

COUNTY OF LARIMER, COLORADO  
AMENDMENTS  
TO THE  
**2021**  
INTERNATIONAL RESIDENTIAL CODE



EFFECTIVE DATE: March 1, 2022

**Amendments to the 2021 International Residential Code**

*WHEREAS, the Chief Building Official of Larimer County, the Board of Appeals, and the Larimer County Planning Commission have recommended that the Board of County Commissioners adopt the 2021 International Residential Code named above with certain amendments, concurrent with the repealing of those portions of the currently adopted 2018 International Residential Code that is to be superseded by the 2021 International Residential Code; and*

*WHEREAS, the said Board has found that said adoption would be in the best interest of the people of Larimer County, including the protection of the public’s health, safety, and welfare, and after a duly publicized public hearing on this matter.*

*NOW, THEREFORE, BE IT RESOLVED, that the 2021 International Residential Code, as amended below, is hereby adopted and shall be part of the Larimer County Building Code effective March 1, 2022. The 2018 International Residential Code and its amendments are hereby repealed.*

*IT IS FURTHER RESOLVED that the Deputy Clerk of this Board shall forthwith cause a certified copy of this resolution with revised amendments to be filed with the Clerk and Recorder for the County of Larimer.*

Dated this 10th day of January 2022

BOARD OF COMMISSIONERS OF  
LARIMER COUNTY COLORADO

By: \_\_\_\_\_  
Chairman

Date: \_\_\_\_\_

(SEAL)  
ATTEST:

\_\_\_\_\_  
Deputy Clerk

\_\_\_\_\_  
County Attorney  
APPROVED AS TO FORM

# 2021 INTERNATIONAL RESIDENTIAL CODE (IRC)

## CHAPTER 1 SCOPE AND ADMINISTRATION

**The following section is hereby amended to read as follows:**

**R101.1 Title.** These provisions shall be known as the Residential Code for One- and Two-Family Dwellings of Larimer County and shall be cited as such and will be referred to herein as "this code."

**The following section is hereby amended to read as follows:**

**R101.2 Scope.**

**Exceptions:** The following shall be permitted to be constructed in accordance with this code:

1. Live/work units complying with the requirements of Section 508.5 of the *International Building Code*.
2. Owner-occupied lodging houses with five or fewer guestrooms where complying with Sections R332.2 through R332.2.14 and R332.3.
3. A care facility with five or fewer persons receiving custodial or medical care within a dwelling unit, where provided with an automatic sprinkler system complying with Section P2904 or International Building Code Section 903.2.8.
4. *Resort lodge cottages* not exceeding 10 occupants, where complying with Sections R332.2 through R332.2.14 and R332.3
5. *Short-term rentals*.
6. Family childcare homes complying with Appendix M and Colorado state licensing requirements.

**The following section is hereby amended to read as follows:**

**R102.4 Referenced codes and standards.** The codes as adopted and amended by Larimer County and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R102.4.1 and R102.4.2.

**Exception:** Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and manufacturer's instructions shall apply.

**The following section is hereby amended to read as follows:**

**R103.1 Creation of enforcement agency.** The Building Division is hereby created and the official in charge thereof shall be known as the Chief Building Official, hereinafter referred to as the building official.

**The following section is hereby amended to read as follows:**

**R103.2 Appointment.** The building official shall be appointed by the Community Development Department Director.

**The following section is hereby amended to read in its entirety as follows (items 1 through 5 are deleted):**

**R104.10.1 Flood Hazard areas.** The County Engineer shall not grant modifications to any provisions required in flood hazard areas as established by the Larimer County Land Use Code without the granting of a variance to such provisions by the County Engineer.

**The following section is hereby amended to read as follows:**

**R105.1 Required.** Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, including bridges and culverts, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *building official* and obtain the required *permit*.

**The following section is hereby amended by amending items 1, 3, 8 & 10 and adding items 11-16 to read as follows:**

**R105.2 Work exempt from permit.** Exemption from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Permits shall not be required for the following:

### **Building:**

1. One-story detached accessory structures used as storage sheds, playhouses, and similar non-habitable uses, provided that the floor area does not exceed 200 square feet (18.58 m<sup>2</sup>) and there are no utilities.
2. Fences not over 7 feet (2134 mm) high.
3. Retaining walls that are not over 4 feet (1219 mm) in height measured from a point eight feet horizontally downslope from the low side finish grade to the high side finish grade behind the wall, provided that the horizontal distance to the next uphill retaining wall is at least equal to twice the height of the upper wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids. [See Figure 105.2.3]
4. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18,927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment, including one elevated playhouse per lot, designed, and used exclusively for play, not exceeding 64 square feet (5.9 m<sup>2</sup>) of floor area nor 8 feet (2.44 m) in height measured from the floor to the highest point of such structure.
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks that are not more than 30 inches (762 mm) above *grade* at any point and do not serve the exit door required by Section R311.2.

11. Roofing repair or replacement work not exceeding one square (100 square feet (9.29m<sup>2</sup>) of covering per building.
12. Window replacement requiring no structural alterations. (Replacement windows must meet Appendix J requirements.)
13. Replacement of non-structural siding that is not part of a fire-rated assembly when the removal of siding is performed in accordance with State laws regarding asbestos and lead paint. (Replacement siding must meet Wildfire Hazard Area and other code requirements.)
14. Shade cloth and maximum 6 mil single layer poly-roofed structures, constructed for nursery or agricultural purposes, with no entry by the general public, not including service systems.
15. Public bridges, private culverts and pedestrian bridges that serve only one property, do not provide a means of egress or access to the property, and are not in a regulatory floodplain or county-designated major drainage area of interest (see map at <https://www.larimer.org/engineering/stormwater-drainage>)
16. Pergolas, arbors or trellises whose roof area is at least 67% open.

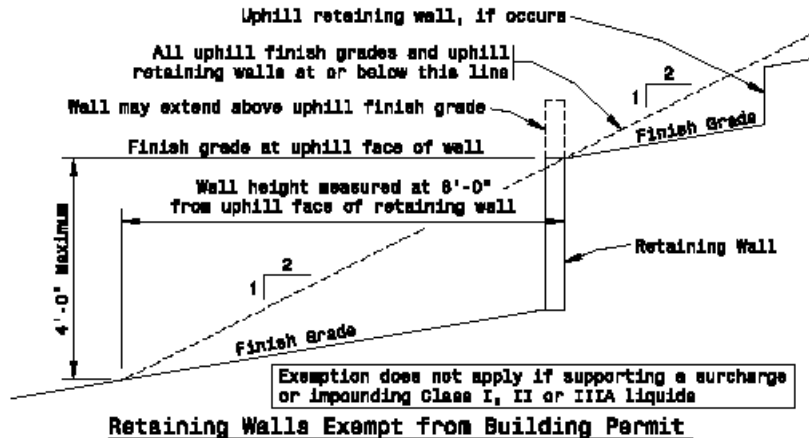


Figure 105.2.3

**The following section is hereby amended by amending Item # 2 under Plumbing: to read as follows:**

**R105.2. Work exempt from permit.**

**Plumbing:**

1. The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and replacement of plumbing fixtures, provided such repairs or replacements do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

**The first paragraph in the following section is hereby amended to read as follows. The remainder is unchanged:**

**R105.3.1.1 Determination of substantially improved or substantially damaged existing buildings in flood hazard areas.** For applications for reconstruction, rehabilitation, addition, or other improvement of existing buildings or structures located in a flood hazard area as established by the Larimer County Land Use Code, the County Engineer shall examine or cause to be examined the construction documents as well as other documents necessary for a determination of substantial improvement or substantial damage. The County Engineer shall make a determination with regard to the value of the proposed work. For buildings that have sustained damage of any origin, the value of the proposed work shall include the cost to repair the building or structure to its pre-damaged condition. If the County Engineer finds that the proposed work constitutes a substantial improvement or repair of substantial damage in accordance with the Larimer County Land Use Code, the building or structure shall meet the requirements of Section R322.1 and the Larimer County Land Use Code.

**The following section is hereby amended to read as follows:**

**R105.5 Expiration.** Every permit issued shall expire 18 months after the date of issue unless the project is completed in compliance with this code. The building official is authorized to grant, for justifiable cause demonstrated, a one-time written extension of 18 months at no charge, making the original permit valid for three years. Additional 18-month extensions will cost one-half the amount of the original building permit fee or a minimum of \$50, whichever is more. Every permit shall become null and void if the building or work authorized by such permit is not commenced within 180 days from the date of issue of such permit, if the person or entity to whom the permit is issued fails to request a first inspection within 180 days of the date of such permit, or if the building or work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days or more. Before such work can be recommenced, a new permit shall be first obtained to do so. The fee for such new permit shall be one-half of the amount required for a new permit for such work, provided no changes have been made or will be made in the original plans and specifications for such work and provided further that the suspension or abandonment has not exceeded one year. Changes in the plans and specifications or abandonment exceeding one year shall require an additional permit fee and plan review fee as described in Section R108. Permits for "as-built" construction must have final inspection approval within 180 days of permit issuance. The building official is authorized to grant a one-time extension of twelve months for "as-built" permits, at no charge, provided evidence of progress towards final inspection or justifiable cause is shown.

**The following section is hereby added to read as follows:**

**R105.10 Premises Identification During Construction.** The approved permit number and street address number shall be displayed and be plainly visible and legible from the public street or road fronting the property on which any new building is being constructed.

**The following section is hereby amended to read as follows:**

**R106.1.3 Information on braced wall design.** For buildings and structures utilizing braced wall design, braced wall lines shall be identified on the construction documents. Pertinent information including, but not limited to, bracing methods, location and length of braced wall panels and foundation requirements of braced wall panels at top and bottom shall be provided.

**The following section is hereby amended by deleting item #3 and renumbering and amending #4 to read as follows:**

**R106.1.4 Information for construction in flood hazard areas.** For buildings and structures located in whole or in part in flood hazard areas as established by Table R301.2, construction documents shall include:

1. Delineation of flood hazard areas, floodway boundaries and flood zones and the design flood elevation, as appropriate.
2. The elevation of the proposed lowest floor, including basement; in areas of shallow flooding (AO zones), the height of the proposed lowest floor, including basement, above the highest adjacent grade.
3. If design flood elevations are not included on the county's Flood Insurance Rate Map (FIRM), the County Engineer and the applicant shall obtain and reasonably utilize any design flood elevation and floodway data available from other sources.

**The following section is hereby amended to read as follows:**

**R106.3.1 Approval of construction documents.** Where the *building official* issues a permit, the construction documents shall be approved in writing, electronically, or by a stamp indicating the approved permit number. One set of construction documents so reviewed shall be retained by the building official. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the building official or a duly authorized representative.

**The following section is hereby amended to read as follows:**

**R107.1 General.** The building official is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service but shall not be permitted for more than 18 months. The building official is authorized to grant extensions for demonstrated cause.

**The following section is hereby added to read as follows:**

**R108.7 Expiration of Plan Review.** Applications for which no permit is issued within one hundred and eighty (180) days following the date of application shall expire by limitation; plans submitted for review may thereafter be returned to the applicant or destroyed by the building official. The building official may extend the time for action by the applicant for a period not exceeding ninety (90) days upon written request by the applicant showing that circumstances beyond the control of the applicant have prevented action from being taken. In order to renew action on an expired application, the applicant shall resubmit plans and pay a new plan review fee.

**The following section is hereby added to read as follows:**

**R108.8 Re-inspections.** A re-inspection fee may be assessed for each inspection or re-inspection when access to the work is not provided on the date for which inspection is requested, a readily visible address is not posted, the inspection record card is not posted or otherwise available on site, the approved plans are not readily available in a visible location for the inspector, such portion of work for which inspection is called for is not complete, corrections called for are not made, work deviates from plans approved by the building official, or for other good and sufficient cause as determined by the building official. To obtain a re-inspection, the applicant shall pay the re-inspection fee in accordance with the adopted Larimer County fee schedule. When re-inspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

**R109.1.1 Foundation inspection.** Inspection of the foundation shall be made after poles or piers are set or trenches or basement areas are excavated, and any required forms erected, and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or equipment and special requirements for wood foundations.

**The following section is hereby added to read as follows:**

**109.1.1.1 Underground inspection.** Underground and underslab inspections shall be made after trenches or ditches are excavated and bedded, piping, tubing, ducts, and electrical wiring is installed, before backfill is put in place and before concrete is placed. Where excavated soil contains rocks, broken concrete, frozen chunks, and other rubble that would damage or break the piping or cause corrosive action, clean backfill shall be on the job site.

**The following section is hereby added to read as follows:**

**109.1.1.2 Energy efficiency inspections.** Inspections shall be made to determine compliance with Chapter 11 and shall include, but not be limited to, inspections for footing, foundation, slab, and thermal envelope insulation *R-* and *U-values*, fenestration U-value, duct system R-value, HVAC and water-heating equipment efficiency, air sealing, plumbing protection, lighting system controls, components and meters, and installation and proper operation of all required building controls.

**The following section is hereby amended to read as follows:**

**R109.1.2 Plumbing, mechanical, gas and electrical systems inspection.** Rough inspection of plumbing, mechanical, gas and electrical systems shall be made prior to covering or concealment, before fixtures or appliances are set or installed, and prior to or concurrent with framing inspection.

**Exception:** Backfilling of ground-source heat pump loop systems tested in accordance with Section M2105.28 prior to inspection shall be permitted.

**The following section is hereby amended to read as follows:**

**R109.1.3 Floodplain inspections.** For construction in flood hazard areas as established by the Larimer County Land Use Code, upon placement of the lowest floor, including basement, and prior to further vertical construction, the building official and/or the County Engineer may require submission of documentation, prepared and sealed by a registered professional land survey or design professional, of the elevation of the lowest floor, including basement, required in Section R322.

**The following section is hereby amended to read as follows:**

**R109.1.4 Frame and masonry inspection.** Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical, gas, radon mitigation and electrical rough-ins are completed and prior to concealment.

**The following section is hereby amended to read as follows:**

**R110.1 Use and change of occupancy.** A building or structure shall not be used or occupied in whole or in part, and a change of occupancy of a building or structure or portion thereof shall not be made, until the building official has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid.

**Exceptions:**

1. Certificates of occupancy are not required for work exempt from permits under Section R105.2.
2. Cabins, agricultural and accessory buildings or structures, and work authorized under miscellaneous permits shall not receive certificates of occupancy; a letter of completion will be issued upon request.

**The following section is hereby amended to read as follows:**

**R110.4. Temporary occupancy.** The building official is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. A Temporary Certificate of Occupancy (TCO) shall be valid for 180 days. The fee for a TCO shall be in accordance with the fee schedule as established by Larimer County. The building official may grant additional TCOs for justifiable cause.

**The following section is hereby amended to read as follows:**

**R112.4 Administration.** To appeal a written determination of the building official to the Board of Appeals, a written appeal must be received by the Larimer County Building Division within thirty (30) days of the date of the determination being appealed. The appellant shall, at the time of making such appeal, pay to the Larimer County Building Division a docket fee as specified in the Larimer County fee schedule. The Larimer County Building Division shall send written notice of hearing to all parties concerned at least fourteen (14) days prior to the hearing by mailing the same to such parties' last known address by regular mail. The building official shall take immediate action in accordance with the decision of the Board of Appeals. All meetings or hearings shall be open to the public. The Board of Appeals may, from time to time, adopt such additional rules and regulations as it deems necessary and advisable for the conduct of its hearings and for carrying out the provisions hereof.

## CHAPTER 2 DEFINITIONS

**The following section is hereby amended by adding or amending these terms to read as follows:**

### **R202 DEFINITIONS**

**CABIN.** A structure that contains at least one habitable room for living, sleeping, eating, or cooking that lacks one of the following: an approved electrical system, an approved sanitation system, a potable water system, a water heater, or a primary heat source.

**FIREPLACE INSERT.** A woodburning device designed to be installed in an existing fireplace.

**INTERNATIONAL FIRE CODE.** The International Fire Code as adopted, amended, and administered by and within a fire district.

**LARGE SHORT-TERM RENTAL.** A dwelling constructed in compliance with this code, where transient accommodations are provided for a single group of more than ten occupants and where rooms may not be individually rented to guests who are not part of the group. *Large short-term rentals* are regulated by the International Building Code.

**NON-RESTRICTED AREA.** That part of unincorporated Larimer County located west of Range 71, or north of the north half of Township 10 and east of Range 72 as shown on the Larimer County Fireplace Area Map.

**PRIMARY HEAT SOURCE.** A permanent heating system capable of maintaining room temperatures at 68 degrees Fahrenheit at a point three feet above the floor and two feet from exterior walls in all habitable rooms at all times, even when the structure is unoccupied.

**RESORT LODGE COTTAGES** – A building or group of buildings, under single management and ownership, containing rooms and/or dwelling units available for temporary rental to guests where the primary attraction is generally recreational features or activities.

**RESTRICTED AREA.** That part of unincorporated Larimer County located outside the Non-restricted Area as shown on the Larimer County Fireplace Area Map.

**SHORT-TERM RENTAL.** A dwelling constructed in compliance with this code, where transient accommodations are provided for a single group of ten or fewer occupants and where rooms may not be individually rented to guests who are not part of the group.

**SOLIDLY SHEATHED DECK.** A roof deck with gaps between planks or sheathing not exceeding 1/8 inch (3.18 mm).

**TRANSIENT.** Occupancy of a dwelling unit or sleeping unit for not more than 30 days.

**WOODSTOVE.** An appliance designed for or capable of burning wood and capable of and intended for domestic space heating or domestic water heating.

## CHAPTER 3 BUILDING PLANNING

The following table is hereby amended to read as follows:

**TABLE R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA**  
(These criteria shall be used for mechanical load calculations and designs.)

| Ground Snow Load <sup>o</sup><br><br>(P <sub>g</sub> )   | Wind Design  |                                  |                                  |                                     | Seismic Design Category <sup>f</sup> | Subject to Damage from  |                               |                      |
|--|--|----------------------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------|-------------------------------|----------------------|
|  | Speed <sup>d</sup><br>(mph)                                    | Topographic effects <sup>k</sup> | Special Wind Region <sup>l</sup> | Wind-borne debris zone <sup>m</sup> |                                      | Weathering <sup>a</sup> | Frost Line Depth <sup>b</sup> | Termite <sup>c</sup> |
| 35psf ≤ 5000'<br>45psf ≤ 6000'<br>50psf ≤ 6500'<br>60psf ≤ 7000'<br>70psf ≤ 8000'<br>100psf ≤ 9000'<br>140psf ≤ 10000'<br><br><b>Engineered design is required over 8,000'</b> | 115-225 mph<br><br>Ultimate Design Wind Speed V <sub>ult</sub> | YES                              | YES                              | NO                                  | B                                    | Severe                  | 30 inches                     | Slight to Moderate   |

| Ice Barrier Underlayment Required <sup>h</sup> | Flood Hazards <sup>g</sup>   | Air Freezing Index <sup>i</sup>   | Mean Annual Temperature <sup>j</sup> |
|--|--|---|--------------------------------------|
| YES  | (a) 1973<br>(b) Feb. 6, 2013<br>(c) Panels 08069C0025 through 08069C1420 | 906 in the Front Range<br><br>926 in the Wildfire Hazard Area (foothills & mountains) | 43.2 F                               |

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

| <b>MANUAL J DESIGN CRITERIA<sup>n</sup></b> |                            |                        |  |   |  |                                |
|---|----------------------------|------------------------|--|---|--|--------------------------------|
| Elevation                                   | Altitude Correction Factor | Summer Design wet bulb | Indoor Winter Design Relative Humidity | Indoor winter design dry-bulb temperature | Outdoor winter design dry-bulb temperature | Heating Temperature Difference |
| 4,790 to 13,573                             | varies with elevation      | 62° F                  | 30%                                    | 72° F                                     | 4° F                                       | 68° F                          |
| Latitude                                    | Climate Zone               | Daily Range            | Indoor summer design relative humidity | Indoor summer design dry-bulb temperature | Outdoor summer design dry-bulb temperature | Cooling Temperature Difference |
| 40° 15' to 40° 59' North                    | 5B                         | High (H)               | 50%                                    | 75° F                                     | 91° F                                      | 16° F                          |

**Footnotes to Table 301.2 are hereby amended to read as follows:**

- 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(1). The grade of masonry units shall be determined from ASTM C34, ASTM C55, ASTM C62, ASTM C73, ASTM C90, ASTM C129, ASTM C145, ASTM C216 or ASTM 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 Ultimate Design Wind Speed ( $V_{ult}$ ) for the determination of site wind loads shall comply with the Colorado Front Range Gust Map – ASCE 7-10 Compatible, published by the Structural Engineers Association of Colorado (dated November 8, 2013) or the Larimer County Ultimate Design Wind Speed Map. Wind Load design values shall be determined from Section 1609 of the IBC. Wind exposure category shall be Exposure C unless designated otherwise by the design professional based on site-specific conditions and approved by the building official.
- e. The *jurisdiction* shall fill in this section of the table to establish the design criteria using Table 10A from ACCA Manual J or established criteria determined by the *jurisdiction*. Deviations from this table shall be permitted to reflect local climates or local weather experience as determined by the *building official*.
- f. The *jurisdiction* shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.
- g. The *jurisdiction* shall fill in this part of the table with: (a) the date of the *jurisdiction's* entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas); (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of the currently effective FIRMs and FBFMs or other flood hazard map adopted by the authority having *jurisdiction*, as amended.
- h. In accordance with Sections R905.1.2, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall fill in this part of the table with "NO."
- i. The *jurisdiction* shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- j. The *jurisdiction* shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- l. In accordance with Figure R301.2(2), where there is local historical data documenting unusual wind conditions, the *jurisdiction* shall fill in this part of the table with "YES" and identify any specific requirements. Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- m. In accordance with Section R301.2.1.2 the *jurisdiction* shall indicate the wind-borne debris wind zone(s). Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- n. The *jurisdiction* shall fill in these sections of the table to establish the design criteria using Table 1a or 1b from ACCA Manual J or established criteria determined by the *jurisdiction*. Alternative design criteria based on site-specific data may be used when proposed by the *registered design professional* and approved by the *building official*.
- o. The design ground snow load  $P_g$  shall comply with the column above or the Colorado Design Snow Loads, published by the Structural Engineers Association of Colorado (dated April 2016). The design roof snow load values shall be determined from Chapter 7, ASCE 7-16, including all applicable factors, and loading and drifting considerations. In no case shall the final design roof snow load be less than a uniformly distributed load of 30 psf, except greenhouses may take full load reductions allowed per ASCE 7. Loafing sheds and pole barns may be constructed per Larimer County Prescriptive Design Standards.

**The following section is hereby amended to read as follows:**

**R301.2.1.1 Wind limitations and wind design required.**

The wind provisions of this code shall not apply to the design of buildings where the ultimate design wind speed,  $V_{ult}$ , as determined in compliance with the Colorado Front Range Gust Map – ASCE 7-10 Compatible, published by the Structural Engineers Association of Colorado (dated November 8, 2013), equals or exceeds 140 miles per hour (225 kph).

**Exceptions:**

1. For concrete construction, the wind provisions of this code shall apply in accordance with the limitations of Sections R404 and R608.
2. For structural insulated panels, the wind provisions of this code shall apply in accordance with the limitations of Section R610.
3. For cold-formed steel light-frame construction, the wind provisions of this code shall apply in accordance with the limitations of Sections R505, R603 and R804.

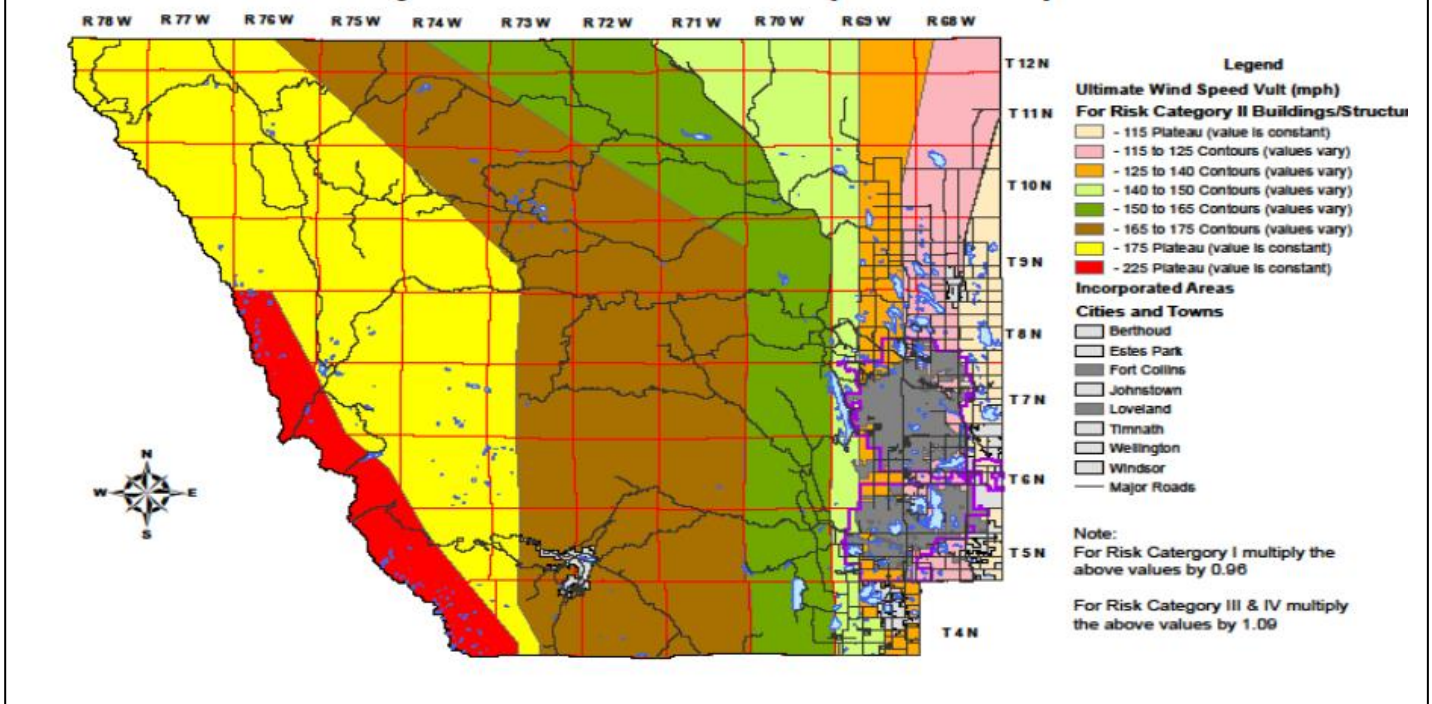
Where the ultimate design wind speed,  $V_{ult}$ , as determined above equals or exceeds 140 miles per hour (225 km/h), the design of buildings for wind loads shall be in accordance with one or more of the following methods:

1. AWC Wood Frame Construction Manual (WFCM).
2. ICC Standard for Residential Construction in High-Wind Regions (ICC 600).
3. ASCE Minimum Design Loads for Buildings and Other Structures (ASCE 7).
4. AISI Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings (AISI S230).
5. International Building Code.
6. Larimer County Prescriptive Design Standards for Pole Barns in High Wind Areas.
7. Larimer County Prescriptive Design Standards for Loafing Sheds.
8. Any other Prescriptive Design Standards for High Wind or Heavy Snow Areas subsequently issued by Larimer County.

The elements of design not addressed by the methods in Items 1 through 8 shall be in accordance with the provisions of this code. Where ASCE 7 or the International Building Code is used for the design of the building, the Colorado Front Range Gust Map – ASCE 7-10 Compatible, published by the Structural Engineers Association of Colorado (dated November 8, 2013), and exposure category requirements as specified in ASCE 7 and the International Building Code shall be used.



# Larimer County Ultimate Wind Speed Map



The following section is hereby amended to read as follows:

**R302.1 Exterior walls.** Construction, projections, openings, and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1 (1); or dwellings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904 shall comply with Table R302.1 (2).

**Exceptions:**

1. Walls, projections, openings, or penetrations in walls perpendicular to the line used to determine the fire separation distance.
2. Walls of individual dwelling units and their accessory structures located more than six feet (1.8 m) apart on the same lot.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.
4. Foundation vents installed in compliance with this code are permitted.

The following Table is hereby amended to read as follows:

**Table R302.1 (1) Exterior Walls**

| TABLE R302.1 (1) EXTERIOR WALLS |                           |  |                                  |
|---------------------------------|---------------------------|--|----------------------------------|
| EXTERIOR WALL ELEMENT           |                           | MINIMUM FIRE-RESISTANCE RATING   | MINIMUM FIRE SEPARATION DISTANCE |
| Walls                           | Fire-resistance rated     | 1 hour-tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code with exposure from both sides | 0 feet                           |
|                                 | Not fire resistance rated | 0 hours  | 3 feet                           |
| Projections                     | Not allowed               | NA   | Less than 2 feet                 |
|                                 | Fire-resistance rated     | 1 hour on the underside, or heavy timber, or fire-retardant treated wood <sup>a, b</sup>   | 2 feet                           |
|                                 | Not fire resistance rated | 0 hours  | 3 feet                           |
| Openings in walls               | Not allowed               | NA   | Less than 3 feet                 |
|                                 | Unlimited                 | 0 hours  | 3 feet                           |
| Penetrations                    | All                       | Comply with Section R302.4   | Less than 3 feet                 |
|                                 |                           | None required  | 3 feet                           |

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

- a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
- b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

**The following Table is hereby amended by deleting footnote a and renumbering footnotes b and c to read as follows:**

**Table R302.1 (2) Exterior Walls – Dwellings with Fire Sprinklers**

- a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
- b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

**The following section is hereby amended to read as follows:**

**R302.5.1 Opening protection.** Openings from a private garage, barn, or similar utility space directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage, barn or similar utility space and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors. Doors shall be self-latching and equipped with a self-closing or automatic-closing device.

**The following section is hereby amended to read as follows:**

**R302.6 Dwelling-garage/barn/utility space fire separation.** The garage, barn or similar utility space shall be separated as required by Table R302.6. Openings in such walls shall comply with Section R302.5. Attachment of gypsum board shall comply with Table R702.3.5. This provision does not apply to walls of utility spaces that are perpendicular to the adjacent *dwelling unit* wall.

**The following section is hereby added to read as follows:**

**R302.6.1** Private garages, barns and similar utility buildings exceeding 5,000 sq. ft. (464.5 m<sup>2</sup>) in floor area within 6' (1.8 m) at any point from a dwelling unit on the same lot shall be separated from the dwelling by 1-hour fire-rated wall, roof and soffit construction.

**The following section is hereby amended to read as follows:**

**TABLE R302.6 DWELLING-GARAGE/BARN/SIMILAR UTILITY SPACE SEPARATION**

| SEPARATION   | MATERIAL   |
|--|--|
| From the residence and attics  | Not less than 1/2-inch gypsum board or equivalent applied to the utility space side  |
| From all habitable rooms above the utility space   | Not less than 5/8-inch Type X gypsum board or equivalent   |
| Structure(s) supporting floor/ceiling assemblies used for separation required by this section                      | Not less than 1/2-inch gypsum board or equivalent  |
| Garages/barns/similar utility buildings located less than 6 feet from a dwelling unit on the same lot <sup>a</sup> | Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls and roof/ceiling assemblies that are within this area |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- a. Garages, barns, and similar utility buildings exceeding 5,000 sq. ft. (464.5 m<sup>2</sup>) in floor area shall comply with Section R302.6.1

**The following section is hereby amended in its entirety to read as follows:**

**R302.13 Fire protection of floors above fuel-burning appliances.** In new construction or a new location for an appliance, where fuel-fired heating or water-heating appliances are installed below a combustible floor, floor assemblies that are not required elsewhere in this code to be fire-resistance rated shall be provided with a minimum 1/2 inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

**Exceptions:**

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA 13D, or other approved equivalent sprinkler system.
2. Floor assemblies located above direct vent appliances with both intake and exhaust pipes installed continuously to the outside.
3. Portions of floor assemblies shall be permitted to be unprotected where complying with all of the following:
  - 3.1. The appliances are enclosed in a framed mechanical room with no less than 1/2" (12.7 mm) gypsum wallboard or the equivalent installed on the ceiling and walls. Clearances to combustible materials and for appliance access and service, as specified in this code and the manufacturer's installation instructions, shall be maintained.
  - 3.2. The aggregate area of the room does not exceed 80 square feet (7.4 m<sup>2</sup>) per story.
  - 3.3. Fireblocking in accordance with Section R302.11.1 is installed along the perimeter of the mechanical room.
  - 3.4. The room is insulated and sealed in accordance with Section N1102.4.4.
  - 3.5. Openings from a mechanical room directly into a room used for sleeping purposes are prohibited. Other openings shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors. Doors shall be self-latching and equipped with a self-closing or automatic-closing device.
4. Wood floor assemblies using dimension lumber or *structural composite lumber* equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other *approved* floor assemblies demonstrating equivalent fire performance.

**The following section is hereby amended to read as follows:**

**R303.10 Required heating.** Every dwelling unit shall be provided with a *primary heat source* capable of maintaining a minimum room temperature of 68°F (20°C) at a point three feet (914 mm) above the floor and two feet (610 mm) from exterior walls in all habitable rooms at the design temperature.

**The following section is hereby amended to read as follows:**

**R308.4.7 Glazing adjacent to stair landings.** Glazing adjacent to the landings at the bottom of a stairway where the glazing is less than 36 inches (914 mm) above the landing and within a 60 inch (1524 mm) horizontal arc less than 180 degrees from the top or bottom tread nosing shall be considered a hazardous location.

**Exception:** Where the glazing is protected by a guard complying with Section R312 and the plane of the glass is more than 18 inches (457 mm) from the guard.

**The following section including exceptions is hereby amended to read as follows:**

**R310.1 Emergency escape and rescue opening required.** Basements, habitable attics, habitable lofts and mezzanines, and every sleeping room shall have not less than one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, an emergency escape and rescue opening shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court having a minimum width of 36 inches (914 mm) that opens to a public way.

**Exceptions:**

1. Storm shelters and basements used only to house mechanical equipment not exceeding a total floor area of 200 square feet (18.58 m<sup>2</sup>).
2. A yard shall not be required to open directly into a public way where the yard opens to an unobstructed path from the yard to the public way. Such path shall have a width of not less than 36 inches (914 mm).

**The following section is hereby amended to read as follows:**

**R310.2.2 Minimum dimensions.** The minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The net clear opening dimensions shall be the result of normal operation of the opening, with casement windows measured when open perpendicular to the exterior wall.

**The following section is hereby amended to read as follows:**

**R310.7.1 Existing emergency escape and rescue openings.** Where a change of occupancy would require an emergency escape and rescue opening in accordance with Section 310.1, operable windows serving as the emergency escape and rescue opening shall comply with the following:

1. An existing operable window shall provide a minimum net clear opening of 5 square feet (0.46 m<sup>2</sup>) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).
2. A replacement window where such window complies with both of the following:
  - 2.1. The replacement window meets the size requirements in Item 1.
  - 2.2. The replacement window is the manufacturer's largest standard-size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

**The first sentence in the following section is hereby amended to read as follows (the remainder is unchanged):**

**R311.7.5.1 Risers.** The riser height shall be not more than 7<sup>3</sup>/<sub>4</sub> inches (196 mm) and not less than 4 inches (102 mm).

**The following section is hereby added to read as follows:**

**R312.1.1.1 Area wells, bulkheads, and similar enclosures.** Where any area well wall, bulkhead enclosure wall or similar retaining wall or barrier is located less than 36 inches (914 mm) from the nearest intended walking surface, parking surface, or driveway, and the surface elevation difference between the higher and lower side of the well wall, bulkhead enclosure wall or retaining wall is greater than 30 inches, such wall shall be protected with guards or be provided with an equivalent barrier.

**EXCEPTIONS:**

1. The access side of stairways need not be barricaded.
2. Area wells provided for emergency escape and rescue windows may be protected with approved grates or covers that comply with Section 310.4.4.
3. Covers and grates may be used over stairways and other openings used exclusively for service access or for admitting light or ventilation.
4. Area well walls, bulkhead enclosure walls, or retaining walls adjacent to a building that are located 24 inches (610 mm) or less measured perpendicular from the building.
5. Where the slope of the embankment or the side of the opening enclosure adjacent to such wall does not exceed one unit vertical to two horizontal.

**The following section is hereby amended in its entirety to read as follows:**

## **SECTION R313**

### **AUTOMATIC FIRE-SPRINKLER SYSTEMS**

**R313.1 Townhouse automatic fire sprinkler design.** An automatic sprinkler system shall be installed in townhouses.

**Exception:** An automatic sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with a sprinkler system.

**R313.1.1 Design and installation.** Automatic sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D.

**Exception:**

Within the Estes Valley Fire Protection District, automatic sprinkler systems for townhouses shall be designed and installed in accordance with NFPA 13D.

**R313.2 One- and two-family dwellings automatic fire sprinkler design.** An automatic fire sprinkler system shall be installed in all two-family dwellings, and in one-family dwellings within the Lyons Fire Protection District or any other Fire Protection District designated by the Board of Larimer County Commissioners.

**Exception:** An automatic sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with a sprinkler system.

### **R313.2.1 Design and installation.**

Automatic sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.

#### **Exception:**

Within the Estes Valley Fire Protection District, automatic fire sprinkler systems for one- and two-family dwellings shall be designed and installed in accordance with NFPA 13D.

*The following section is hereby amended by deleting exception #2 to read as follows:*

**R314.2.2 Alterations, repairs, and additions.** Where alterations, repairs or additions requiring a permit occur, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings.

**Exception:** Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of a porch or deck.

*The following section is hereby amended by adding an Exception to read as follows:*

**R314.4 Interconnection.** Where more than one smoke alarm is required to be installed within an individual dwelling unit in accordance with Section R314.3, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual dwelling unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

**Exception:** Smoke alarms required for installation, alteration, or repairs of plumbing or mechanical systems need not be interconnected.

*The following section is hereby amended to read as follows:*

### **R315.2.1 New construction.**

For new construction, carbon monoxide alarms shall be provided in *dwelling units* where either or both of the following conditions exist.

1. The *dwelling unit* contains a fuel-fired *appliance*.
2. The *dwelling unit* has an attached garage.

*The following section is hereby amended by deleting Exceptions #2 and #3 to read as follows:*

**R315.2.2 Alterations, repairs, and additions.** Where alterations, repairs or additions requiring a permit occur, or where one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with carbon monoxide alarms located as required for new dwellings.

**Exception:** Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of a porch or deck.

*The following section is hereby amended to read as follows:*

**R315.3 Location.** Carbon monoxide alarms in dwelling units shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and not more than fifteen feet (4.6 m) from the door to each bedroom. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom.

*The following section is hereby amended by adding Exception #2 and renumbering the existing Exception as #1 to read as follows:*

**R315.5 Interconnectivity.** Where more than one carbon monoxide alarm is required to be installed within an individual dwelling unit in accordance with Section R315.3, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual dwelling unit. Physical interconnection of carbon monoxide alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

#### **Exceptions:**

1. Interconnection of carbon monoxide alarms in existing areas shall not be required where alterations or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available that could provide access for interconnection without the removal of interior finishes.
2. Carbon monoxide alarms required for installation, alteration, or repairs of plumbing or mechanical systems.

*The following section is hereby amended to read as follows:*

**R322.1 General.** Buildings and structures constructed in whole or in part in flood hazard areas, including A Zones, as established in the Larimer County Land Use Code, and substantial improvement and repair of substantial damage of buildings and structures in flood hazard areas, shall be designed and constructed in accordance with the provisions contained in the Larimer County Land Use Code.

*The following section is hereby added to read as follows:*

## **R331 WILDFIRE HAZARD MITIGATION REQUIREMENTS**

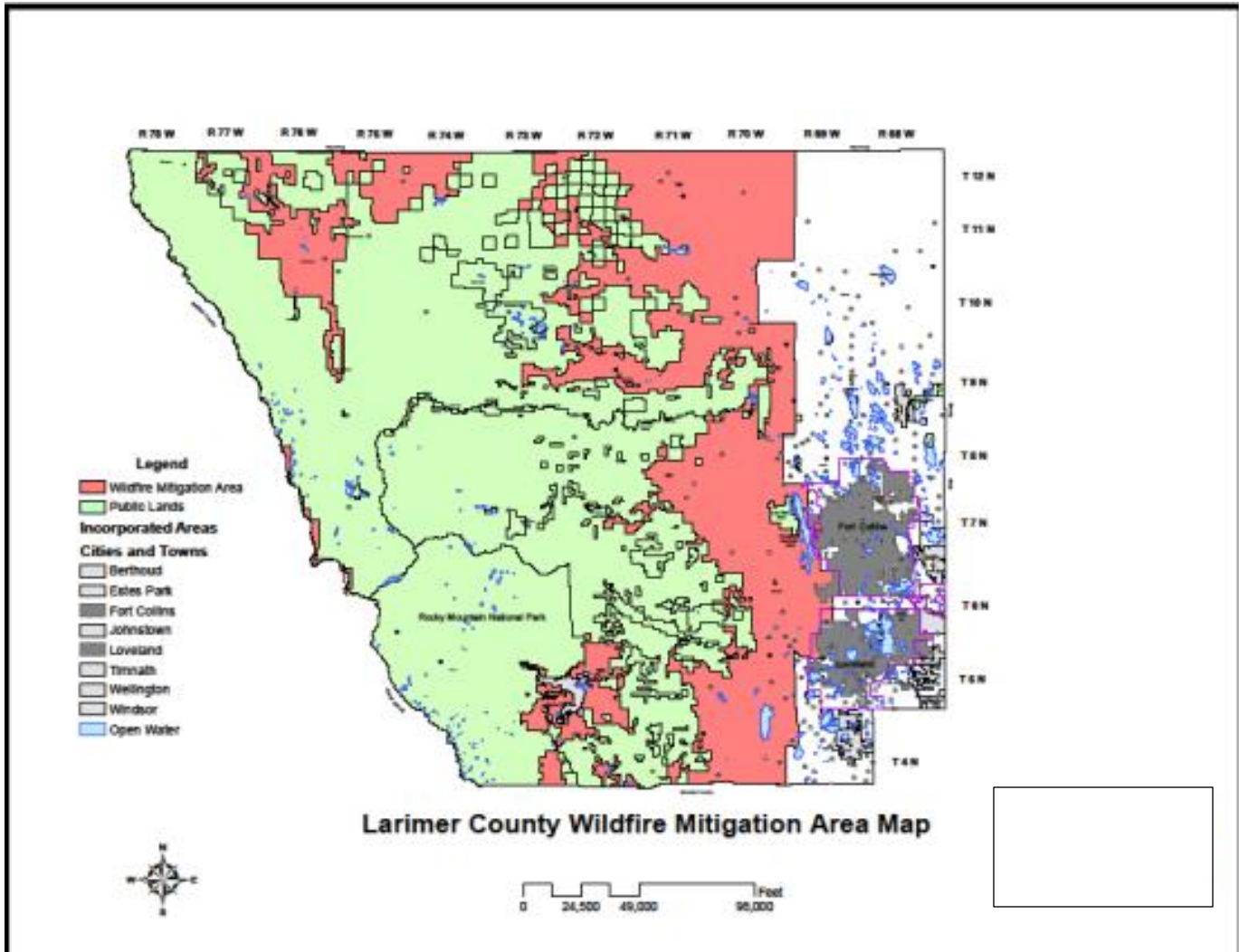
**R331.1 General Purpose.** The purpose of this section is to establish minimum standards for design and construction of new buildings or portions thereof for the protection of life and property from wildfire hazards.

**R331.2 Scope.** Within the *wildfire hazard area*, as defined herein and shown in Figure R331, all new building construction including additions shall comply with the provisions of this section.

#### **EXCEPTIONS:**

1. Sheds, greenhouses, and similar detached accessory structures not exceeding 600 sq. ft. (55.7 m<sup>2</sup>) in area.
2. Loafing sheds and similar unenclosed accessory structures of any size.

**FIGURE R331 LARIMER COUNTY WILDFIRE HAZARD AREA MAP**



**R331.3 Alternate Materials and Methods of Compliance.** The provisions of this chapter are not intended to prevent the use of any material or method of compliance not specifically prescribed by this chapter, provided any alternate has been *approved* and its use authorized by the building official in accordance with Section 104.11.

**R331.4 Definitions.** For the purpose of this section, certain terms are defined as follows:

**COMBUSTIBLE** - a material that fails to meet the acceptance criteria of Standard Method of Test for Determination of Non-combustibility in Building Materials (ASTM E136).

**COMBUSTIBLE CONSTRUCTION** - a type of construction that does not meet the requirement for noncombustible construction.

**DEFENSIBLE SPACE** - a natural or man-made area, where woody vegetation capable of allowing a fire to spread unchecked has been treated or modified to slow the spread and reduce the intensity of an advancing wildfire, and to create an area for fire suppression operations to occur.

**FIRE-RESISTIVE CONSTRUCTION** - construction designed to resist the spread of fire.

**FIRE-RESISTIVE RATING** - the time that the material or construction will withstand the standard fire exposure as determined by a fire test made in conformity with the standard methods of fire tests of buildings construction and materials.

**FLAME-SPREAD INDEX (FSI)** - a relative index describing the surface-burning characteristics of building materials. The test used to establish FSI evaluates the flame spread over the building material surface when exposed to a test fire. The rate at which flame spreads across the specimen is compared on a scale of 0 for inorganic reinforced cement board, to 100 for red oak. The following table identifies the Flame Spread Classification and Flame Spread Index:

| Flame Spread Classification | Flame Spread Index |
|-----------------------------|--------------------|
| Class A                     | 0 to 25            |
| Class B                     | 26 to 75           |
| Class C                     | 76 to 200          |

**FUEL** - combustible material.

**NONCOMBUSTIBLE** - materials that meet the acceptance criteria of Standard test Method for determination of non-combustibility in building materials. (ASTM E136)

**NONCOMBUSTIBLE CONSTRUCTION** - a type of construction in which a degree of fire safety is attained by the use of noncombustible materials for structural members and other building, assemblies.

**ONE-HOUR FIRE-RESISTIVE CONSTRUCTION** - will withstand the standard fire exposure for one hour as determined by a fire test made in conformity with the standard methods of fire tests of building construction and materials.

**WILDFIRE HAZARD** - the relative threat that a wildland fire may cause the destruction of life and improved property.

**WILDFIRE HAZARD AREA** - The area west of a line starting at the intersection of the Wyoming border line and range 69 west, then South nine miles to S.W. corner of section 31, Township 11, Range 69, then West three miles to N.W. corner of Section 3, Township 10, Range 70, then South five miles to S.W. corner of Section 27, Township 10, Range 70, then East three miles to S.W. corner of Section 30, Township 10, Range 69, then South nine miles to S.W. corner of Section 7, Township 8, Range 69, then West one mile to N.W. corner of Section 13, Township 8, Range 70, then South four miles to S.W. corner of Section 36, Township 8, Range 70, then East two miles to N.W. corner of Section 6, Township 7, Range 69, then South three miles to S.W. corner of Section 17, Township 7, Range 69, then East one mile to S.E. corner of Section 17, Township 7, Range 69, then South four miles to S.W. corner of Section 4, Township 6, Range 69, then East one mile to S.E. corner of Section 4, Township 6, range 69, then South four miles to S.W. corner of Section 27, Township 6, Range 69, then West one mile to S.W. corner of Section 28, Township 6, Range 69, then South three miles to intersection of U.S. Highway 34, then West following U.S. Highway 34 two miles to intersection with Range 69 West, then South seven and three quarter miles to S.W. corner of Section 18, Township 4, Range 69, then West one mile to S.W. corner of Section 13, Township 4, Range 70, then South three miles to where the S.W. corner of Section 36, Township 9, Range 70 meets the Boulder County Line.

**WILDFIRE MITIGATION** - action taken to eliminate or reduce the wildfire hazard.

**R331.5 Fire-Resistive Construction.** Fire-resistive construction on all new structures shall be one of the following types:

1. One-hour fire-resistive shell providing not less than one-hour fire-resistive construction at all exterior walls, excluding openings and decks.
2. Exterior siding materials with a flame-spread classification of Class C or better. Exterior siding shall be composed entirely of non-combustible materials for a minimum of 4 feet (1.2 m) above finished grade.

**EXCEPTION:**

Non-combustible siding for the lowest 4 feet (1.2 m) is not required if 5 feet (1.5 m) or more of non-combustible landscaping material or natural ground cover is provided in accordance with Section 331.6.

3. Log structures using solid logs with a minimum tip diameter of 6 inches (152.4 mm) for exterior wall construction and 8 inches (203.2 mm) for roof beams, purlins and supporting columns.

**R331.6 Defensible Space.** Defensible space in compliance with current Colorado State Forest Service guidelines shall be required on all new construction in the Wildfire Hazard Area. Any landscaping materials or natural ground cover within 5 feet of the exterior walls of the building shall be non-combustible. For additions equal to or greater than 50% of the total square footage of the original structure, or changes in the occupancy or use of existing buildings that would place the building under the scope of Section R331.2, defensible space shall be provided around the entire building.

**EXCEPTION:** Five feet of non-combustible landscaping material or natural ground cover is not required if the lowest 4 feet of siding is non-combustible in accordance with Section 331.5.

**R331.7 Evaluation.** Evaluation of the defensible space will be based upon:

1. Current Colorado State Forest Service standards and guidelines, and
2. Site specific vegetation and topographical characteristics.

The Building Official may allow alternatives to the Colorado State Forest Service Standards and Guidelines based on specific site conditions.

**R331.8 Completion.** The defensible space must be approved prior to issuing a certificate of occupancy or letter of completion.

**R331.9 Liquid Propane Gas.** Liquid propane gas facilities installed in the Wildfire Hazard Area shall comply with current county requirements, the International Fire Code and NFPA 58, for installation of such facilities. Liquid propane gas containers and tanks shall be located within the defensible space.

**R331.10 Spark Arresters.** Chimneys serving fireplaces, woodstoves, barbecues, incinerators, or decorative heating appliances in which solid fuel or liquid fuel is used, shall be provided with a spark arrestor. Spark arrestors shall be constructed of woven or welded wire screening of 12 USA standard gage wire (0.1046 inch) (2.66 mm) having openings not exceeding ½ inch. The net free area of the spark arrestor shall not be less than four times the net free area of the outlet of the chimney.

**R331.11 Fees.** Fees shall be assessed in accordance with the adopted Larimer County wildfire assessment and inspection fee schedule.

**R331.12 Appeals.** Appeals of interpretations made by the building official relative to the application of this section shall be made to the Board of Appeals in accordance with Section 112.

**R331.13 Maintenance.** Defensible space areas created as required by this code or other county ordinances shall be maintained by the property owner. No re-planting or new planting of trees, shrubs or other vegetation that would violate the defensible space requirements of this section shall be permitted.

**The following section is hereby added to read as follows:**

### **R332 SHORT-TERM RENTALS**

**R332.1 General.** *Short-term rentals* shall comply with Sections R332.1.1 through R332.3. *Large short-term rentals, resort lodge cottages* exceeding 10 occupants, and owner-occupied lodging houses exceeding five guest rooms shall comply with the International Building Code.

**R332.1.1 Automatic fire sprinkler systems.** An automatic sprinkler system shall be designed and installed in accordance with Section P2904 or NFPA 13D in *short-term rentals* in buildings constructed on or after the effective date of this code.

**Exceptions:**

1. An automatic sprinkler system shall not be required for conversions to short-term rentals of buildings legally constructed prior to the effective date of this code, that are not already provided with a sprinkler system.
2. Within the Estes Valley Fire Protection District, automatic fire sprinkler systems for short-term rentals shall be designed and installed in accordance with NFPA 13D.

**R332.2 Life safety inspection.** *Short-term rentals, owner-occupied lodging houses and resort lodge cottages* shall not be approved for occupancy until a building permit is issued to convert the dwelling to its new use, the life safety inspection and all other required inspections pass, and a Certificate of Occupancy is issued. *Short-term rentals* life safety inspections shall include the provisions of R332.2.1 through R332.2.25.

**R332.2.1 Address identification.** Approved address identification shall be posted in compliance with the code in effect at the time of the initial survey.

**R332.2.2 Unapproved uses.** Uses of all rooms/spaces shall comply with approved uses per Building Division records. Change of use permits, inspections and approvals shall be required for all rooms with uses different from Building Division records.

**R332.2.3 Unpermitted work.** All unpermitted work shall be permitted, compliant and approved.

**R332.2.4 Unapproved work.** All unapproved work authorized by permits which have expired shall be re-permitted, compliant, and approved.

**R332.2.5 Structural concerns.** Observable structural concerns shall be corrected or mitigated.

**R332.2.6 Emergency escape and rescue openings.** Compliant emergency escape and rescue openings shall be provided for all spaces used for sleeping purposes. For dwellings constructed on or after January 1, 1972, rescue openings shall comply with the code in effect at the time the rescue opening was required. For dwellings constructed prior to January 1, 1972, the minimum requirements shall be those found in the 1970 Uniform Building Code.

**R332.2.7 Window wells.** Where required, compliant window wells shall be properly installed at emergency escape and rescue openings. For dwellings constructed on or after January 1, 1972, window wells shall comply with the code in effect at the time the well was required. For dwellings constructed prior to January 1, 1972, window well shall meet the minimum requirements of the 1970 Uniform Building Code.

**R332.2.8 Smoke alarms.** Approved smoke alarms shall be properly installed at all locations in accordance with Section R314, their listing and manufacturer's installation instructions.

**R332.2.9 Carbon monoxide alarms.** Approved carbon monoxide alarms shall be properly installed at all locations in compliance with Section R315, their listing and manufacturer's installation instructions.

**R332.2.10 Fuel gas appliances.**

- a. Fuel gas appliances shall be in approved locations.
- b. Fuel gas appliances shall be in dedicated spaces, where applicable.
- c. Fuel gas appliances shall comply with required clearances.
- d. Fuel gas appliances shall be provided with required combustion air.
- e. Fuel gas appliances shall be connected to approved venting systems.
- f. Fuel gas appliances shall have required temperature and pressure relief valves.
- g. Fuel gas appliances shall have proper condensate disposal.
- h. Rooms/spaces containing fuel gas appliances shall be properly fireblocked.
- i. Other than existing cook tops, no ventless fuel gas appliances are allowed.

**R332.2.11 Dwelling/garage separation.** Dwellings shall be separated from garages and similar utility spaces per Section R302.6.

**R332.2.12 Handrails.** Approved handrails shall be properly installed at locations in compliance with Section R311.

**R332.2.13 Guards.** Approved guards shall be properly installed at locations in compliance with Section R312.

**R332.2.14 Ground-Fault Circuit-Interrupter Protection.** Ground-fault circuit-interrupter protection for personnel shall be provided in locations in compliance with the currently adopted National Electrical Code.

**R332.2.15 Environmental duct terminations.** Dryer ducts and exhaust fans shall terminate at approved locations in accordance with Chapter 15.

**R332.2.16 Cook stove.** Anti-tip devices shall be installed for all cook stoves, ovens, and ranges.

**R332.2.17 Wildfire hazard.** Wildfire defensible spaces shall be provided and maintained as required for new construction

**R332.2.18 Solid fuel-burning exterior appliances.** Solid fuel-burning exterior appliances including but not limited to fire pits, outdoor fireplaces, portable outdoor fireplaces, and barbecue grills, shall not be installed within the Wildfire Hazard Area. Existing solid fuel-burning exterior appliances shall be locked, altered, or removed, so that they cannot be used by transient renters.

**R332.2.18 Lighting at exterior stairs.** Exterior stairs shall be properly illuminated in compliance with Section 303.8.

**R332.2.20 Septic Systems.** Dwellings utilizing septic systems require approval from the Larimer County Health Department for the proposed number of occupants.

**R332.2.21 Stove-top fire stop.** An automatic fire-extinguishing system or alternative system *approved* by the Chief Building Official shall be installed above or adjacent to each stove, range, or cooktop, in accordance with the fire-extinguishing system manufacturer's installation instructions.

**Exception:** Stove-top fire stops are not required where an automatic fire sprinkler system in accordance with NFPA 13D or Section P2904 standards is installed throughout the dwelling unit.

**R332.2.22 Portable fire extinguishers.** Portable dry chemical-type fire extinguishers with a minimum rating of 2-A:10-B:C shall be mounted securely on a hanger or bracket intended for the extinguisher by the manufacturer, in a conspicuous location where they will have ready access and be immediately available for use in the following locations:

1. In each room with a cooking appliance, fireplace, heating appliance or water heater. Portable fire extinguishers may be installed outside of and in the immediate vicinity of mechanical closets for water heating or space heating appliances.
2. Inside and adjacent to the door leading to a deck, porch, patio, or similar outdoor space with such appliances.
3. At least one on each story.

**Exception:** Fire extinguishers are not required where an automatic fire sprinkler system in accordance with NFPA 13D or Section P2904 standards is installed throughout the dwelling unit. If sprinkler coverage is not provided at outdoor spaces containing cooking, heating or water heating appliances, fire extinguishers shall be installed per Item #2.

**R332.2.23 Operations Manual.** An operations manual shall be provided in a readily visible location such as the kitchen counter or land-line phone. At a minimum, the manual shall contain the following items:

1. the address, GPS coordinates and phone number of the short-term rental.
2. exit mapping from each habitable room in the house.
3. a map of escape routes from the neighborhood to a public road.
4. contact information for and a copy of current registration with the Fire Department having jurisdiction, as well as contact information for Police/sheriff and ambulance service.
5. contact information for a short-term rental owner or manager with a response time of 60 minutes or less.
6. the location of and instructions for emergency shutoff of water, gas, and electrical systems.
7. information on the stove-top firestop and fire extinguishers.
8. information on Wildfire Hazard Area concerns.
9. the location of property lines and instructions to prevent trespass on neighboring properties.
10. instructions on safe interaction with wildlife, trash disposal and noise considerations.

**R332.2.24 Signs posted at each entrance and exit.** A sign containing the information noted in Section R332.2.23 items 1 through 5 shall be posted at each entrance and exit of the home.

**R332.2.25 Dark Sky Exterior lighting.** All exterior lighting fixtures shall direct light straight down from the fixture and be fully shielded so that no light is visible from the top or sides of the fixture.

**R332.3 Certificate of Occupancy.** After a life safety inspection has been approved and no known code violations exist, the Building Official shall issue a Certificate of Occupancy for use as a *short-term rental*, owner-occupied lodging house or resort lodge cottage. In addition to other requirements, Certificates of Occupancy for *short-term rentals*, owner-occupied lodging houses and resort lodge cottages shall specify the number of rooms approved for sleeping purposes and the maximum approved occupant load.

The following section is hereby added to read as follows:

### SECTION 333 ADDITIONAL ENVIRONMENTAL REQUIREMENTS

**R333.1 Passive radon mitigation system required.** All new dwellings, and additions exceeding 1,000 sq. ft., shall install a passive radon mitigation system. Such systems shall be designed and installed in accordance with Appendix AF "Radon Control Methods."

**R333.2 Electric Vehicle readiness.** All new dwelling units with an attached garage or carport shall be provided with a continuous 50-amp, 208/240-volt dedicated branch circuit for electric vehicle supply equipment that is terminated at a receptacle or electric vehicle supply equipment in a readily accessible location at a likely vehicle parking space in the garage or carport.

**R333.3 Renewable energy readiness.** All new dwelling units shall be provided with a continuous 50-amp, 208/240-volt dedicated branch circuit installed from the attic space beneath the roof surface most likely to support a rooftop photovoltaic or wind energy system, to a junction box within 12" (305 mm) (55.7 m2) of the dwelling's electrical meter or connected directly to the electrical panel board.



## CHAPTER 4 FOUNDATIONS

**The first two sentences in the following section are hereby amended to read as follows:**

**R401.1 Application.** The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings. In addition to the provisions of this chapter, the design and construction of foundations in areas prone to flooding as established by Table 301.2(1) shall be designed and constructed in accordance with the Larimer County Land Use Code. All foundations shall be designed by a qualified professional licensed in the State of Colorado, in accordance with accepted and approved engineering practices, including considerations for soil load-bearing capacities, surface and subsurface water conditions, adequate foundation and floor drainage, adequate ventilation of enclosed interior foundation spaces, and foundation waterproofing and damp-proofing.

**Exceptions:**

1. In subdivisions where engineered footings and foundations are not required by the conditions of approval.
2. Outside of subdivisions, where engineered design is not required by Sections R403.1.7 or R403.1.8.
3. Unenclosed patio covers and porches, decks, one-story agriculture pole buildings under 3000 square feet (278.7 m<sup>2</sup>), and accessory, unheated, detached one-story utility buildings with a maximum depth (truss length) of 24 feet (7.32 m), a maximum width not exceeding twice the depth, and a maximum area of 600 square feet (55.7 m<sup>2</sup>), when following Larimer County's Prescriptive Design Standards.

Wood foundations shall be designed and installed in accordance with AWC PWF.

**Exception:** The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In buildings that have not more than two floors and a roof.
2. Where interior basement and foundation walls are constructed at intervals not exceeding 50 feet (15,240 mm).

**The following section is hereby amended to add Exception #5 to read as follows:**

**R403.1.4.1 Frost Protection.**

**Exceptions**

5. An unheated, one-story accessory building may be placed on a slab-on-grade cast monolithically with a footing placed at least 12 inches (9305 mm) below the undisturbed ground with one No. 5 bar or two No. 4 bars located in the middle of the footing depth. Such accessory building shall have a maximum depth (truss length) of 24 feet (7.31 m), a maximum width not exceeding twice the depth, a maximum area of 600 square feet (55.7 m<sup>2</sup>) and shall be equipped with a controlled method of water disposal from roofs in accordance with section R801.3.

**The following section is hereby amended in its entirety to read as follows:**

**R403.1.8 Foundations on expansive soils.** Foundation and floor slabs for buildings located on expansive soils shall be designed in accordance with Section 1808.6 of the International Building Code.

**Exception:** Slab-on-grade foundation systems may be used for unheated, one-story accessory buildings in accordance with Section R403.1.4.1 Exception 5.

**The following section is hereby amended to read as follows:**

**R405.1 Concrete or masonry foundations.** Drains shall be provided around concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade. Drainage tiles, gravel or crushed stone drains, perforated pipe or other approved systems or materials shall be installed at or below the top of the footing or below the bottom of the slab and shall discharge by gravity or mechanical means into an approved drainage system. Gravel or crushed stone drains shall extend not less than 1 foot (305 mm) beyond the outside edge of the footing and 6 inches (152 mm) above the top of the footing and be covered with an approved filter membrane material. The top of open joints of drain tiles shall be protected with strips of building paper. Except where otherwise recommended by the drain manufacturer, perforated drains shall be surrounded with an approved filter membrane, or the filter membrane shall cover the washed gravel or crushed rock covering the drain. Drainage tiles or perforated pipe shall be placed on not less than 2 inches (51 mm) of washed gravel or crushed rock not less than one sieve size larger than the tile joint opening or perforation and covered with not less than 6 inches (152 mm) of the same material.

**Exceptions:**

1. A drainage system is not required where determined by the engineer of record that the foundation is installed on well-drained ground or sand-gravel mixture soils according to the Unified Soil Classification System, Group I soils, as detailed in Table R405.1.
2. A drainage system is not required for additions where the existing construction lacks a drainage system to connect to.

**The following section is hereby added to read as follows:**

**R408.3.1 Spaces under below-grade floors.** Mechanical ventilation systems for spaces under below-grade floors shall be designed by a professional engineer and installed in accordance with such designs or a mechanical ventilation system for spaces under below-grade floors shall be provided with an active, fan-assisted submembrane depressurization system installed per APPENDIX AF, RADON CONTROL METHODS. In addition, the space above the soil-gas-retarder and below the floor shall be provided with continuously operated mechanical exhaust ventilation at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m<sup>2</sup>) of underfloor area and either mechanical supply air at the same rate, or an air pathway to the common area (such as a duct or transfer grille).

**The following section is hereby amended to read as follows:**

**R408.7 Flood resistance.** For buildings located in flood hazard areas as established in Table R301.2, the design and construction of foundations shall be in accordance with the Larimer County Land Use Code.

## CHAPTER 5 FLOOR CONSTRUCTION

**The following section is hereby amended to read as follows:**

**R502.6 Bearing.** The ends of each joist, beam or girder shall have not less than 1 1/2 inches (38 mm) of bearing on wood or metal, have not less than 3 inches of bearing (76 mm) on masonry or concrete or be supported by approved joist hangers. The bearing on masonry or concrete shall be direct, or a sill plate of 2-inch-minimum (51 mm) nominal thickness shall be provided under the joist, beam or girder. The sill plate shall provide a minimum nominal bearing area of 48 square inches (30 865 mm<sup>2</sup>).

**The following section is hereby amended to read as follows:**

**R507.3 Footings.** Decks shall be supported on concrete footings or other approved structural systems designed to accommodate all loads in accordance with Section R301. Deck footings shall be sized to carry the imposed loads from the deck structure to the ground as shown in Figure R507.3.

**Exceptions:**

1. Footings shall not be required for free-standing decks consisting of joists directly supported on grade over their entire length.
2. Footings shall not be required for free-standing decks that meet all of the following criteria:
  - 2.1. The joists bear directly on precast concrete pier blocks at grade without support by beams or posts.
  - 2.2. The area of the deck does not exceed 200 square feet (18.6 m<sup>2</sup>).
  - 2.3. The walking surface is not more than 30 inches (762 mm) above grade at any point within 36 inches (914 mm) measured horizontally from the edge.

## CHAPTER 6 WALL CONSTRUCTION

**The following section is hereby amended by deleting Exceptions #2 and #3 to read as follows:**

**R602.3.1 Stud size, height and spacing.** The size, height and spacing of studs shall be in accordance with Table R602.3(5).

**Exception:** Utility grade studs shall not be spaced more than 16 inches (406 mm) on center, shall not support more than a roof and ceiling, and shall not exceed 8 feet (2438 mm) in height for exterior walls and load-bearing walls or 10 feet (3048 mm) for interior nonload-bearing walls.

**The following Table is deleted in its entirety:**

**Table R602.3 (6) ALTERNATE WOOD BEARING WALL STUD SIZE, HEIGHT AND SPACING**

**The following section is hereby amended to read as follows:**

**R610.1 General.** Structural insulated panel (SIP) walls shall be designed in accordance with the provisions of this section. Plans for structural insulated panel walls, project drawings, typical details and specifications shall bear the seal of the architect or engineer responsible for design.

## CHAPTER 7 WALL COVERING

**The following section is hereby amended to read as follows:**

**R702.7 Vapor retarders.** Vapor retarder materials shall be classified in accordance with Table R702.7(1). A vapor retarder may be provided on the interior side of frame walls of the class indicated in Table R702.7(2), including compliance with Table R702.7(3) or R702.7(4) where applicable. Class I vapor retarders are not allowed on basement foundation walls or any concrete or masonry below grade wall. An approved design using accepted engineering practice for hygrothermal analysis shall be permitted as an alternative. The climate zone for Larimer County, as determined in accordance with Section N1101.7, is 5B.

**Exception:** Construction where accumulation, condensation or freezing of moisture will not damage the materials.

**The following table is hereby amended to read in its entirety as follows:**

**TABLE R702.7(2) VAPOR RETARDER OPTIONS**

| CLIMATE ZONE | VAPOR RETARDER CLASS   |                        |           |
|--------------|------------------------|------------------------|-----------|
|              | CLASS I <sup>a</sup>   | CLASS II <sup>a</sup>  | CLASS III |
| 5            | Permitted <sup>b</sup> | Permitted <sup>c</sup> | Permitted |

a. Vapor retarders with vapor permeance greater than 1 perm when measured by ASTM E96 water method (Procedure B) shall be allowed on the interior side of any frame wall.

b. Use of a Class I interior vapor retarder in frame walls with a Class I vapor retarder on the exterior side shall require an approved design.

c. Where a Class II vapor retarder is used in combination with foam plastic insulating sheathing installed as continuous insulation on the exterior side of frame walls, the continuous insulation shall comply with Table R702.7(4) and the Class II vapor retarder shall have a vapor permeance greater than 1 perm when measured by ASTM E96 water method (Procedure B).

**The following section is hereby added to read as follows:**

**Section R703.11.3 Vinyl siding and soffits on new buildings.** Vinyl siding and soffits on new buildings shall be installed over one-hour fire-rated assemblies listed for exterior fire exposure, in both the vertical and horizontal plane.

**The following section is hereby added to read as follows:**

**Section R703.13.2 Insulated vinyl siding and soffits on new buildings.** Insulated vinyl siding and soffits on new buildings shall be installed over one-hour fire-rated assemblies listed for exterior fire exposure, in both the vertical and horizontal plane.

**The following section is hereby added to read as follows:**

**Section R703.14.4 Polypropylene siding on new buildings.** Polypropylene siding on new buildings shall be installed over one-hour fire-rated assemblies listed for exterior fire exposure, in both the vertical and horizontal plane.

## CHAPTER 9 ROOF ASSEMBLIES

**The following section is hereby amended to read as follows:**

**R902.1 Roofing covering materials.** Except as otherwise allowed, roofs shall be covered with materials listed as Class A and with materials as set forth in Sections R904 and R905. Class A, B or C roofing required to be listed by this section shall be tested in accordance with ASTM E108 or UL 790. Roof assemblies with coverings of brick, masonry, slate, clay or concrete roof tile, exposed concrete roof deck, ferrous or copper shingles or sheets, and metal sheets and shingles, shall be considered Class A roof coverings. **Exception:** Any Class B or Class C roof covering may be applied on any new construction that is added to an existing building, provided the roof extremities of such existing building and new construction are located a minimum distance of 3 feet (1.524 m) from the nearest adjacent property line and are a minimum distance of 6 feet (3.048 m) from another building.

**The following section is hereby amended to read as follows:**

**R905.1.2 Ice barriers.** An ice barrier shall be installed for asphalt shingles, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles and wood shakes. The ice barrier shall consist of not fewer than two layers of underlayment cemented together, or a self-adhering polymer-modified bitumen sheet shall be used in place of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the building. On roofs with slope equal to or greater than 8 units vertical in 12 units horizontal (67-percent slope), the ice barrier shall also be applied not less than 36 inches (914 mm) measured along the roof slope from the eave edge of the building.

**Exceptions:**

1. Detached accessory structures not containing conditioned floor area
2. Roof recover where the existing roof covering has not been removed.

**The following section is hereby added to read as follows:**

**R905.2.4.2 Impact resistance of asphalt shingles.** Asphalt shingles shall be Class 4 impact resistant, tested in accordance with UL 2218, and installed in accordance with the manufacturer's installation instructions.

**Exceptions**

1. When an owner wishes to replace existing asphalt shingles that are less than class 4 impact resistant with tiles of a similar color or style, and there are no class 4 impact resistance shingles available of similar color or style, the building official may approve alternate materials that are less than class 4 impact resistant, so long as the replacement shingles are the highest class of impact resistant shingles available that match the color or style of the existing shingles. If no impact resistant materials are available, the building official may approve non-impact resistant materials that meet all other applicable requirements of this Code.
2. For repairs or additions to existing asphalt shingles that are less than class 4 impact resistant, the owner may use the same or similar materials regardless of impact resistance of the new shingles.

**The following section is hereby amended to read as follows:**

**R908.1 General.** Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 9 and Section R806 ("Roof Ventilation"). No portion of an existing nonrated roof covering may be permanently replaced or covered with more than one square of nonrated roof covering.

**Exceptions:**

1. Reroofing shall not be required to meet the minimum design slope requirement of one-fourth vertical in 12 units horizontal (2-percent slope) in Section R905 for roofs that provide *positive roof drainage*.
2. Any existing roof covering system may be replaced with a roof covering of the same materials and classification, provided the roof covering has a minimum rating of Class B for buildings located in the *Wildfire Hazard Area* and a minimum rating of Class C outside the *Wildfire Hazard Area*.
3. The reroofing of 50 percent or more during a one-year period of any existing structure requires Class A roof covering materials.

## CHAPTER 10 CHIMNEYS AND FIREPLACES

**The following section is hereby added to read as follows:**

**Section R1001.1.1 Installation**

A. All fireplaces installed in the Restricted Area (Figure R1001.1.1 Larimer County Fireplace Area Map) shall be one of the following:

- (i). A gas fireplace or fireplace with a gas log installed and functioning at time of final inspection.
- (ii). An electric device; or
- (iii). A fireplace that meets the most current emissions standards for wood stoves established by the Colorado Air Quality Control Commission, or any other clean-burning device that is approved by the commission.

B. All fireplaces installed prior to January 1, 2002, in the Restricted Area shall be allowed to remain in use until such time as the owner voluntarily replaces it. Upon replacement, such fireplace shall be one of the types specified in Subsection (A) (i), (ii), or (iii).

C. Within the Non-restricted Area, fireplaces including but not limited to masonry and factory-built fireplaces shall be allowed without being required to meet the standards in Subsection (A).

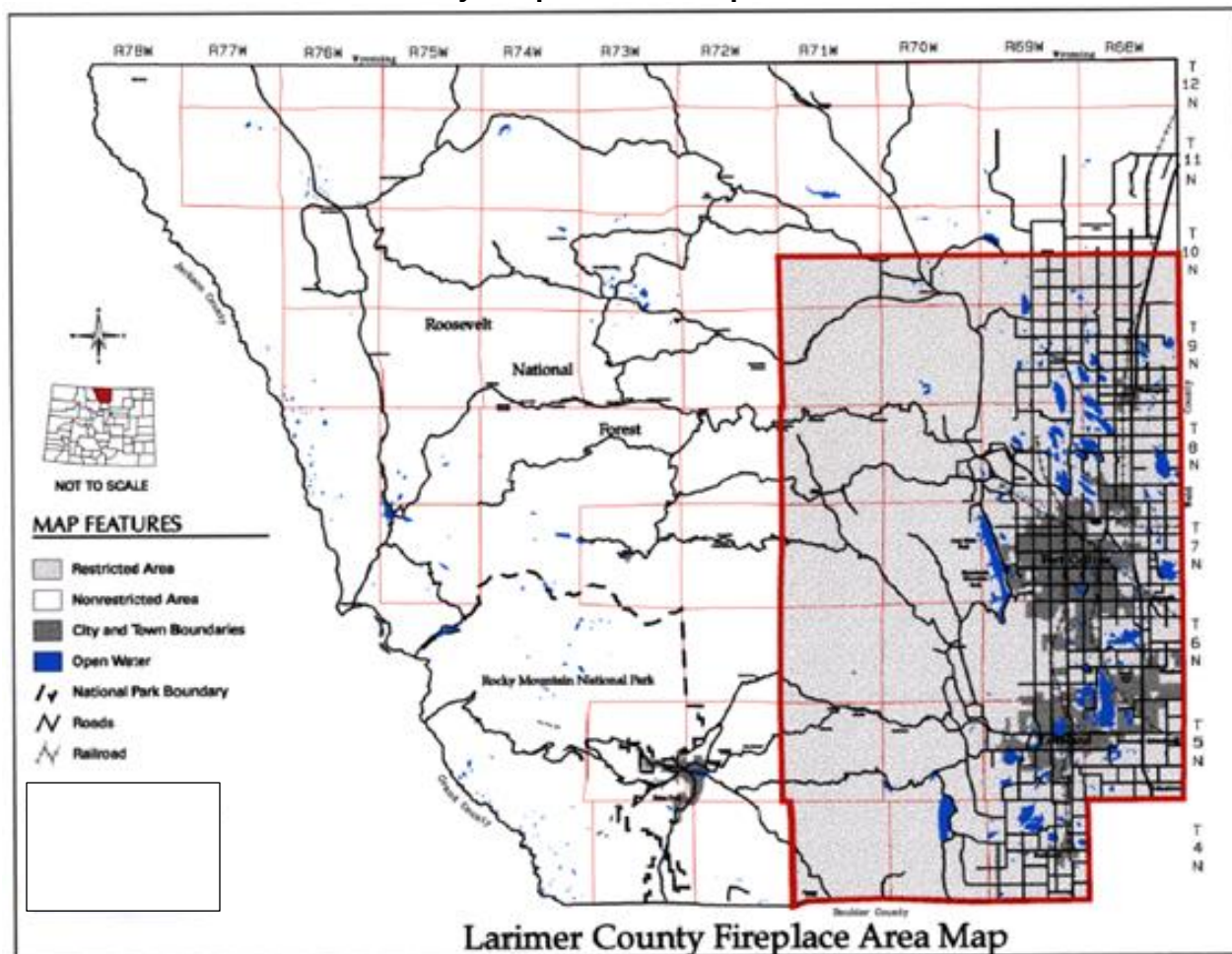
**The following section is hereby amended by adding a new sentence to read as follows:**

**R1004.1 General.** Factory-built fireplaces shall be listed and labeled and shall be installed in accordance with the conditions of the listing. Factory-built fireplaces shall be tested in accordance with UL 127. Factory-built fireplaces shall comply with Section R1001.1.1.

**The following section is hereby amended to read as follows:**

**R1004.4 Unvented gas log heaters.** An unvented gas log heater shall not be installed in a factory-built fireplace.

**FIGURE R1001.1.1 Larimer County Fireplace Area Map**



## CHAPTER 11 ENERGY EFFICIENCY

**The following section is hereby amended to read as follows:**

**N1101.1 (R101.2) Scope.** This chapter regulates the energy efficiency for the design and construction of buildings regulated by this code.

**Exceptions: The following buildings and portions thereof are exempted from the provisions of this chapter:**

1. Detached accessory utility or agricultural buildings which are neither heated nor cooled by fuel or electrical energy.
2. Detached accessory utility or agricultural buildings heated or cooled in their interior for short periods of time and switched with a timer of two hours or less.
3. Detached accessory utility or agricultural buildings not heated above 50° F.
4. Detached accessory utility or agricultural buildings, and *thermally isolated* attached accessory utility and agricultural areas, so long as they meet or exceed the following criteria:
  - a) They do not contain *habitable space*.
  - b) Any heating or cooling equipment installed therein is sized assuming a maximum Indoor Winter Design Dry-bulb Temperature of 60°F and a minimum Indoor Summer Design Dry-bulb Temperature of 80°F.
  - c) Thermal envelope walls are insulated to a minimum of R-15.
  - d) The roof/ceiling is insulated to a minimum of R-30.
  - e) Windows and glazing in doors have a maximum U-factor of 0.40 and in total do not exceed 10% of the floor area.

- f) Doors with minimum R-3 value are sealed to prevent infiltration to the extent practical as determined by the building official.
- g) Any plumbing installed therein is protected from freezing by an *approved* method.

**The following section is hereby amended to read as follows:**

**N1101.3 (R101.5.1) Compliance materials.** The code official shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this chapter. A REScheck compliance certification verifying the home meets or exceeds 2018 or 2021 International Energy Conservation Code requirements shall be deemed to satisfy the requirements of this code.

**The following section is hereby amended by amending Exception #1.2 and adding Exception #3 to read as follows:**

**N1102.1 (R402.1) General (Prescriptive).** The building thermal envelope shall comply with the requirements of Sections N1102.1.1 through N1102.1.5.

**Exceptions:**

1. The following low-energy buildings, or portions thereof, separated from the remainder of the building by *building thermal envelope* assemblies complying with this section shall be exempt from the *building thermal envelope* provisions of Section N1102.
  - 1.1. Those with a peak design rate of energy usage less than 3.4 Btu/h • ft<sup>2</sup> (10.7 W/m<sup>2</sup>) or 1.0 watt/ft<sup>2</sup> of floor area for space-conditioning purposes.
  - 1.2. Those that do not contain conditioned or habitable space.
2. Log homes designed in accordance with ICC 400.
3. Greenhouses.

**The following section is hereby amended to read as follows:**

**TABLE N1102.1.2 (R402.1.2) MAXIMUM ASSEMBLY U-FACTORS<sup>a</sup> AND FENESTRATION REQUIREMENTS**

| CLIMATE ZONE | FENESTRATION U-FACTOR <sup>f</sup> | SKYLIGHT U-FACTOR | GLAZED FENESTRATION SHGC <sup>d,e</sup> | CEILING U-FACTOR | WOOD FRAME WALL U-FACTOR <sup>c</sup> | MASS WALL U-FACTOR <sup>b</sup> | FLOOR U-FACTOR | BASEMENT WALL U-FACTOR | CRAWL SPACE WALL U-FACTOR |
|--------------|------------------------------------|-------------------|---|------------------|---------------------------------------|---------------------------------|----------------|------------------------|---------------------------|
| 5            | .32                                | 0.55              | .40                                     | 0.024            | 0.045                                 | 0.082                           | 0.033          | 0.050                  | 0.055                     |

- a. Nonfenestration U-factors shall be obtained from measurement, calculation, or an approved source.
- b. Mass walls shall be in accordance with Section N1102.2.5. Where more than half the insulation is on the interior, the mass wall U-factors shall not exceed 0.065.
- c. Class 1 vapor retarders shall not be installed on the interior of framed walls where exterior ci value is less than R-7.5.
- d. The SHGC column applies to all glazed fenestration.

**The following section is hereby amended to read as follows:**

**TABLE N1102.1.3 (R402.1.3) INSULATION MINIMUM R-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT<sup>a</sup>**

| Fenestration U-Factor <sup>b,r,t</sup> | Skylight <sup>b</sup> U-Factor | Glazed Fenestration SHGC <sup>b,e</sup> | Ceiling R-Value | Wood Frame Wall R-Value <sup>f,g</sup> | Mass Wall R-Value <sup>h</sup> | Floor R-Value | Basement <sup>c,f,g</sup> Wall R-Value | Slab <sup>d</sup> R-Value & Depth | Crawl Space <sup>c,f,g</sup> Wall R-Value |
|--|--------------------------------|---|-----------------|--|--------------------------------|---------------|--|-----------------------------------|---|
| .32                                    | .55                            | .40                                     | <b>R-60</b>     | 30 or 23+3 or 20+5 or 13+10 or 0+15    | 13/17                          | 30            | 19 or 13+5 or 0+15                     | 10ci, 30 in. <sup>e</sup>         | 19 or 13+5 or 0+15                        |

**For SI: 1 foot = 304.8 mm. ci = continuous insulation**

- a. R-values are minimums. U-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed R-value of the insulation shall be not less than the R-value specified in the table.
- b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: In Climate Zones 0 through 3, skylights shall be permitted to be excluded from glazed fenestration SHGC requirements provided that the SHGC for such skylights does not exceed 0.30.
- c. "5ci or 13" means R-5 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "10ci or 13" means R-10 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "15ci or 19 or 13 + 5ci" means R-15 continuous insulation (ci) on the interior or exterior surface of the wall; or R-19 cavity insulation on the interior side of the wall; or R-13 cavity insulation on the interior of the wall in addition to R-5 continuous insulation on the interior or exterior surface of the wall.
- d. R-5 insulation shall be provided under the full slab area of a heated slab in addition to the required slab-edge insulation R-value for slabs. as indicated in the table. The slab edge insulation for heated slabs shall not be required to extend below the slab.
- e. 30" (762 mm) or top of footings or bottom of monolithic slab, whichever is greatest.
- f. Class 1 vapor retarders shall not be installed on the interior of framed walls where exterior ci value is less than R-7.5
- g. The first value is cavity insulation; the second value is continuous insulation. Therefore, as an example, "13 + 5" means R-13 cavity insulation plus R-5 continuous insulation.
- h. Mass walls shall be in accordance with Section N1102.2.5. The second R-value applies where more than half of the insulation is on the interior of the mass wall.

**The following section is hereby amended to read as follows:**

**N1102.2.4 (R402.2.4) Access hatches and doors.** Access hatches and doors from conditioned to unconditioned spaces such as attics and crawl spaces shall be insulated to the same R-value required by Table N1102.1.3 for the wall or ceiling in which they are installed.

**Exception:** Vertical attic entries providing access from conditioned spaces to unconditioned spaces not required to be a swinging door shall be less than or equal to U-0.10 or have an average insulation R-value of R-10 or greater. If foam plastic insulation is used it shall comply with section R316.5.3. The reduction shall not apply to the total UA alternative in Section N1102.1.5.

**The following section is hereby amended to read as follows:**

**N1102.2.10.1 (R402.2.10.1) Crawl space wall insulation installations.** Where crawl space wall insulation is installed, it shall be permanently fastened to the interior or exterior wall and shall extend downward from the top of the foundation wall to the footing. Exposed earth in unvented crawl space foundations shall be covered with a continuous Class I vapor retarder in accordance with this code. Joints of the vapor retarder shall overlap by 6 inches (153 mm) and be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (153 mm) up the stem walls and shall be attached to the stem walls and footings pads.

**The following section is hereby amended to read as follows:**

**N1102.2.12 (R402.2.12) Sunroom and heated garage insulation.**

Sunrooms enclosing conditioned space and heated garages shall meet the insulation requirements of this code.

**Exception:** For sunrooms and heated garages provided thermal isolation, and enclosing conditioned space, the following exceptions to the insulation requirements of this code shall apply:

1. The minimum ceiling insulation R-values shall be R-24.
2. The minimum wall insulation R-value shall be R-13. Walls separating a sunroom or heated garage with thermal isolation from conditioned space shall comply with the building thermal envelope requirements of this code.
3. Slab-on-grade insulation shall not be required.

**The following section is hereby added to read as follows:**

**N1102.2.13 (R402.2.13) Rim insulation requirements.** All rims and adjoining plates shall require complete air sealing and full encapsulation of insulation to a minimum R-Value of R-15 for spray foam or foam board, R-19 for fiberglass or a hybrid of foam board and fiberglass. Plates and rims which are part of the thermal envelope shall be insulated and shall have an air barrier on the conditioned side of the assembly.

**The following section is hereby amended to read as follows:**

**N1102.4.1.1 (R402.4.1.1) Building envelope performance verification.** The components of the building thermal envelope as indicated in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria indicated in Table R402.4.1.1, as applicable to the method of construction. The installation of the continuous air barrier shall be verified by the *code official* and an *approved* air leakage testing agency in accordance with the following:

1. A review of the construction documents and other supporting data shall be conducted to assess compliance with the requirements in this section.
2. Inspection of continuous air barrier components and assemblies shall be conducted during construction while the air barrier is still accessible for inspection and repair to verify compliance with the requirements of this section and Table N1102.4.1.1.
3. An air barrier and air sealing inspection report shall be provided for inspections completed by the *approved* air leakage testing agency. The air barrier and air sealing inspection report shall be provided to the building owner or owner's authorized agent and the code official at the time of the framing or insulation inspection. The report shall identify deficiencies found during the review of the construction documents and inspection and details of corrective measures taken.

**The following section is hereby amended by adding Exceptions #2 and #3 to read as follows:**

**N1102.4.1.2 (R402.4.1.2) Testing.** The building or dwelling unit shall be tested for air leakage. The maximum air leakage rate for any building or dwelling unit under any compliance path shall not exceed 5.0 air changes per hour or 0.28 cubic feet per minute (CFM) per square foot [ $0.0079 \text{ m}^3/(\text{s} \times \text{m}^2)$ ] of dwelling unit enclosure area. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2-inch w.g. (50 Pascals). Testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope have been sealed.

**Exceptions:**

1. For heated, attached private garages and heated, detached private garages accessory to one- and two-family dwellings and townhouses not more than three stories above grade plane in height, building envelope tightness and insulation installation shall be considered acceptable where the items in Table N1102.4.1.1, applicable to the method of construction, are field verified. An approved third party independent from the installer shall inspect both air barrier and insulation installation criteria. Heated, attached private garage space and heated, detached private garage space shall be thermally isolated from all other conditioned spaces in accordance with Sections N1102.2.12 and N1102.3.5, as applicable.
2. Cabins without a primary heat source are not required to be tested for air leakage.
3. Existing building additions, alterations or change of use to residential are not required to be tested for air leakage.

**[The remainder of the section is unchanged.]**

**The following section is hereby amended to read as follows:**

**N1102.4.1.3 (R402.4.1.3) Leakage rate.** Where complying with Section N1101.13.1, the building or dwelling unit shall have an air leakage rate not exceeding 3.0 air changes per hour when tested in accordance with Section N1102.4.1.2.

**The following section is hereby amended to read as follows:**

**N1102.4.4 (R402.4.4) Rooms containing fuel-burning appliances.** In new construction, where open combustion air ducts providing combustion air to open combustion fuel-burning appliances are installed, the appliances and combustion air openings shall be located outside the building thermal envelope or enclosed in a room that is isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table N1102.1.3, where the walls, floors and ceilings shall meet a minimum of the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section N1103. The combustion air duct shall be insulated where it passes through conditioned space to an R-value of not less than R-8.

**Exceptions:**

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Sections N1102.4.2 and Section R1006.
3. Rooms containing combustion air ducts not exceeding 4" (102 mm) in diameter.

**The following section is hereby amended to read as follows:**

**N1103.7 (R403.7) Equipment sizing and efficiency rating.** Heating and cooling equipment 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 calculation methodologies, such that the total sensible capacity of the cooling equipment does not exceed the total sensible load by more than 25% for cooling-only applications, or by more than 40% for heating applications, using the Manual J Design Criteria in Table 301.2. All ducted combination heating and cooling systems shall be sized using cooling loads. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**The following section is hereby amended to read as follows:**

**N1111.1.1 (R503.1.1) Building envelope.** Building envelope assemblies that are part of the alteration shall comply with Section N1102.1.2 or N1102.1.4, Sections N1102.2.1 through N1102.2.12, N1102.3.1, N1102.3.2, N1102.4.3 and N1102.4.5.

**Exception:** The following alterations shall not be required to comply with the requirements for new construction provided that the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation. If the cavities are not filled, they shall be filled with insulation to the maximum extent practically possible in the judgment of the building official, without requiring additional framing or installation of exterior insulation.
3. Construction where the existing roof, wall or floor cavity is not exposed.
4. Roof recover.
5. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
6. Surface-applied window film installed on existing single-pane fenestration assemblies to reduce solar heat gain provided that the code does not require the glazing or fenestration assembly to be replaced.

## CHAPTER 13 GENERAL MECHANICAL SYSTEM REQUIREMENTS

**The following section is hereby amended to read as follows:**

**M1307.3 Elevation of ignition source.** Appliances having an ignition source shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor in garages, barns, and similar utility spaces. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate with a private garage through openings shall be considered to be part of the garage.

**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable-vapor-ignition resistant.

## CHAPTER 14 HEATING AND COOLING EQUIPMENT

**The following section is hereby amended to read as follows:**

**M1401.3 Equipment and appliance sizing.** Heating and cooling equipment and appliances shall be sized in accordance with ACCA Manual S or other approved sizing methodologies based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies, such that the total sensible capacity of the cooling equipment does not exceed the total sensible load by more than 25% for cooling-only applications, or by more than 40% for heating applications, using the Manual J Design Criteria in Table 301.2. All ducted combination heating and cooling systems shall be sized using cooling loads. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**Exception:** Heating and cooling equipment and appliance sizing shall not be limited to the capacities determined in accordance with ACCA Manual S where either of the following conditions applies:

1. The specified equipment or appliance utilizes multistage technology or variable refrigerant flow technology and the loads calculated in accordance with the approved heating and cooling calculation methodology are within the range of the manufacturer's published capacities for that equipment or appliance.
2. The specified equipment or appliance manufacturer's published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with the approved heating and cooling calculation methodology and the next larger standard size unit is specified.

**The following section is hereby added to read as follows:**

**M1401.3.2 Room loads.** Room-by-room design heating and cooling loads shall be calculated.

**The following section is hereby amended to read as follows:**

**M1414.1 General.** Fireplace stoves shall be listed, labeled and installed in accordance with the terms of the listing. Fireplace stoves shall be tested in accordance with UL 737. Wood-burning appliances shall meet the latest emission standards as established by the State of Colorado and Federal Regulation 40 CFR Part 60, Subpart AAA.

## CHAPTER 15 EXHAUST SYSTEMS

*The following section is hereby added to read as follows:*

**M1501.2 Indoor depressurization.** Ducted exhaust systems shall not induce or create a negative pressure sufficient to cause backdrafting of naturally vented, open combustion-chamber, fuel-burning appliances, or create negative pressure in excess of negative 3 Pa. in the immediate proximity of combustion chambers of such appliances.

*The following section is hereby amended to read as follows:*

**Section M1502.4.2 Duct installation.** Exhaust ducts shall be supported at intervals not to exceed 12 feet (3658 mm) and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Section M1601.4.1 and shall be mechanically fastened. Ducts shall not be joined with screws or similar fasteners. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

*The following section is hereby amended to read as follows:*

**M1502.4.6 Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Sections M1502.4.6.1 or M1502.4.6.2.

**M1502.4.6.1 Specified length.** The maximum length of the exhaust duct shall be 35 feet (10,668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.6.1. The maximum length of the exhaust duct does not include the transition duct.

**M1502.4.6.2 Dryer exhaust duct power ventilator.** The maximum length of the exhaust duct shall be determined in accordance with the manufacturer's instructions for the dryer exhaust duct power ventilator.

*The following section is hereby amended to read as follows:*

**M1503.1 General.** Domestic cooking exhaust equipment shall comply with the requirements of this section. In new construction, kitchens with gas-fired cooking appliances shall be supplied with an exhaust system vented to the exterior. Ducts serving kitchen exhaust systems shall not terminate in an attic, crawl space or areas inside the building, and shall not induce or create a negative pressure in excess of negative 3 Pa or adversely affect gravity-vented appliances.

*The following section is hereby amended to read as follows:*

**M1503.6 Makeup air required.** Where one or more gas, liquid or solid fuel-burning appliances that are neither direct-vent nor use a mechanical draft venting system are located within a dwelling unit's air barrier, each exhaust system capable of exhausting in excess of 600 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be mechanically or passively provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not fewer than one damper complying with Section M1503.6.2.  
**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.

## CHAPTER 16 DUCT SYSTEMS

**Below Table M1601.1, this supplemental information is added to read as follows:**

| Thickness (inches)       | .013 | .016 | .018 | .019 | .023 | .024 | .027 | .034 |
|--------------------------|------|------|------|------|------|------|------|------|
| Galvanized Steel (gauge) | 32   | 30   | 28   | 28   | 25   | 25   | 24   | 21   |
| Aluminum (gauge)         | 28   | 26   | 25   | 24   | 23   | 22   | 21   | 19   |

*The following section is hereby amended by deleting item #7 and renumbering item #8 as item #7 to read as follows [numbers 1 through 6 are unchanged]:*

**M1601.1.1 Above-ground duct systems.** Above-ground duct systems shall conform to the following:

7. Volume dampers, equipment, and other means of supply, return and exhaust air adjustment used in system balancing shall be provided with access.

*The following section is hereby added to read as follows:*

**M1601.4.11 Construction debris and contamination.** Mechanical air-handling systems and their related ducts shall be protected from the entrance of dirt, debris, and dust during the construction and installation process. Prior to passing final inspection or issuance of a Certificate of Occupancy, such systems shall be substantially free of construction-related contaminants.

*The following section is hereby amended by adding one sentence at the beginning to read as follows (Items #1 through #7 are unchanged):*

**M1602.2 Return air openings.** A return air path shall be provided in all habitable rooms by means of ducts or transfer grills. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:



## CHAPTER 24 FUEL GAS

*The following section is hereby amended to read as follows:*

**G2404.11 (307.6) Condensate pumps.** Condensate pumps located in uninhabitable spaces, such as attics and crawl spaces, shall be connected to the appliance or equipment served such that, when the pump fails, an audible alarm shall sound in the habitable area. Pumps shall be installed in accordance with the manufacturer's instructions.

*The following section is hereby amended by deleting exceptions 3 and 4 and renumbering exception 5 and 6 as follows:*

**G2406.2 (303.3) Prohibited locations.** Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

1. The appliance is a direct-vent appliance installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section G2407.5.
3. The appliance is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an approved self-closing device. Combustion air shall be taken directly from the outdoors in accordance with Section G2407.6.
4. A clothes dryer is installed in a residential bathroom or toilet room having a permanent opening with an area of not less than 100 square inches (0.06 m<sup>2</sup>) that communicates with a space outside of a sleeping room, bathroom, toilet room or storage closet.

*The following section is hereby amended to read as follows:*

**G2415.12 (404.12) Minimum burial depth.** Underground piping systems shall be installed a minimum depth of 18 inches (457 mm) below grade, except as provided for in Section G2415.12.1.

*The following section is hereby amended to read as follows:*

**G2415.12.1 (404.12.1) Individual outdoor appliances.** Individual lines to outside lights, grills or other appliances shall be installed not less than 18 inches (457 mm) below finished grade.

**Exception:** Approved materials installed a minimum of 6 inches (152 mm) below finished grade when covered with a concrete slab 4 inches (102 mm) in minimum thickness.

*The following section is hereby amended to read as follows:*

**G2417.4.1 (406.4.1) Test pressure.** The test pressure to be used shall be 10 psi for non-welded pipe for natural gas, 30 psi for liquid propane gas.

**Exception:** One-piece tubing without joints other than at regulators is not required to be tested during inspection.

*The last sentence in the following section is hereby amended to read as follows:*

**G2420.5.1 (409.5.1) Located within same room.** The shutoff valve shall be located in the same room as the appliance. The shutoff valve shall be within 6 feet (1829 mm) of the appliance, and shall be installed upstream of the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with access. Shutoff valves serving movable appliances, such as cooking appliances and clothes dryers, shall be considered to be provided with access where installed behind such appliances. Appliance shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions and shall have a secondary shutoff outside the firebox.

*The following section is hereby amended to read as follows:*

**G2421.3 (410.3) Venting of regulators.** Pressure regulators that require a vent shall be vented directly to the outdoors. The vent shall terminate at least 3 feet from any openings into the building. The vent shall be designed to prevent the entry of insects, water and foreign objects.

**Exception:** A vent to the outdoors is not required for regulators equipped with and labeled for utilization with an approved vent-limiting device installed in accordance with the manufacturer's instructions.

*The following section is hereby amended by amending items #1 and #2 and deleting item 7 to read as follows:*

**G2425.8 (501.8) Appliances not required to be vented.** The following appliances shall not be required to be vented:

1. Electric ranges.
2. Electric built-in domestic cooking units listed and marked for optional venting.
3. Hot plates and laundry stoves.
4. Type 1 clothes dryers (Type 1 clothes dryers shall be exhausted in accordance with the requirements of Section G2439).
5. Refrigerators.
6. Counter appliances.

*The following section is hereby amended to read as follows:*

**G2427.4.1 (503.4.1) Plastic piping.** Where plastic piping is used to vent an appliance, the appliance shall be listed for use with such venting materials and the appliance manufacturer's installation instructions shall identify the specific plastic piping material. The plastic pipe venting materials shall be labeled in accordance with the product standards specified by the appliance manufacturer or shall be listed in accordance with UL 1738. Where installed as an exhaust vent for a gas-fired water heater, the new plastic pipe shall be tested with 5 psi maximum air pressure by the installer prior to being connected to the water heater.

*The following section is amended to read as follows:*

**G2427.8 (503.8) Venting system terminal clearances.** The clearances for through-the-wall direct-vent and nondirect-vent terminals shall be in accordance with Figure G2427.8 and Table G2427.8. Vents shall terminate 12" (305 mm) minimum above anticipated snow level and a minimum of 22 inches (559 mm) above the surface or grade directly below.

**Exception:** The clearances in Table G2427.8 shall not apply to the combustion air intake of a direct-vent appliance.

*The following section is hereby amended to read as follows:*

**G2439.7.2 (614.8.2) Duct installation.** Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

*The following section is hereby amended to read as follows:*

**G2439.7.4 (614.9.4) Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Sections G2439.7.4.1 through G2439.7.4.2.

**G2439.7.4.1 (614.9.4.1) Specified length.** The maximum length of the exhaust duct shall be 35 feet (10,668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table G2439.7.4.1.

**G2439.7.4.2 (614.9.4.3) Dryer exhaust duct power ventilator length.** The maximum length of the exhaust duct shall be determined by the dryer exhaust duct power ventilator manufacturer's installation instructions.

*The following section is hereby deleted in its entirety:*

**G2445 (621) UNVENTED ROOM HEATERS.**

*The following section is hereby added to read as follows:*

**G2447.6 Kitchens with gas cooking appliances.** In new construction, kitchens with gas-fired cooking appliances shall be supplied with an exhaust system vented to the outside in accordance with section M1503.

## CHAPTER 25 PLUMBING ADMINISTRATION

*The following section is hereby amended to read as follows:*

**P2503.5.1 Rough plumbing.** DWV systems shall be tested on completion of the rough piping installation by water, by air, or by a vacuum of air for plastic piping systems, without evidence of leakage. The test shall be applied to the drainage system in its entirety or in sections after rough-in piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than 10 feet (3048 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.
3. Vacuum test. The portion under test shall be evacuated of air by a vacuum-type pump to achieve a uniform gauge pressure of -5 pounds per square inch or a negative 10 inches of mercury column (-34 kPa). This pressure shall be held without the removal of additional air for a period of 15 minutes.

*The following section is hereby deleted in its entirety as follows:*

**P2503.6 Shower liner test.**

## CHAPTER 26 GENERAL PLUMBING REQUIREMENTS

*The following section is hereby amended to read as follows:*

**P2602.1 General.** The water-distribution system of any building or premises where plumbing fixtures are installed shall be connected to a public water supply. Where a public water-supply system is not available, or connection to the supply is not feasible, an individual water supply shall be provided. Individual water supplies shall be constructed and installed in accordance with the applicable state and local laws.

Sanitary drainage piping from plumbing fixtures in buildings and sanitary drainage piping systems from premises shall be connected to a public sewer. Where a public sewer is not available, the sanitary drainage piping and systems shall be connected to a private sewage disposal system in compliance with state or local requirements.

**Exception:** Sanitary drainage piping and systems that convey only the discharge from bathtubs, showers, lavatories, clothes washers and laundry trays shall comply with Larimer County Department of Health and Environment regulations.

*The following section is hereby amended to read as follows:*

**P2603.5 Freezing.** 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 54 inches below finished grade.

*The following section is hereby amended to read as follows:*

**P2603.5.1 Sewer Depth.** Building sewers that connect to private sewage disposal systems shall be not less than 12" below finished grade and shall comply with Larimer County Department of Health and Environment regulations.

## CHAPTER 27 PLUMBING FIXTURES

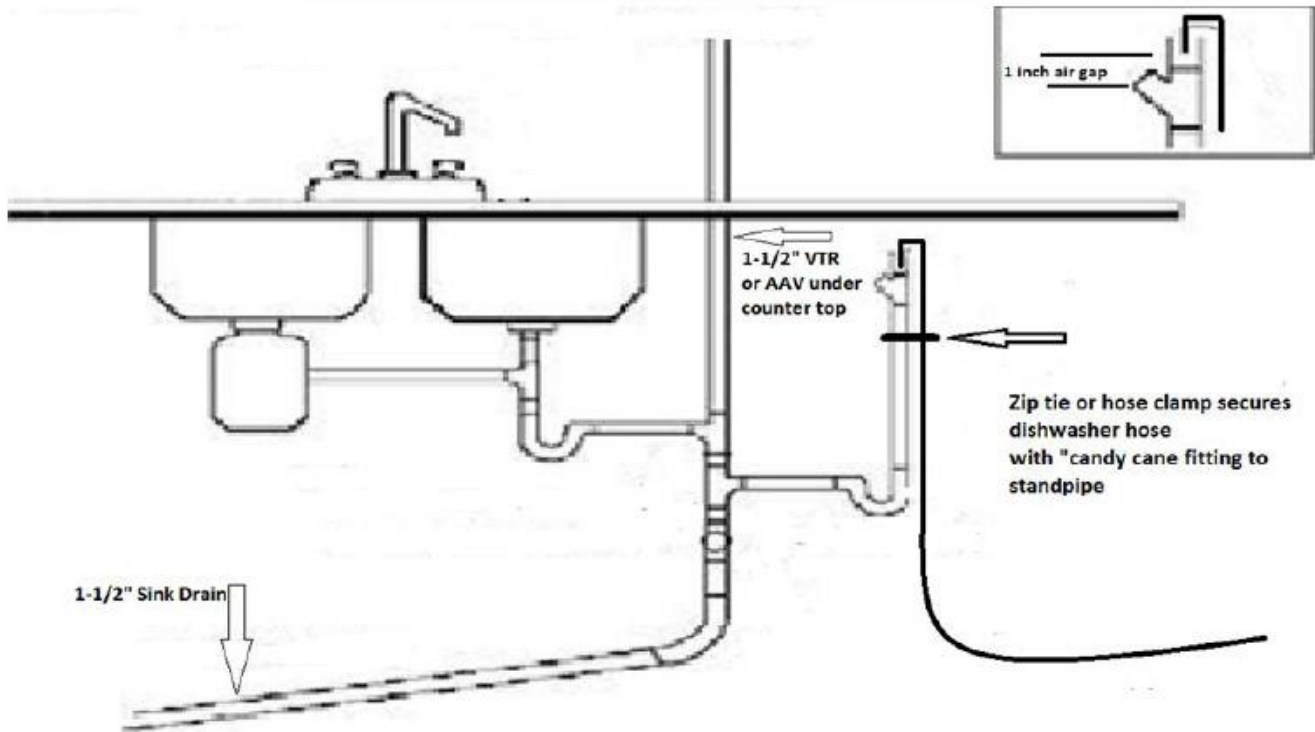
*The following section is hereby added to read as follows:*

**P2708.4.1. Shower head location.** Shower heads shall be so located on the sidewall of shower compartments or be arranged so the shower head does not discharge directly at the entrance to the compartment and the bather can adjust the valve prior to stepping into the shower spray.

*The following section is hereby amended to read as follows:*

**P2717.2 Sink and dishwasher.** The combined discharge from a dishwasher and a one- or two-compartment sink, with or without a food-waste disposer, shall be served by a trap of not less than 1½ inches (38 mm) in outside diameter. The dishwasher discharge pipe or tubing shall rise to the underside of the counter and be fastened or otherwise held in that position before connecting to the head of the food-waste disposer or to a wye fitting in the sink tailpiece. Dishwashers may drain into a separately trapped standpipe provided with an air break as shown in Figure P2717.

FIGURE P2717



## CHAPTER 29 WATER SUPPLY AND DISTRIBUTION

*The following section is hereby amended to read as follows:*

**P2901.2 Identification of nonpotable water systems.** Where nonpotable water systems are installed, the piping conveying the nonpotable water shall be identified either by color marking, metal tags or tape in accordance with Sections P2901.2.1 through P2901.2.2.3. Non-potable water systems shall comply with Larimer County Department of Health and Environment regulations

*The following section is hereby amended to read as follows:*

**P2903.4 Thermal expansion control.** A means for controlling increased pressure caused by thermal expansion shall be installed where required in accordance with Sections P2903.4.1 and P2903.4.2. Thermal expansion tanks shall be installed and supported in accordance with the manufacturer's instructions. Thermal expansion tanks shall not be supported by the piping that connects to such tanks.

*The following section is hereby amended to read as follows:*

**P2904.1 General.** The design and installation of residential fire sprinkler systems shall be in accordance with NFPA 13D or Section P2904, which shall be considered to be equivalent to NFPA 13D. Partial residential sprinkler systems shall be permitted to be installed only in buildings not required to be equipped with a residential sprinkler system. Section P2904 shall apply to multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall provide domestic water to both fire sprinklers and plumbing fixtures. A backflow preventer shall not be required to separate a sprinkler system from the water distribution system.

**Section P2910.1 Scope.** The provisions of this section shall govern the materials, design, construction, and installation of systems for the collection, storage, treatment, and distribution of nonpotable water. The use and application of nonpotable water shall comply with Larimer County Department of Health and Environment regulations.

***The following section is hereby amended to read as follows:***

**P2911.1 General.** The provisions of this section shall govern the construction, installation, alteration, and repair of on-site nonpotable water reuse systems for the collection, storage, treatment, and distribution of on-site sources of nonpotable water as permitted by the jurisdiction. Non-potable water systems shall comply with Larimer County Department of Health and Environment regulations.

***The following section is hereby amended to read as follows:***

**P2912.1 General.** The provisions of this section shall govern the construction, installation, alteration and repair of rainwater collection and conveyance systems for the collection, storage, treatment and distribution of rainwater for nonpotable applications. The use and application of nonpotable water shall comply with Larimer County Department of Health and Environment regulations.

***The following section is hereby amended to read as follows:***

**P2913.1 General.** The provisions of this section shall govern the construction, installation, alteration, and repair of systems supplying nonpotable reclaimed water. Non-potable reclaimed water systems shall comply with Larimer County Department of Health and Environment regulations.

## **CHAPTER 30 SANITARY DRAINAGE**

***The following section is hereby amended by deleting the exception in its entirety to read as follows:***

**P3003.9.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture. A purple primer, or other approved primer, that conforms to ASTM F656 shall be applied. Solvent cement not purple in color and conforming to ASTM D2564, CSA B137.3 or CSA B181.2 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D2855. Solvent-cement joints shall be installed above or below ground.

***The following section is hereby amended to read as follows:***

**P3005.2.3 Building drain and building sewer junction.** The junction of the building drain and the building sewer shall be served by a cleanout that is located at the junction or within 10 feet (3048 mm) developed length of piping upstream of the junction. For the requirements of this section, removal of a water closet shall not be required to provide cleanout access. When the cleanout is installed at the junction of the building drain and building sewer, it shall be an approved two-way fitting with a single riser not to exceed 4 feet in depth or a two-riser cleanout using back-to-back combination fittings of schedule 40 material.

***The following section is hereby amended to read as follows:***

**P3009.1 Scope.** The provisions of this section shall govern the materials, design, construction and installation of subsurface graywater soil absorption systems connected to nonpotable water from on-site water reuse systems. Subsurface graywater soil absorption systems connected to nonpotable water from on-site water reuse systems shall comply with Larimer County Department of Health and Environment regulations.

## **CHAPTERS 34 - 43 DELETED**

***Chapters 34 through 43 are hereby deleted in their entirety and replaced with the latest edition of the National Electrical Code (NFPA 70) as adopted by the State of Colorado Electrical Board. Such code is hereby adopted by this jurisdiction. The provisions of Chapter 1 of this code shall constitute the administrative provisions for the electrical code of Larimer County as applicable to buildings within the scope of this code. All references in this code to any section of Chapters 34-43 inclusive shall instead refer to the appropriate sections of the electrical code adopted by Larimer County.***

## **APPENDICES**

**Appendix AE “Manufactured Housing used as Dwellings” is hereby adopted as amended.**

***The following section is hereby amended to read as follows:***

**AE102.6 Relocation.** Where manufactured homes are to be located at or above 6,000 feet (1829 m) elevation, or in areas where ultimate design wind speeds equal or exceed 140 mph (225 km/h), the permit holder shall install or take snow and wind mitigation measures pre-approved by the Larimer County Building Division. Such measures may include independent, engineered structural roof systems capable or resisting the site design snow load, approved snow removal plans, engineered wind fences, or other engineered site-specific designs considering prevailing winds, exposure, topography, trees and other relevant natural features.

***The following sections are hereby deleted in their entirety:***

**SECTION AE105 APPLICATION FOR PERMIT  
SECTION AE106 PERMITS ISSUANCE  
SECTION AE107 FEES  
SECTION AE108 INSPECTIONS  
SECTION AE109 SPECIAL INSPECTIONS  
SECTION AE110 UTILITY SERVICE**

## **Appendix AF “Radon Control Methods” is hereby adopted as amended.**

**The following section is hereby amended to read as follows:**

**AF101.1 General.** This appendix contains requirements for new radon-resistant construction for all new dwellings and additions exceeding 1,000 sq. ft. (92.9 m<sup>2</sup>) in floor area constructed under this code

**The following section is hereby amended to read as follows:**

**AF103.1 General.** The following construction techniques are intended to resist radon entry and prepare the building for post-construction radon mitigation (see Figure AF103.1).

**The following section is hereby amended to read as follows:**

**AF103.2 Subfloor preparation.** A layer of gas-permeable material shall be placed under all concrete slabs and other floor systems that directly contact the ground and are within the walls of the living spaces of the building, to facilitate installation of a sub-slab depressurization system. Each radon reduction vent pipe riser shall serve no more than 4000 square feet (371.6 m<sup>2</sup>) of uninterrupted under slab/floor area. The gas-permeable layer shall consist of one of the following:

1. A uniform layer of clean aggregate, not less than 4 inches (102 mm) thick. The aggregate shall consist of material that will pass through a 2-inch (51 mm) sieve and be retained by a 1/4-inch (6.4 mm) sieve.
2. A uniform layer of sand (native or fill), not less than 4 inches (102 mm) thick, overlain by a layer or strips of geotextile drainage matting designed to allow the lateral flow of soil gases.
3. Other materials, systems or floor designs with demonstrated capability to permit depressurization across the entire subfloor area.

**The following section is hereby amended to read as follows:**

**AF103.5 Passive submembrane depressurization system.** In buildings with crawl space foundations, the following components of a passive submembrane depressurization system shall be installed during construction.

**The following section is hereby deleted:**

**AF103.5.1 Ventilation.**

**The following section is hereby amended to read as follows:**

**AF103.5.1 Soil-gas-retarder.** The soil in crawl spaces shall be covered with a continuous layer of minimum 6-mil (0.15 mm) polyethylene or 3 mil (0.076 mm) cross laminated polyethylene soil gas retarder. The ground cover shall be lapped not less than 12 inches (305 mm) at joints and sealed or taped. The edges of the ground cover shall extend a minimum of 12 inches (305 mm) up onto all foundation walls enclosing the under-floor space and be sealed to the wall and any footing pads. An interior perimeter drain tile loop shall be connected to a plumbing tee or other approved connection as per AF103.5.3.

**The following section is hereby amended to read as follows:**

**AF103.5.2 Vent pipe.** A plumbing tee or other approved connection shall be inserted horizontally beneath the sheeting and connected to a 3- or 4-inch-diameter (76 or 102 mm) fitting with a vertical vent pipe installed through the sheeting. The vent pipe shall be extended up through the building floors and terminate not less than 12 inches (305 mm) above the roof in a location not less than 10 feet (3048 mm) away from any window or other opening into the conditioned spaces of the building that is less than 2 feet (610 mm) below the exhaust point, and 10 feet (3048 mm) from any window or other opening in adjoining or adjacent buildings.

**The following section is hereby added to read as follows:**

**AF103.13 Provisions for future depressurization fan installation.** Permanent provisions shall be made for the future installation of an in-line fan to be connected to every radon vent pipe. Such designated fan locations shall be outside of the conditioned envelope of the building, such as in the attic, garage, and similar locations, excluding crawl spaces and other interior under-floor spaces. Designated locations shall accommodate an unobstructed permanent cylindrical space with the following minimum dimensions: 12 inches (305 mm) measured radially around the radon vent pipe along a vertical distance of 30 inches (760 mm). Designated fan locations shall be permanently accessible for servicing and maintenance. An electrical receptacle outlet shall be provided within 4 feet (1,219 mm) of and within sight from designated fan locations and installed so as to not be covered by insulation. A light fixture shall be installed in the area of future fan location.

**The following section is hereby amended by amending item #10 and deleting #11 to read as follows:**

**AF104.1 Testing.** Radon testing shall be as specified in Items 1 through 10:

1. Testing shall be performed after the dwelling passes its air tightness test.
2. Testing shall be performed after the radon control system and HVAC installations are complete. The HVAC system shall be operating during the test. Where the radon system has an installed fan, the dwelling shall be tested with the radon fan operating.
3. Testing shall be performed at the lowest occupied floor level, whether or not that space is finished. Spaces that are physically separated and served by different HVAC systems shall be tested separately.
4. Testing shall not be performed in a closet, hallway, stairway, laundry room, furnace room, bathroom or kitchen.
5. Testing shall be performed with a commercially available radon test kit or testing shall be performed by an approved third party with a continuous radon monitor. Testing with test kits shall include two tests, and the test results shall be averaged. Testing shall be in accordance with this section and the testing laboratory kit manufacturer’s instructions.
6. Testing shall be performed with the windows closed. Testing shall be performed with the exterior doors closed, except when being used for entrance or exit. Windows and doors shall be closed for not fewer than 12 hours prior to the testing.
7. Testing shall be performed by the builder, a registered design professional or an approved third party.
8. Testing shall be conducted over a period of not less than 48 hours or not less than the period specified by the testing device manufacturer, whichever is longer.

9. Written radon test results shall be provided by the test lab or testing party. The final written test report with results less than 4 picocuries per liter (pCi/L) shall be provided to the code official.

10. Where the radon test result is 4 pCi/L or greater, the fan for the radon vent pipe shall be installed as specified in Sections AF103.12 and AF103.13.

**Exception:** Testing is not required where the occupied space is located above an unenclosed open space.

**Appendix AH “Patio Covers” is hereby adopted as amended:**

*The following section is hereby amended to read as follows:*

**AH105.2 Footings.** In mobile home parks for patio covers supported independently of the home using approved post bases on a 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 and dead loads in excess of 750 pounds (3.34 kN) per column.

**Appendix AJ “Existing Buildings and Structures” is hereby adopted as amended.**

*The following section is hereby amended to read as follows:*

**AJ102.4.3 Replacement windows for emergency escape and rescue openings.** Where windows are required to provide emergency escape and rescue openings, replacement windows shall be exempt from Sections R310.2 and R310.4 provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer’s largest standard size window that will fit within the existing frame or existing rough opening. The building official may allow the replacement window to be of the same operating style as the existing window so long as it provides for an equal or greater window opening area, or require upgrading to a window style that maximizes the opening area within the existing window frame.
2. Where the replacement window is not part of a change of occupancy.

Window opening control devices and fall prevention devices complying with ASTM F2090 shall be permitted for use on windows serving as required emergency escape and rescue openings.

*The following section is hereby added to read as follows:*

**AJ 102.10 Moved buildings or structures.** Building and structures moved into or within Larimer County shall comply with the provisions of the codes in effect when the building was built, or the 1970 Uniform Building Code and the 1977 Colorado Energy Conservation as amended and adopted by Larimer County if the building was constructed prior to January 1, 1972. In addition, moved buildings and structures shall meet the requirements of wind loads, snow loads, flood hazard areas, wildfire hazard areas, and fireplace-restricted areas of their new location.

*The following section is hereby added to read as follows:*

**AJ 102.11 Moved manufactured or mobile homes.** Where manufactured or mobile homes are to be located at or above 6,000 feet (1829 m), or in areas where ultimate design wind speeds equal or exceed 140 mph (225 km/h), the permit holder shall install or take snow and wind mitigation measures pre-approved by the Larimer County Building Division. Such measures may include independent, engineered structural roof systems capable of resisting the site design snow load, approved snow removal plans, engineered wind fences, or other engineered site-specific designs considering prevailing winds, exposure, topography, trees and other relevant natural features.

**Appendix AM “Home Day Care – R3 Occupancy” is hereby adopted in its entirety.**

**Appendix AQ “Tiny Houses” is hereby adopted in its entirety.**

**Appendix AR “Light Straw-Clay Construction” is hereby adopted in its entirety.**

**Appendix AS “Strawbale Construction” is hereby adopted in its entirety.**

**Appendix AU “Cob Construction (Monolithic Adobe)” is hereby adopted in its entirety.**