipment.
2. Where the design temperature difference between the interior and exterior of the duct or plenum is not greater than 15°F (8°C).

Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the *International Mechanical Code* and Section 603.10, 603.11 of the *Uniform Mechanical Code.*

Section C403.11.2.1 Low-pressure duct systems (Mandatory). Longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches water gauge (w.g.) (498 Pa) shall be securely fastened and sealed with welds, gaskets, mastics, (adhesives), mastic- plus- embedded- fabric systems or tapes installed in accordance with the manufacturer's instructions. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the International Mechanical Code and Uniform Mechanical Code.

Exception: Locking- type longitudinal joints and seams, other than the snap- lock and button- lock types, need not be sealed as specified in this section.

Section 403.11.2.2 Medium-pressure duct systems (Mandatory). Ducts and plenums designed to operate at a static pressure greater than 2 inches water gauge (w.g.) (498 Pa) but less than 3 inches w.g. (747 Pa) shall be insulated and sealed in accordance with Section C403.11.1. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the International Mechanical Code and Uniform Mechanical Code.

Section 406.6 Dedicated outdoor air system. Buildings containing equipment or systems regulated by Section C403.3.4, C403.4.3, C403.4.4, C403.4.5, C403.6, C403.8.4, C403.8.5, C403.8.5.1, C403.9.1, C403.9.2, C403.9.3, C403.9.4 shall be equipped with an independent ventilation system designed to provide not less than the minimum 100-percent outdoor air to each individual occupied space, as specified by the International Mechanical Code and Uniform Mechanical Code.

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 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

Section C501.4 Compliance. Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in this code and in the International Building Code, International Existing Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, Uniform Mechanical Code, International Plumbing Code, Uniform Plumbing Code, International Property Maintenance Code, International Private Sewage Disposal Code and NFPA 70.

~~**Chapter 6 Referencing Standards**~~

Amend Chapter 6 by adding the following to read as follows:

205-12: Energy Efficiency Classification for Fans C403.8.3

220-08(R2012): laboratory Methods for Testing Air Curtain Units for Aerodynamic Performance Rating C402.5.7

500D-12: Laboratory Methods for Testing Dampers

for Rating C403.7.7 **IAPMO**

UMC-18: Uniform Mechanical Code C201.3, C403.2.2, C403.6, C406.6.6, C403.7.1, C403.7.2, C403.7.4, C403.7.5, C403.7.7, C403.11.1, C403.11.2.1, C403.11.2.2, C406.6, C501.4

UPC-18: Uniform Plumbing Code C201.3, C501.4

ICC

IBC-18: International Building Code C201.3, C303.1.1, C303.2, C402.5.3, C402.5.4, C501.4,

IFC-18: International Fire Code

C201.3, C501.4 **IFGC-18:**

International Fuel Gas Code

C201.3, C501.4

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) The builder shall provide a final certificate to the owner. 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.

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. 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.
6. Supply and return registers, where installed at the time of the test, shall be fully open.

Section R403.3~~2~~.2 Sealing (Mandatory). Amend section R403.2.2 to read as follows:

R403.3~~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 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 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 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 403.3.4 Duct Leakage (prescriptive). The total leakage of the ducts, where measured in accordance with Section R403.3.4, shall be as follows:

1. Rough-in test: The total leakage shall be less than or equal to 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m^2) of conditional floor area where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cubic feet per minute (85 L/min) per 100 square feet (9.29 m^2) of conditioned floor area.

2. Postconstruction test: Total leakage shall be less than or equal to 5 cubic feet per minute (cfm) (141.6 L/min) or total leakage to outside shall be less than or equal to 3.5 cfm (99.1 L/min) 100 square feet (9.29 m^2) of conditioned floor area.

Section R403.6~~5~~ Mechanical ventilation (Mandatory). Amend section R403.6~~5~~ to read as follows:

Section R403.6~~5~~ Mechanical ventilation (Mandatory). The building (dwelling) shall be provided with ventilation that complies with the requirements of the International Residential Code or International Mechanical Code, as applicable, or with other approved means of ventilation. 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 or similar intermittent controls to 7activate 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 operating. ~~meets one of the following requirements:~~

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.

R406.6.3.1~~7~~ Calculation software tools. Calculation software, where used, shall be in accordance with Sections R406.7.1 through R406.7.3.

R406.6.3.2~~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.

R406.6.4~~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.

R406.6.5~~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. (Ord. 1460, 2016)

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

SECTION IX: Title 20 – Appendix B of the Douglas County Code is amended by adding, "International Existing Building Code Revisions," with the new language shown underlined below:

INTERNATIONAL EXISTING BUILDING CODE REVISIONS

Section 301.6 Baby Changing Tables. Diaper changing tables are required to be installed in both male, female and other restrooms, in permanent buildings that contain public restrooms as defined in chapter 29 of the 2018 IBC. Changing tables are required when any of the following occur: new buildings, tenant improvements, new restrooms, alteration of existing restrooms, new additions, change of uses that require updating existing restrooms with additions to those facilities. Shall meet the guidelines of 603.5, 309 and 902 of ANSI/ICC A117.1- 2009.

Exceptions: A building or facility that does not have public restrooms or has been issued a permit or license which restricts the admission of children on the basis of age, shall be exempt from this requirement.

Section 902.2 High-rise buildings. Any building having occupied floors more than 55 feet (16,764 mm) above the lowest level of fire department vehicle access shall comply with the requirements of Sections 902.1.1 and 902.1.2.

SECTION X: Title 20 – Appendix B of the Douglas County Code is amended by adding, "International Fuel Gas Code Revisions," with the new language shown underlined below:

INTERNATIONAL FUEL GAS CODE REVISIONS

301.1.2 LP-Gas Installations. Whenever there is a conflict between this code and NFPA 54 and NFPA 58 as adopted by the Nevada LP-Gas Board for LP-Gas installations, the adopted codes of the Nevada LP-Gas Board shall govern.

301.16 Snow hazard. Protection of utilities shall be per requirements of the local utility.

Section 406.4.1 Test pressure. The test pressure to be used shall be no less than 1-1/2 times the proposed maximum working pressure, but not less than ~~3~~ 25 psig (20 172.4 kPa gauge), irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe. This test shall be made before any fixtures, appliances or shut-off valves have been attached and before being concealed.

Section 406.4.2 Test Duration. Test duration shall be not less than 30 minutes.

Section 406.6.2 Before Turning Gas On. During the process of turning gas on into a system of new gas piping or into a system or portion of a gas system that has been restored after an interruption of service, the entire system shall be inspected to determine that there are no open fittings or ends and that all valves at unused outlets are closed and plugged or capped. In the City of Fernley, City of Reno, City of Sparks, Storey County and Washoe County, a manometer test shall be made after all valves, unions, connectors and piping to the appliances are complete. A pressure test shall be made with the use of a manometer gauge measuring inches of water column. With all valves including gas cock and gas control valves in the open position, a pressure of at least eleven (11) to fifteen (15) inches of water column shall be measured for at least fifteen (15) minutes with no perceptible drop in pressure.

405.6.2.1 For medium pressure gas systems: Where the appliance is rated for seven (7) to eleven (11) inches of water column, a manometer test of eleven (11) to fifteen (15) inches of water column will be conducted between pressure regulating valve and the appliance and shall be measured for at least fifteen (15) minutes with no perceptible drop in pressure.

406.2.2 For appliances or equipment requiring pounds of gas pressure: A pressure test using a pressure gauge measuring in one tenth (1/10) increments shall be conducted on the gas train of that appliance or equipment. The pressure shall be equal to the appliance's normal operating pressure for a period of thirty (30) minutes with no perceptible drop in pressure.

406.2.3 Manometer testing. Manometer testing shall be performed by a person holding a valid manometer tester card for which the number is to be provided at the time of request for inspection. A visual manometer test to be witnessed by the authority having jurisdiction may be allowed by the Building Official. A manometer test does not need to be reported when the serving gas utility performs a manometer or clock test prior to providing service.

SECTION XI: Title 20 – Appendix B of the Douglas County Code is amended by adding, "International Mechanical Code Revisions," with the new language shown underlined below:

INTERNATIONAL MECHANICAL CODE REVISIONS

Section 401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403.

505.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of 600 cfm (0.28 m3/s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

Section 508.1 Makeup air. Makeup air shall be supplied during the operation of commercial kitchen exhaust systems that are provided for commercial cooking appliances. The amount of

makeup air supplied to the building from all sources shall be approximately equal to the amount of exhaust air for all exhaust systems for the building. The makeup air shall not reduce the effectiveness of the exhaust system. Makeup air shall be provided by gravity or mechanical means or both. Mechanical makeup air systems shall be automatically controlled to start and operate simultaneously with the exhaust system. Makeup air intake opening locations shall comply with Section 401.4.

Section 508.1.1 Makeup air temperature. The temperature differential between makeup air and the air in the conditioned space shall not exceed 10ºF (6ºC) except where the added heating and cooling loads of the makeup air do not exceed the capacity of the HVAC system.

Section 508.1.2 Air balance. Design plans for a facility with a commercial kitchen ventilation system shall include a schedule or diagram indicating the design outdoor air balance. The design outdoor air balance shall indicate all exhaust and replacement air for the facility, plus the net exfiltration if applicable. The total replacement air airflow rate shall equal the total exhaust airflow rate plus the net exfiltration.

Section 508.1.3 Evaporative Cooling Systems Used as Makeup Air. Evaporative coolers shall not be used for make-up air units on commercial kitchen hoods and kitchen ventilation systems.

Exception: Evaporative cooling systems that are a listed assembly with tempered air for kitchen make-up air systems.

Section 603.2 Duct sizing. Ducts installed within a single dwelling unit shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculations methodologies or other approved methods. Ducts installed within all other buildings shall be sized in accordance with the ASHRAE Handbook of Fundamentals or other equivalent computation procedure.

PROPOSED on _____, 2019

PROPOSED by Commissioner_____

PASSED on _____, 2019

VOTE: AYES: Commissioners _____

_____

_____

_____

_____

NAYS: Commissioners _____

_____

Absent: _____

_____
William B. Penzel, Chairman
Douglas County Board of Commissioners

ATTEST:

_____
Kathy Lewis, Clerk-Treasurer
This ordinance shall be effective on July 1, 2019.