

COUNTY OF LARIMER, COLORADO
AMENDMENTS
TO THE
2015
INTERNATIONAL RESIDENTIAL CODE



EFFECTIVE DATE: MAY 1, 2016

Amendments to the 2015 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 2015 International Residential Code named above with certain amendments, concurrent with the repealing of those portions of the currently adopted 2012 International Residential Code that is to be superseded by the 2015 International Residential Codes; and

WHEREAS, the said Board has found that said adoption would be in the best interest of the people of Larimer County, after a duly publicized public hearing on this matter;

NOW, THEREFORE, BE IT RESOLVED, that the 2015 International Residential Code is hereby adopted and shall be part of the Larimer County Building Code effective May 1, 2016. The 2012 International Residential Code and its amendments are hereby repealed.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 7th day of March, 2016

BOARD OF COMMISSIONERS OF
LARIMER COUNTY COLORADO

By: _____
Chairman

Date: _____

(SEAL)
ATTEST:

Deputy Clerk
APPROVED AS TO FORM

Assistant County Attorney

2015 International Residential Code (IRC)

PART 1 - ADMINISTRATIVE

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 by modifying exception #2 and adding exceptions items #3 to read as follows:

R101.2 Scope.

Exceptions:

2. **Bed & Breakfast facilities** providing accommodations for 6 guests or less that are also occupied as the single family residence of the proprietor are permitted to comply with the International Residential Code.
3. **Resort lodge cottages** are permitted to comply with the International Residential Code. {Resort lodge cottages may be subject to the State of Colorado Accessibility Standards}

The following section is hereby amended to read as follows:

R102.7 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, or as deemed necessary by the building official for the general safety and welfare of the occupants and the public.

The following section is hereby amended to read as follows:

R103.1 Creation of enforcement agency. The Building Department is hereby created and the official in charge thereof shall be known as the Chief Building Official.

The following section is hereby amended to read as follows:

R103.2 Appointment. The Chief Building Official, herein known as the building official, shall be appointed by the Director of the Community Development Division.

The following section is hereby amended to read as follows:

R104.10.1 Flood Hazard areas. The County Engineer shall not grant modifications to any provision related to areas prone to flooding as established by Table R301.2(1) without the granting of a variance to such provisions by the Floodplain Review Board.

The following section is hereby amended to read as follows:

R105.1 Required. Any owner or 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, 2, 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 tool and storage sheds, playhouses, and similar uses, provided the floor area does not exceed 120 square feet (11.15m²) nor 12 feet 3658 mm) in **average roof** height.
2. Fences not over 6 feet (1829 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]**
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 m²) of floor area or 8 feet (1.82 m) in height as measured from the floor to the highest point of such structure.**
10. Decks not more than 30 inches (762 mm) above *grade* at any point and not serving the exit door required by Section R311.2.
11. Roofing repair or replacement work not exceeding one hundred square feet (9.29m²) of covering per building.
12. Window replacement requiring no structural alterations. Replacement windows must meet **Appendix J** code requirements.
13. **Replacement of non-structural siding when the removal of siding is performed in accordance with State laws regarding asbestos and lead paint.**
14. **Shade cloth and maximum 6-mil poly-roofed structures constructed for agricultural and nursery purposes only with no public entry, not including service systems.**
15. **Solar thermal and photovoltaic systems installed on structures otherwise exempt from permit requirements.**
16. **Bridges or culverts constructed under another county permit (including but not limited to a Right-of-Way Work Permit, Access Permit, Development Construction Permit, or Private Road Construction Permit), culverts and private pedestrian bridges that serve only one residence and are not in a regulatory floodplain or county-designated major drainage way, which can be found at http://larimer.org/engineering/floodplain/majordrainage_map.htm.**

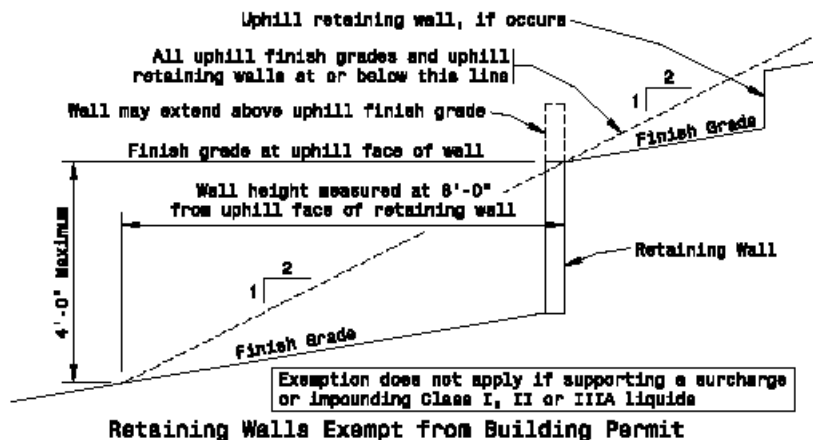


Figure 105.2.3

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

R105.2. Work exempt from permit.

2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, the removal and replacement of fixtures, including the same size or smaller water heater by State licensed plumbers, provided such repairs or replacements do not involve or require the replacement or rearrangement of valves, pipes, or vents.

The following section is hereby amended to read as follows:

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 an area prone to flooding as established by Table R301.2(1), the county engineer shall examine or cause to be examined the construction documents and shall prepare a finding 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-damage condition. If the county engineer finds that the value of proposed work equals or exceeds 50 percent of the market value of the building or structure before the damage has occurred or the improvement is started, the finding shall be provided to the Floodplain Review Board for a determination of substantial improvement or substantial damage. Applications determined by the Floodplain Review Board to constitute substantial improvement or substantial damage shall meet the requirements of Section R322.

The following section is hereby amended to read as follows:

R105.5 Expiration. Every permit issued by the building official under the provisions of this code shall expire 18 months after the date of issue. The building official is authorized to grant 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 **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 good cause is shown.**

The following section is hereby amended to read as follows:

R106.1.3 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(1), 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; and
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:

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 amended to read as follows:

R107.3 Temporary power. The Colorado State Electrical Board is authorized to give permission to temporarily supply and use power in part of an electrical installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in the most recently adopted National Electrical Code.

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, and 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 application after expiration, 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 as set forth in an adopted fee schedule may be assessed for each inspection or re-inspection when such portion of work for which inspection is called for is not complete or when corrections called for are not made. This section is not to be interpreted as requiring re-inspection fees the first time a job is rejected for failure to comply with the requirements of this Code, but as controlling the practice of calling inspections before the job is ready for such inspection or re-inspection. Re-inspection fees may be assessed when

the inspection record card is not posted or otherwise available on the work site, the approved plans are not readily available to the inspector, for failure to provide access on the date for which inspection is requested, for deviating from plans requiring the approval of the building official, or for failure to post a readily visible address as required by section R319. To obtain a re-inspection, the applicant shall pay the re-inspection fee in accordance with the fee schedule. In instances where re-inspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

The following section is hereby amended to read as follows:

R108.9 Temporary Certificate of Occupancy. There will be a \$600 fee for a temporary certificate of occupancy. A Temporary Certificate of Occupancy shall be valid for 180 days. If a full Certificate of Occupancy is issued within the first 30 days, all but \$40 will be refunded. If a full Certificate of Occupancy is issued prior to the 180 day expiration, \$100 shall be refunded for each full 30 day period remaining out of the original six month validity period of the Temporary Certificate of Occupancy.

The following section is hereby amended to read as follows:

R110.1 Use and occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made until the building official has issued a certificate of occupancy therefore 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 county ordinances. Certificates presuming to give authority to violate or cancel the provisions of this code or other county ordinances 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 and miscellaneous permits shall not receive certificates of occupancy; a letter of completion will be given upon request.

The following section is hereby amended to read as follows:

R112.2.1 Determination of substantial improvement in areas in flood hazard areas. When the county engineer provides a finding required in Section R105.3.1.1, the Floodplain Review Board shall determine whether the value of the proposed work constitutes a substantial improvement.

The following section is hereby amended to read as follows:

R112.3 Qualifications

The board of appeals shall consist of members who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the Community Development Division.

The following section is hereby amended to read as follows:

R112.4 Administration. Persons desiring to appeal a decision of the building official to the Board of Appeals shall, at the time of making such appeal, pay to the Larimer County Building Department a docket fee as specified in the Larimer County fee schedule. Written notice of hearing shall be given to all parties concerned at least fourteen (14) days prior to the hearing by e-mail or by mailing the same to such parties' last known address by regular mail. The Board shall periodically adopt such additional rules and regulations as it deems necessary and advisable for the conduct of its hearings and for carrying out the provisions thereof. The building official shall take immediate action in accordance with the decision of the board. All meetings or hearings shall be open to the public.

PART II – DEFINITIONS

CHAPTER 2 DEFINITIONS

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

R202 DEFINITIONS

- (a) **Bed & Breakfast facility.** A facility providing accommodations for 6 or fewer guests that is also occupied as a single family residence by the proprietor.
- (b) **Cabin.** A structure that contains at least one habitable room for living, sleeping, eating or cooking that is designed, arranged and intended to be occupied by one occupant or living unit. (Living unit is as defined in the Larimer County Land Use Code.) A structure will be considered a cabin only when one of the following is not

present: an approved electrical system, an approved sanitation system, a potable water system, a water heater or a primary heat source. Cabins require a permanent foundation and a sanitary sewage system approved by the Larimer County Environmental Health Department.

- (c) **Family.** An individual or group of people living together who are related by blood, marriage or adoption.
- (d) **Guest** – An adult over 12 years of age. For example, a family consisting of a mother, father and a 12-year old child would be considered two guests.
- (e) **Primary Heat Source.** A heating system capable of maintaining room temperatures at 68 degrees Fahrenheit at a point three feet above the floor and 2 feet from exterior walls in all habitable rooms during cold, inclement weather at all times, even when the structure is not occupied.
- (f) **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. (Resort lodge **cottages** may be subject to the State of Colorado Accessibility Standards.)

PART III - BUILDING PLANNING AND CONSTRUCTION

CHAPTER 3 BUILDING PLANNING

The following section is hereby amended to read as follows:

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

Ground Snow Load ^l	Ultimate Wind Speed ^{dm}	Seismic Design Category ^f	SUBJECT TO DAMAGE FROM					Winter Design Temp ^e	Air Freezing Index ⁱ	Mean Annual Temp. ^j	Flood ⁹ Hazards (a)1973
			Weathering ^a	Ice ^h barrier underlayment required	Frost Line Depth ^b	Termite ^c	Decay ^k				
35psf≤5000' 45psf≤6000' 50psf≤6500' 60psf≤7000' 70psf≤8000' 100psf≤9000' 140psf≤10000' Engineered design required over 10,000'	115-225 mph 185-362 kph	B	Severe	No, except in the Class B roofing area in the foothills & mountains	30 inches 762m	No, Slight to moderate	None to Slight	+1 ^o F (-17 ^o C)	906, except 920 in the Class B roofing area in the foothills & mountains	48.4 °F	(b)2007

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

- a. Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The weathering column is based on the weathering index (i.e., “negligible,” “moderate” or “severe”) for concrete as determined from the Weathering Probability Map [Figure R301.2 (3)]. The grade of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216 or C 652.
- b. The frost line depth may require deeper footings than indicated in Figure R403.1(1). 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 depending on whether there has been a history of local subterranean termite damage.
- d. The jurisdiction shall fill in this part of the table with the wind speed from Larimer County Wind Speed Map. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
- e. The outdoor design dry-bulb temperature shall be selected from the columns of 97 1/2- percent values for winter from Appendix D of the *International Plumbing Code*. Deviations from the Appendix D temperatures shall be permitted to reflect local climate 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 R301.2.2.2.

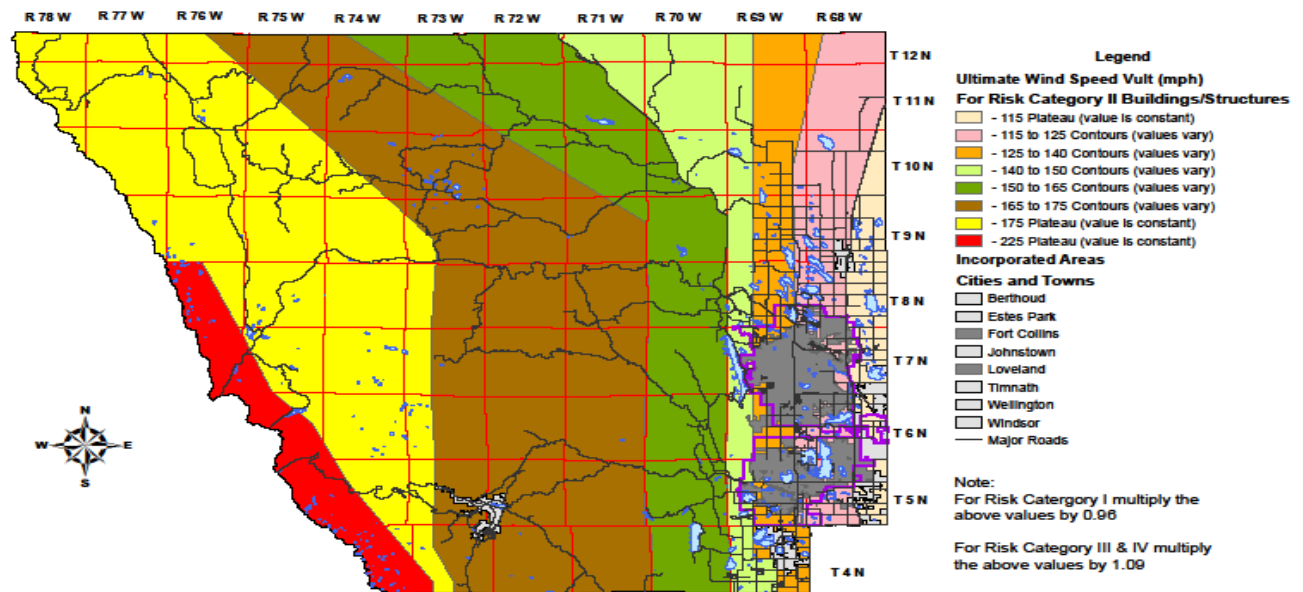
- g. The jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the currently

Altitude (ft)	5,000	6,000	7,000	8,000	9,000	10,000
Wind Pressure Correction Factor	0.86	0.84	0.81	0.79	0.76	0.74

- effective FIRM and FBFM, or other flood hazard map adopted by the County, as may be amended.
- h. Based on the average daily temperature in January greater than 25° F (-4° C) or where the history of local damage from the effects of ice damming is not substantial, the jurisdiction shall fill in 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%) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32° Fahrenheit)" at www.ncdc.noaa.gov/fpsf.html.
- j. Mean annual temperature for Fort Collins per Mountain State Weather Services is 48.4 (° F).
- k. The jurisdiction shall fill in this part of the table with "moderate to severe," "slight to moderate," or "None to slight" in accordance with Figure R301.2(7) depending on whether there has been a history of local damage.
- l. The design ground snow load P_g shall comply with the table above or Colorado Design Snow Loads Report and Map, published by the Structural Engineers Association of Colorado (dated May 6, 2015). The design roof snow load values shall be determined from IBC Section 1608, including all applicable factors, and loading and drifting considerations of ASCE 7, Chapter 7. In no case shall the final design roof snow load be less than a uniformly distributed load of 30 psf. Loading sheds and pole barns may be constructed per Larimer County Prescriptive Design Standards.**
- m. Ultimate Design Wind Speed for a project 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 map below. Wind Load design values shall be determined from Section 1609 of the IBC. The map below is for Risk Category II.**

Table R301.2 (1) footnote d

Larimer County Ultimate Wind Speed Map



The following section is hereby amended by adding item #6 to read as follows, and by amending the first sentence in the last paragraph to read... "The elements of design not addressed by the methods in items 1 through 6 shall be...":

R301.2.1.1 Wind limitations and wind design required.

- 6. Larimer County's Prescriptive Design Limitations in High Wind Areas Exceeding 110 mph.
- 6. Pole barns built per Larimer County Prescriptive Design for Pole Barn in High Wind Areas.**
- 7. Loading sheds built per Larimer County prescriptive design standards.**

Building Geometry Limitations[±]

Limited to wood wall construction braced with continuous 7/16" wood structural panel sheathing on the entire building including the gable ends and braced per 2012 IRC ⁴	Sheathing shall be nailed with 8d common nails (0.131" x 2-1/2") at 4" o.c. at ends and edges and 6" o.c. along intermediate framing. Portal Frame Bracing allowed per Section R602.10.6.4
Maximum number of stories	Two stories (2)
Maximum mean roof height	33 feet above average grade
Limited to light wood framing members	Maximum lumber and I-joist single span shall be 26 feet and maximum 24 inches o.c. spacing
Building enclosed except porches	Minimum connectors required on all porches & patios ²
Maximum floor diaphragm openings	Shall not exceed the lesser of 12' or 50% of the building dimension; floor sheathing edges blocked and nailed at endwall when Aspect Ratio (L/W) > 3:1
Minimum wall top plate splice on 28'/40' walls	4' nailed with 10-16d nails/6' nailed with 16-16d nails
Maximum shearwall story offsets, cantilevers or setback from load bearing walls.	Shall not exceed depth of floor joists used in the floor system design
Maximum building endwall width (roof span)	36 ft
Maximum sidewall length	80 ft
Minimum sidewall length	12 ft
Maximum bearing stud wall height	10 feet or less
Maximum nonbearing wall height	2x6 studs 16" o.c. - 17'-4", 12" o.c. - 19'-1" & 9" o.c. - 20'
Maximum roof overhang at endwall with outlookers	2x4 outlookers on edge 24"/2x4 outlookers flat 16"
Maximum roof eave to ridge height	15 feet or less
Maximum roof overhang at endwall without outlookers	1 ft
Special rafter Connections	Ridge strapped with LSTA15 with 12-10d x 1 1/2" nails shall attach to opposing rafters or collar ties located in the upper third of attic
Roof diaphragm bracing ³	Block panel edges in the first 2 bays when maximum distance between shearwalls exceeds three times the width unless the gable endwall ceiling is braced or hip roof used
Balloon frame gable endwall	Or ceiling brace gable endwall on platform framing with 2x4 continuous lateral braces at 6' o.c., 20 gage strap nailed with 10-d nails to brace endwall stud
Slope limit one story/ two story	12:12 maximum pitch/ 6:12 maximum pitch ⁴
Roof type limit	To conventional gable & hip
Roof rafter tiedown (hurricane clip)	Use Adjusted Table R802.11 of the IRC ⁵
Trusses	Wood truss system shall be designed & installed per ANSI/TPI 1 and engineered job site truss drawings
Minimum thickness of roof sheathing	Shall be 7/16" up to 40 psf ground snow load, 15/32" for 50 psf, and 19/32" for 70 psf ⁶
Roof sheathing nail spacing	Nails (8d ring shank or deformed shank) shall be used spaced 4" o.c. maximum along the edges and 6" o.c. along intermediate framing.
Class B roof covering ⁷ and ice barrier requirement	As designated by the manufacturer and installed per the manufacturer's installation instructions for high wind area
Foundation type	Continuous concrete with 4' o.c. anchor bolts in long wall and 32" o.c. in short wall with minimum 3" x 3" x 0.229" plate washers with max. 1 3/4" slot.
A 24-inch return corner shall be located at the end of each braced wall line	An 800-lb hold-down attached to the end stud of the braced wall panel closest to the corner shall be permitted for use on both adjacent walls in lieu of 24" return corner.

—*Pole barns in high wind areas shall use the Prescriptive Design for pole barns in High Wind Areas

Larimer County's Prescriptive Design Limitations in High Wind Areas Exceeding 110 mph 3-second gust Exposure B for non-engineered Single Family Residences and Cabins²

Residences and cabins in high wind areas shall comply with the 2012 International Residential Code (IRC), APA Building for High Wind Resistance in Light Frame Construction, and these additional limitations. For buildings outside the range of design parameters, design load criteria, and materials and methods of construction set forth in this standard, the design shall be structurally reviewed for wind resistance by a Colorado registered engineer or architect when required by the building official.

Footnotes to Building Geometry Limitations:

- Use of continuous 7/16" minimum thickness Performance Category wood structural panels braced per Section R602.10.5 of 2012 IRC installed on the walls from the bottom plate to the upper top plate on the exterior, attached with 8d common nails (0.131 x 2 1/2 inches) at 4" o.c. at panel edges and 6" o.c. in the field and 1/2" gypsum wallboard on the interior attached per 2012 IRC Table R702.3.5. Interior gypsum finish is not required on continuously sheathed wood structural panels adjacent to garage openings and continuously sheathed portal frame bracing panels. Exterior sheathing shall be continuous from the bottom plate to the upper top plate, with all panel edges occurring over framing. Bracing panels in exterior walls may extend 9-1/4" or less to brace raised heeled trusses. Wood studs 24" o.c. maximum spacing and two (three if over 8' header) full-length studs at each end of headers. Portal Frame Bracing allowed at garage door opening per Section R602.10.6.3 of the 2012 IRC.
- Porches require uplift connectors adjusted to altitude as shown in footnotes 1-3 in Adjusted Table R802.11. Connectors listed below meet required uplift capacities:

Rafter to beam connectors uplift capacity required	Beam to post connectors 8' x 16' porch required uplift capacity	Beam to post connectors 8' x 20' porch required uplift capacity	Post to foundation connector 8' x 16' porch required uplift	Post to foundation connector 8' x 20' porch required uplift
575#	2300#	2825#	2300#	2825#
Simpson's H2.5A = 600#	Simpson's AC4 with 14-16d nails into beam & 14-16d nails into post = 2500#	Simpson's CC 3 1/4-4 with 2-5/8" bolts has = 3170#	Simpson's LCB 44 with 12-16d nails = 2705 #	Simpson's PAHD42 with 16-16d nails 8" from edge & embedded 6 1/2" = 2945#

- Blocking and connections shall be provided at panel edges perpendicular to roof framing member in the first two bays of framing and shall be spaced at maximum of four feet on center except when an attic floor or ceiling diaphragm is used to brace the gable endwall or when a hip roof system is used, additional roof diaphragm blocking is not required. Ceiling brace gable endwall
On platform framing with 2x4 continuous lateral braces at 6' o.c. and 20 gage tension-tie strap nailed with (8)10-d nails to brace endwall studs.
- The attic shall be considered an additional story when the roof slope exceeds 6/12 pitch and would be allowed on a one story building with a maximum 12:12 pitch.
- Truss uplift resistance shall be designed by truss manufacturer's engineer for the wind and snow load of the site. Altitude correction factors and a 16" overhang were used in this table for rafters.

Adjusted Table R802.11

Required strength of 24" o.c. rafter connection to top plate⁴

Wind Speeds 12'span 18' span 24'span 28'span 32' span 36' span Exposure B

¹	120 mph	256#	355#	454#	520#	586#	652#
²	130 mph	296#	411#	525#	602#	678#	755#
³	140 mph	363#	503#	644#	737#	831#	924#

- ¹The altitude correction factor of 0.84 was used for assumed 6000 feet in elevation.
- ²The altitude correction factor of 0.81 was used for assumed 7000 feet in elevation.
- ³The altitude correction factor of 0.79 was used for assumed 8000 feet in elevation.
- ⁴Simpson's hurricane ties uplift capacities are: H2.5=415#, H2.5A=600#, & H10=990#.
- Larimer County has different snow loads for different elevations which will affect roof sheathing thickness: 30 psf < 7000 ft, 40 psf ≥ 7000 ft, 50psf ≥ 8000 ft, & 70 psf ≥ 9000 ft.
- High wind areas in the foothill and mountains have further Wildfire Mitigation Requirements, such as Class B roof covering and ice barrier requirement. An ice barrier consisting of at least two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment and extend from the lowest edges of all roof surfaces to a point at least 24 inches inside the exterior wall line of the building per IRC.
- Asphalt shingles shall comply with Larimer County Wind Speed Map and Section R905.2.4.1.

The following section is hereby amended by amending Section R302.1 and Exception 2, and adding a new exception #6 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 R313 shall comply with Table R302.1(2). Accessory structures exceeding 5,000 sq. ft. in floor area within the fire separation distance shall be separated from the dwelling by a Fire Containment Assembly as defined in 2015 International Building Code Section 702.1

R302.1 Exterior walls

Exceptions:

- Walls of dwellings and accessory structures located more than six (6) feet apart on the same lot.
- Walls of dwellings located within the fire separation distance (location from property line) of three (3) feet to less than five (5) feet shall be constructed of siding containing cementitious materials.

The following Table is hereby amended to read as follows:
Table R302.1 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 E 119 OR UL 263 WITH EXPOSURE FROM BOTH SIDES	LESS THAN 3 FEET
	NOT FIRE RESISTANCE RATED	0 HOURS	3 FEET OR MORE
PROJECTIONS	NOT ALLOWED	N/A	LESS THAN 2 FEET
	FIRE-RESISTANCE RATED	1 HOUR ON THE UNDERSIDE	2 FEET TO LESS THAN 3 FEET
	NOT FIRE RESISTANCE RATED	0 HOURS	3 FEET OR MORE
OPENINGS IN WALLS	NOT ALLOWED	N/A	LESS THAN 3 FEET
	UNLIMITED	0 HOURS	3 FEET OR MORE
PENETRATIONS	ALL	COMPLY WITH SECTION R302.4	LESS THAN 3 FEET
		NONE REQUIRED	3 FEET OR MORE

The following section is hereby amended to read as follows:

R302.3 Two-family dwellings. Dwelling units in two-family dwellings shall be separated from each other by wall and/or floor assemblies having not less than a two-hour fire-resistance rating or by 2 walls of one-hour fire-resistance rating when tested in accordance with ASTM E 119 or UL 263. Fire-resistance-rated floor-ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

The following section is hereby amended to read as follows:

R302.6 Dwelling/garage/utility area fire separation. The utility area (garage, shop, barn and similar uses) shall be separated as required by Table R302.6. Openings in such walls shall comply with Section R302.5. This provision does not apply to walls utility areas that are perpendicular to the adjacent dwelling unit wall.

The following section is hereby amended to read as follows:

TABLE R302.6
DWELLING/UTILITY AREA FIRE SEPARATION

SEPARATION	MATERIAL
From the residence and attics	Not less than 1/2-inch gypsum board or equivalent applied to the utility side
From all habitable rooms above the utility area	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/utility structures located less than six (6) feet from a dwelling unit on the same lot	Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls or in roof assemblies that are within this area

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

The following section is hereby amended to read as follows:

R303.9 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 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all habitable rooms at the design temperature.

The following section is hereby amended by numbering the existing exception as #1 and adding exception #2 to read as follows:

R310.2 Window wells.

Exceptions:

2. With the window in the fully open position, the bottom window well step may encroach a maximum of 12 inches (304 mm) into the minimum required horizontal projection, provided the well meets the following criteria:

- 2.1 The bottom of the well is not less than 36 inches wide (912 mm), centered horizontally on the openable portion of the emergency escape and rescue door or window, and
- 2.2 An unobstructed clear horizontal projection of 36 inches (912 mm) is maintained at the centerline of the openable portion of the emergency escape and rescue door or window.

Amend the first sentence to read as follows:

R311.7.5.1 Risers. The maximum riser height shall be 7 ¾ inches (196 mm), and the minimum riser height shall be 4 inches (102 mm).

The following section is hereby amended to read as follows:

R311.7.11 Alternating tread devices. Alternating tread devices shall not be used as an element of a means of egress for areas of the building that exceed 200 sq. feet in floor area. (Delete second sentence. Rest of section is unchanged.)

The following section is hereby amended to read as follows:

R311.7.12 Ships ladders. Ships ladders shall not be used as an element of a means of egress for areas of the building that exceed 200 sq. feet in floor area. (Delete second sentence. Rest of section is unchanged.)

The following section is hereby amended to read as follows:

R311.8.1 Maximum slope. Handicap-accessible ramps shall have a maximum slope of one unit vertical in twelve units horizontal (8.3-percent slope).

Exception: Where it is technically infeasible to comply because of site constraints, ramps may have a maximum slope of one unit vertical in eight horizontal (12.5 percent slope)."

The following section is hereby added to read as follows:

R312.1.1.1 Where required. 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 36 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.
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. Location where the slope of the embankment or the side of the enclosure or the opening 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. If installed, an automatic residential fire sprinkler system installed in townhouses shall be designed and installed in accordance with Section P2904, NFPA 13 R or NFPA 13.

R313.2 One- and two-family dwellings automatic fire sprinkler design. If installed, an automatic residential fire sprinkler system installed in one and two-family dwellings shall be designed and installed in accordance with Section P2904 or NFPA 13D.

The following section is hereby amended to read as follows:

R315.3 Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed outside of each separate sleeping area within 15' of the door of each bedroom in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages.

The following section is hereby amended to read as follows:

Section R320.1 Scope. Where four or more dwelling units or sleeping units are constructed in a single structure, or constructed as part of a planned development containing a total of seven or more dwellings units, regardless of whether such units are separated by fire-resistance-rated assemblies, the applicable provisions of the Colorado Revised Statutes, federal regulations, and the provisions of Chapter 11 of the adopted International Building Code for Group R-2 shall apply.

The following section is hereby deleted in its entirety:

~~**Section R320.1.1 Guestrooms.**~~

The following section is hereby amended to read as follows:

R322.1 General. Buildings and structures constructed in flood hazard areas as established in Table R301.2.(1) shall be designed and constructed in accordance with the provisions contained in Floodplain Overlay Zone Districts established in the Larimer County Land Use Code.

The following section is hereby amended to read as follows:

R326.1 General. The design and construction of pools and spas shall comply with 2015 International Building Code Section 3109.

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

R327 WILDFIRE REGULATIONS

WILDFIRE HAZARD MITIGATION REQUIREMENTS FOR NEW CONSTRUCTION

R327.1 Purpose. The purpose of this entire 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.

R327.2 Scope. Within the wildfire hazard area, as defined in Table R327 (Larimer County Wildfire Mitigation Area Map), all new building construction and all additions equal to or greater than 50% of the total square footage of the original structure shall comply with the provisions of this section. New building construction shall include all new structures.

Exceptions: Loafing sheds and similar detached accessory structures.

R327.3 Alternate Materials and Methods of Compliance. The provisions of this section are not intended to prevent the use of any material or method of compliance not specifically prescribed by this section, provided any alternate has been approved and its use authorized by the building official. The building official may approve any such alternate, provided it is found that the proposed design is satisfactory and complies with the provisions of this section and this code and that the material method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this section in suitability, effectiveness, fire resistance, durability and safety. The building official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be used regarding use of the alternate. The details of any action granting approval of an alternate shall be recorded and entered in the files of the Building Department.

R327.4 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 E 136).

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.

Fire-retardant-treated wood - any wood product impregnated with chemicals by a pressure process or other means during manufacture, and which shall have a flame-spread index of not over 25.

Fire separation - a construction assembly that acts as a barrier against the spread of fire.

Firewall Assembly- a type of fire separation of noncombustible construction which subdivides a building or separates adjoining buildings to resist the spread of fire and which has a fire-resistance rating and structural ability to remain intact under conditions for the required fire-rated time.

Flame-resistant material - material that has been modified in its chemical composition by impregnation, coating or has inherent composition that makes the material resistant to ignition and combustion when exposed to a small ignition source.

Flame retardant - an approved chemical compound or mixture which, when applied in an approved manner to any fabric or other material, will render such fabric or material incapable of supporting combustion.

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 E 136)

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.

Slash - unusual concentrations of downed fuel resulting from such natural events as wind, fire, or snow breakage or such human activities as timber harvesting, road construction, or building construction.

Wildfire Hazard - the relative likelihood that a fire, once started, will become disastrous. Disastrous means the destruction of life and improved property.

Wildfire Hazard Area - that area in Larimer County prone to wildfires as identified on the Larimer County Wildfire Mitigation Area Map.

Wildfire mitigation - any action taken to eliminate or reduce the long-term risk to human life and property from wildfire.

Wildfire Mitigation:

R327.5 Fire-Resistive Construction. Fire-resistive construction on all new structures shall be one of the following types:

1. One-hour fire-resistive shell shall provide not less than one-hour fire-resistive construction at all exterior walls, excluding all openings and decks.
2. Exterior siding materials shall have a flame-spread classification of Class **C** or better. **Exterior siding shall be composed entirely of non-combustible materials for a minimum of three (3) feet above finished grade.**

Exceptions: Log homes using solid logs with a minimum tip diameter of 6 inches for exterior wall construction and 8 inches for roof beams, purlins and supporting columns may be considered as one-hour fire-resistive construction.

R327.6 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 three (3) 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 character of the occupancy or use in existing buildings, the defensible space shall be provided around the entire building.

R327.7 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.
3. The Building Official may allow alternatives to the Colorado State Forest Service Standards and Guidelines based on specific site conditions.

R327.8 Completion. The defensible space must be completed prior to the applicant receiving a certificate of occupancy.

R327.9 Liquid Propane Gas. Liquid propane gas facilities installed in the Wildfire Hazard Area shall comply with the current County requirements for installation of liquid propane gas facilities. Liquid propane gas containers and tanks shall be located within the defensible space in accordance with the International Fire Code.

R327.10 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.

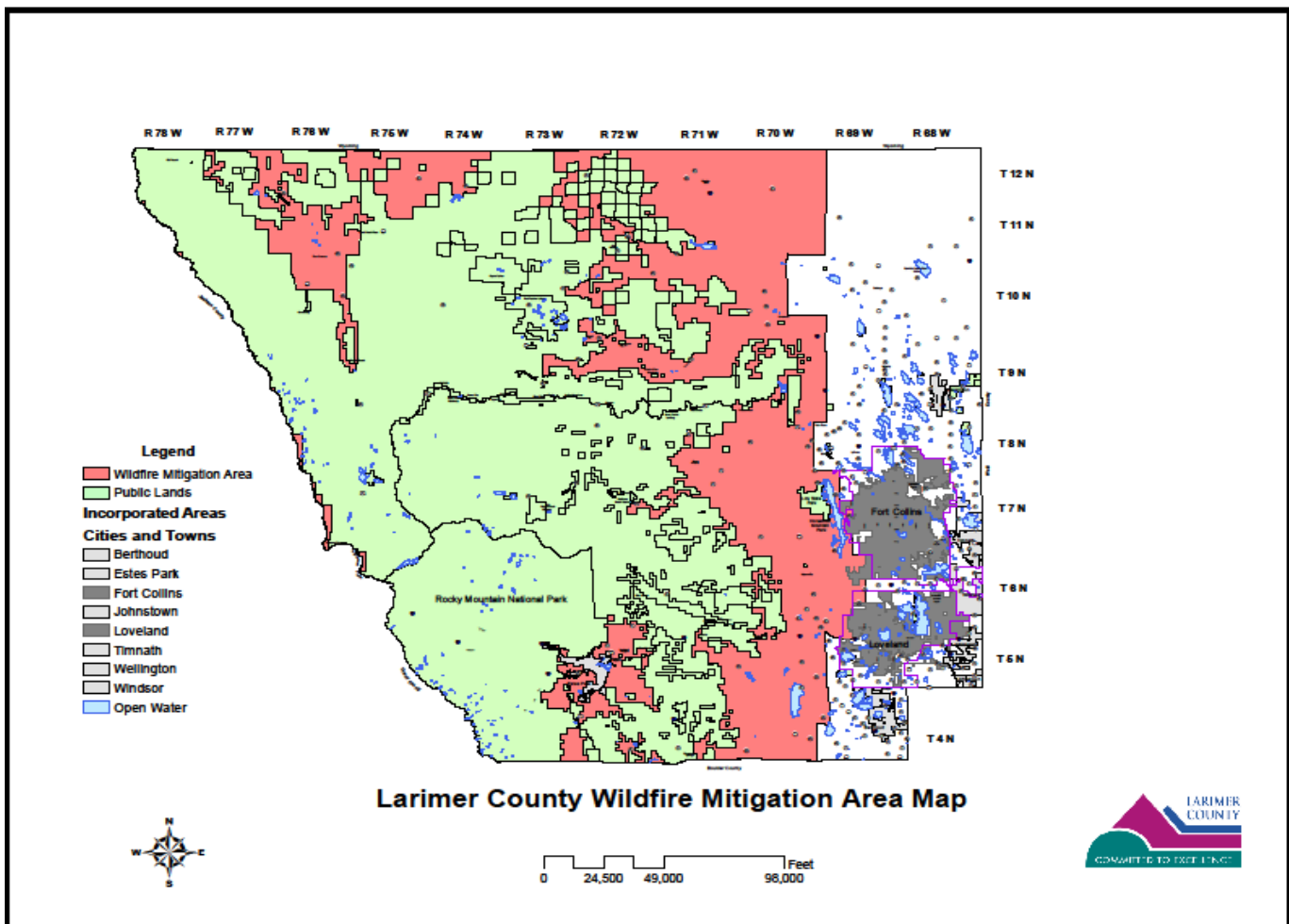
R327.11 Alternate Designs. The building official may approve other alternate designs provided they meet the requirements of Section R 104.11.

R327.12 Wildfire Fees. Fees shall be assessed in accordance to Larimer County wildfire assessment and inspection fee schedule.

R327.13 Appeals. Appeals of interpretations made by the building official relative to the application of this section shall be made to the Board of Appeals.

R327.14 Maintenance. Defensible space areas created as required by this chapter or other referenced documents within the Larimer County Wildfire Mitigation Plan are to 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.

Table R327 Larimer County Wildfire Mitigation Area Map



CHAPTER 4 FOUNDATIONS

Amend the first two sentences 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 provisions contained in Floodplain overlay zone districts established in the Larimer County Land Use Code.

The following section is hereby amended to add Exception #4 to read as follows:

R403.1.4.1 Frost Protection.

Exceptions

4. An unheated, one-story accessory building may be placed on 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 (7.31m) and the maximum width shall not exceed twice the depth (24 feet/7.31m x 48 feet/14.5m maximum).

Amend the first sentence to read as follows:

R403.1.6 Foundation anchorage. Sill plates and walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section except that in areas where Nominal Design Wind Speed equals or exceeds 110 mph, anchor bolts shall be spaced a maximum four feet (1219 mm) on center in longer axis walls and 32" o.c. in cross walls, with minimum 3" x 3" x 0.229" plate washers with max. 1 3/4" slot.

The following section is hereby added to read as follows:

R404.1.7.1 Placement of Backfill. The excavation outside the foundation, including utility trenches and excavation ramp, shall be backfilled with soil that is substantially free of organic material, construction debris and cobbles, boulders, and solid soil masses larger than 6 inches (152 mm) diameter, or of frozen soil. The backfill shall be placed in lifts and compacted as set forth in the engineering documents. The backfill shall be placed in a manner that does not damage the foundation or the waterproofing or dampproofing material. Excavation ramps shall be backfilled in such a manner that the ramp does not become a conduit for surface water to flow toward the foundation. Where excavations include more than one house, a specially engineered drainage system may be required by the building official.

Amend the first sentence to read as follows:

R405.1 Concrete or masonry foundations. Drains consisting of piping conforming with ASTM D2729-11 shall be provided adjacent to the lowest concrete or masonry foundations that retain earth and enclose spaces that are partially or entirely located below grade.

The following section is hereby amended to read as follows:

R408.2.1 Ventilated under-floor spaces. Floor systems above ventilated under-floor spaces shall be insulated in accordance with Table N1102.1.1. Floor systems shall be sealed to prevent heat loss and air infiltration.

The following section is hereby amended by adding item #3 to read as follows:

R408.3 Unvented crawl space.

3. The perimeter walls enclosing unvented crawl spaces shall be thermally insulated to Table N1102.1.1.

The following section is hereby amended 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.

The following section is hereby amended by adding a sentence at the end to read as follows:

R408.6 Finished grade.

In areas where expansive or collapsible soils are known to exist, underfloor clearances shall be provided in accordance with the professionally designed foundation system.

The following section is hereby amended to read as follows:

R408.7 Flood resistance. 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 provisions contained in Floodplain Overlay Zone Districts established in the Larimer County Land Use Code.

CHAPTER 5 FLOORS

The following section is hereby deleted in its entirety:

~~**R501.3 Fire protection of floors.**~~

CHAPTER 6 WALL CONSTRUCTION

The following section is hereby amended to read as follows:

R602.3.2 Top Plate.

Wood stud walls shall be capped with a double top plate installed to provide overlapping at corners and intersections with bearing partitions. End joints in top plates shall be offset not less than 24 inches (610 mm). Joints in **the uppermost top plate** need not occur over studs.

CHAPTER 8 ROOF-CEILING CONSTRUCTION

The following section is hereby amended to read as follows:

~~**R802.11.1 Uplift resistance.** Roof assemblies shall be connected to supporting walls with rafter or truss ties installed at bearing locations to provide a continuous load path for transmitting the uplift forces from the rafter or truss ties to the foundation in accordance with Table R802.11.~~

~~**R802.11.1.2 Truss uplift resistance.** Trusses shall be attached to supporting wall assemblies by connections capable of resisting uplift forces as specified by Larimer County Wind Speed Map (Table R301.2 (1) footnote d) and on the truss engineered design drawings. Uplift forces shall be determined by accepted engineering practice.~~

~~**R802.11.1.3 Rafter uplift resistance.** Individual rafters shall be attached to supporting wall assemblies by connections capable of resisting uplift forces as determined by Adjusted Table R802.11 or as determined by accepted engineering practice. Connections for beams used in a roof system shall be designed in accordance with accepted engineering practice.~~

After Table 802.11, add the following Section:

Adjusted Table R802.11

In areas of High Wind and high altitudes, such as the foothills and mountains, the effect of altitude on air density correction factor may be used with Table R802.11.

Required strength of 24" o.c. rafter/truss connection to top plate⁴ - Exposure B

Nominal Design

Wind Speed	12' span	18' span	24' span	28' span	32' span	36' span	
¹	120 mph	256#	355#	454#	520#	586#	652#
²	130 mph	296#	411#	525#	602#	678#	755#
³	140 mph	363#	503#	644#	737#	831#	924#

~~¹The altitude correction factor of 0.84 was used for assumed 6000 feet in elevation.~~

~~²The altitude correction factor of 0.81 was used for assumed 7000 feet in elevation.~~

~~³The altitude correction factor of 0.79 was used for assumed 8000 feet in elevation.~~

~~⁴Simpson's hurricane ties uplift capacities are: H2.5=415#, H2.5A=600#, & H10=990#.~~

CHAPTER 9 ROOF ASSEMBLIES

The following section is hereby amended to read as follows:

R902.1 Roof covering materials. Roofs shall be covered with materials as set forth in Sections R904 and R905. Class A, B or C roofing shall be installed in areas designated by law as requiring their use or when the edge of the roof is less than 3 feet (914 mm) from a property line. Classes A, B and C roofing required to be listed by this section shall be tested in accordance with UL 790 or ASTM E 108. 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: Larimer County's Wildfire Mitigation and Class "B" Roofing Area (Table R902) requires a Class A or Class B roof covering on any new structure west of the dividing line and a Class C or better roof covering east of the dividing 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.

Sections R905.2.7.1, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1, and R905.8.3.1 are hereby amended to read as follows:

Ice Barrier. In Larimer County's Wildfire Mitigation and Class "B" Roofing Area, an ice barrier that consists of two layers of underlayment cemented together or a self-adhering polymer-modified bitumen sheet, shall be used in lieu of normal underlayment and shall extend from the lowest edges of all roof surfaces to a point at least 24 inches (610 mm) inside the exterior wall line of the building.

Exception: Detached *accessory structures* that contain no *conditioned floor area*.

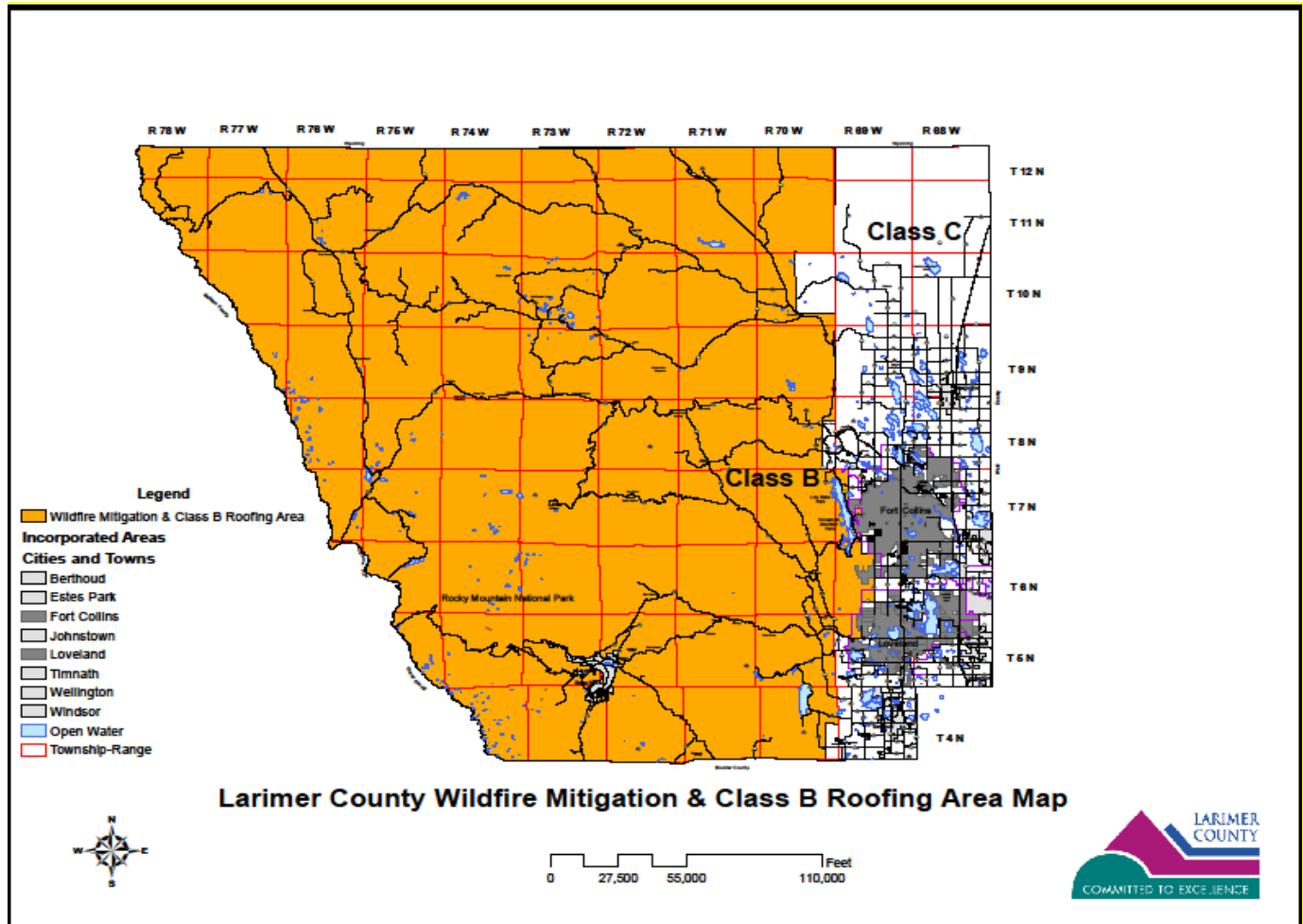
The following section is hereby amended to read as follows:

R907.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of this chapter. 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 located east of the dividing line as shown by the Larimer County Wildfire Hazard Area and Roofing Classification Map (Table R902) may be replaced with a roof covering of the same materials and classification, provided the replacement roof covering has a minimum rating of Class C.
3. The reroofing of 50 percent or more during a one year period of any existing structure located west of the dividing line as shown by the Larimer County's Wildfire Mitigation and Class "B" Roofing Area (Table R902) requires Class B roof covering.

TABLE R902



The following section is hereby amended to read as follows:

R907.3 Fire Classification. Rooftop-mounted photovoltaic panels or modules shall have a minimum Class C fire rating.

CHAPTER 10 CHIMNEYS AND FIREPLACES

The following section is hereby amended by adding subsections Installation & Definitions to read as follows:

Section R1001.1 General

R1001.1.1 Installation

- A. All fireplaces installed on or after January 1, 2002 in the Restricted Area as indicated in Table 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 Phase III 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 as indicated in Table R1001.1.1 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) above.
- C. Within the Non-restricted Area, fireplaces, including but not limited to masonry and factory built fireplaces (such as metal and zero clearance fireplaces), shall be allowed and shall not be required to meet the standards in Paragraph (A) above.

R1001.1.2 Definitions

Factory-built Fireplace is a listed assembly of a fire chamber, its chimney and related factory-made parts designed for unit assembly without requiring field construction. Factory-built fireplaces are not dependent on mortar-filled joints for continued safe use.

Fireplace is a hearth and fire chamber or similar prepared place in which a fire may be made and which is built in conjunction with a chimney.

Fireplace insert: A wood burning device designed to be installed in an existing fireplace.

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.

Restricted Area: That part of unincorporated Larimer County located outside the Non-restricted Area as shown on the Larimer County Fireplace Area Map.

Wood stove: An appliance designed for or capable of burning wood and capable of and intended for domestic space heating or domestic water heating.

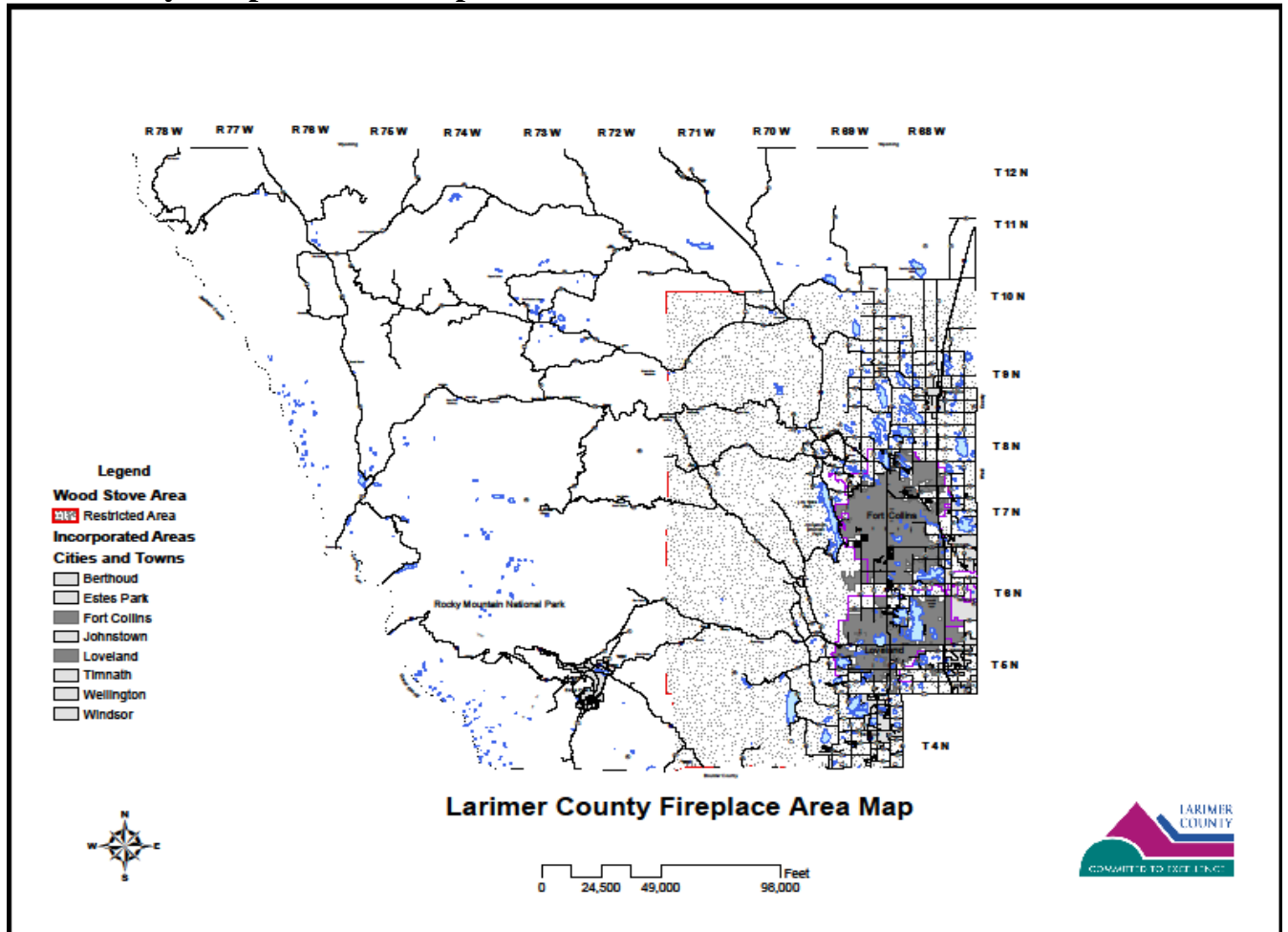
The following section is hereby amended by adding a new sentence to read as follows:

R1004.1 General . All fireplaces shall comply with Sections R1001.1.1 & R1001.1.2.

The following section is hereby amended by deleting in its entirety:

~~**R1004.4 Unvented gas log heaters**~~

Table R1001.1.1 Larimer County Fireplace Area Map



PART IV - ENERGY CONSERVATION

CHAPTER 11 ENERGY EFFICIENCY

The following section is hereby amended by adding the following exceptions to read as follows:

N1101.1 Scope.

Exceptions:

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

1. Agricultural or **detached** accessory buildings heated or cooled in their interior for short periods of time and switched with a timer of two hours or less.
2. Agricultural or **detached** accessory buildings which are neither heated nor cooled by fuel or electrical energy.
3. Agricultural or **detached** accessory buildings not heated above 50° F.
4. Fully enclosed accessory buildings and attached garages/shops/utility areas not containing habitable space may be conditioned subject to the following thermal and envelope criteria:
 - a) Such spaces meet the criteria for thermal isolation and any HVAC equipment installed therein is sized for a peak design load assuming a maximum Winter Indoor Design Dry-bulb Temperature of 60°F and a minimum Summer Indoor Design Dry-bulb Temperature of 80°F.
 - b) The walls are insulated with insulation having a minimum R-value of **R-13**.
 - c) The roof/ceiling is insulated with insulation having a minimum R-value of R-30.
 - d) Windows have a maximum U-factor of 0.45 and in total do not exceed 10% of the floor area.
 - e) Doors have a minimum R-value of 3 and are sealed to prevent infiltration to the extent practical as determined by the building official.

The following section is hereby amended by adding the following sentence at the end to read as follows:

N1101.3 (R101.5.1) Compliance materials.

A REScheck compliance certification verifying the home meets or exceeds 2009 International Energy Conservation Code requirements shall be deemed to meet the requirements of this code.

The following Section is hereby amended to read as follows:

N1101.7 (R301.1) Thermal design parameters in Climate Zone 5B. The following thermal design parameters shall be used for calculations required under this code:

- a) Winter Outdoor Design Dry-bulb (4°F),
- b) Winter Indoor Design Dry-bulb (72°F),
- c) Summer Outdoor Design Dry-bulb (89°F),
- d) Summer Indoor Design Dry-bulb (75°F),
- e) Summer Design Wet-bulb (62°F),
- f) 6368 Degree Days Heating, and
- g) 479 Degree Days Cooling.

All heating and cooling equipment shall be sized 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 in accordance with the procedures in ACCA Manual J, 8th Edition, using the above thermal design parameters. All ducted air-distribution heating and cooling systems shall be sized using cooling loads. All heating and cooling equipment shall be tested to ensure such equipment is operating within the manufacturers' recommended parameters and standards according to the applicable protocols established by the building code official and in accordance with the mechanical code adopted by Larimer County.

The following section is hereby amended to read as follows:

Table N1102.1.2 (R402.1.2) Insulation and Fenestration Requirements by Component^a (Climate Zone 5)

Fenestration U-Factor ^b	Skylight ^b U-Factor	Glazed Fenestration SHGC ^{b,e}	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value ⁱ	Floor R-Value	Base-ment ^c Wall R-Value	Slab ^d R-Value & Depth	Crawl Space ^c Wall R-Value
.32	.55	NR	R-38	20 OR 13+5 ^h	13/17	30 ^g	R-10 continuous, R-13 cavity	10, 2 ft.	R-10 continuous, R-13 cavity

The following section is hereby amended by adding the following exceptions to read as follows:

N1102.4.1.2 Testing

Exceptions: The following buildings are not required to undergo air leakage testing:

1. Cabins
2. Existing buildings undergoing alterations, additions, or change of use to a single-family dwelling or accessory living area.

The following section is hereby deleted in its entirety:

~~N1102.4.4 Rooms containing fuel-burning appliances.~~

The following section is hereby amended to read as follows:

N1104.1 Lighting Equipment (Mandatory). A minimum of 50 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or a minimum of 50 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

Part V- MECHANICAL

CHAPTER 13 GENERAL MECHANICAL SYSTEM REQUIREMENTS

The following section is hereby amended to read as follows:

M1307.3 Elevation of ignition source. Electrical devices, equipment and 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. 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.

CHAPTER 14 HEATING AND COOLING EQUIPMENT

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

Section M1502.4.2

Ducts shall not be joined with screws or similar fasteners. ~~that protrude more than 1/8 inch (3.2 mm)...~~

Section M1502.4.5.1 is hereby renumbered as M1502.4.5 and retitled as Duct Length

The following sections are hereby deleted in their entirety:

~~M1502.4.5 Duct Length and~~

~~M1502.4.5.2 Manufacturer's instructions.~~

The following section is hereby amended to read as follows:

M1503.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of ~~400~~ 600 cubic feet per minute shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate.

The following section is hereby added to read as follows:

M1507.5 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.

CHAPTER 16 DUCT SYSTEMS

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.

Part VI- FUEL GAS

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.** ~~the appliance or equipment will be prevented from operating.~~ 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 as exception 3.

G2406.2 (303.3) Prohibited locations.

- ~~3. A single wall-mounted unvented room heater is installed in a bathroom....~~
- ~~4. A single wall-mounted unvented room heater is installed in a bedroom....~~
- ~~5. 3. The appliance~~

The following section is hereby amended to read as follows:

G2415.12 (404.10) 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 (404.10.1) Individual outside appliance. Individual lines to outside lights, grills or other appliances shall be installed a minimum of 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:

G2415.15 (404.13) Outlet closures. Gas outlets and fittings which allow for future gas line expansion that do not connect to appliances shall be provided with an approved gas shutoff valve with the end capped gas tight.

The following section is hereby amended to read as follows:

Section G2416.1 (405.1) General. Changes in direction of rigid metallic pipe specified in G2414.4 shall be made only by the use of fittings and factory bends.

The following section is hereby deleted in its entirety:

~~**G2416.2 (405.2) Metallic pipe.**~~

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 not less than one and one-half times the proposed maximum working pressure, but not less than 10 psig (67 kPa gauge) irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe.

The following section is hereby amended to read as follows:

G2420.5.2 (409.5.2) Vented decorative appliances and room heaters. Shutoff valves for vented decorative appliances, room heaters and decorative appliances for installation in vented fireplaces shall be permitted to be installed in an area remote from the appliances where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other appliance. Remote valves shall be operable on the same floor as the appliance served and within 12 feet (3.658 m) of the appliance as measured along the floor line. The piping from the shutoff valve to within 6 feet (1829 mm) of the appliance shall be designed, sized and installed in accordance with Sections G2412 through G2419.

The following section is hereby amended to read as follows:

G2421.3 (410.3) Venting of regulators. Pressure regulators that require a vent shall have an independent vent to the outside of the building. The vent shall be designed to prevent the entry of water or foreign objects. Vents shall not terminate within 3 feet (0.916 m) of openings into the building.

The following section is hereby amended by deleting item 7:

G2425.8 (501.8) Appliances not required to be vented is hereby amended by deleting item 7.

- ~~7. Room heaters listed for unvented use.~~

The following section is hereby amended to read as follows:

Section G2439.7.4 (614.8.4.) Duct length. The maximum allowable exhaust duct length shall be determined by method G2439.7.4.1.

The following section is hereby deleted in its entirety:

~~**Section G2439.7.4.2 (614.8.4.2) Manufacturer's 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 ovens. In new construction, kitchens with gas cooking appliances shall be supplied with an exhaust system vented to the outside. 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.

PART VII – PLUMBING

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 ~~be tested by water or, for piping systems other than plastic, by air with no evidence of leakage.~~

CHAPTER 26 GENERAL PLUMBING REQUIREMENTS

The following section is hereby amended to read as follows:

P2603.5.1 Sewer Depth. Building sewers that connect to private sewage disposal shall comply with Larimer County Environmental Health Department regulations.

The last sentence in this section is has been amended to read as follows:

P2603.5.2 Freezing. Water service pipe shall be installed not less than 54 inches below grade.

CHAPTER 29 WATER SUPPLY AND DISTRIBUTION

The following section is hereby amended by adding a sentence at the end to read as follows:

Section P2901.1 Potable Water Required. Non-potable water systems shall comply with Larimer County Environmental Health Department regulations.

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

NONPOTABLE WATER SYSTEMS

Section P2910.1 Scope. The use and application of non-potable water systems shall comply with Larimer County Environmental Health Department regulations.

CHAPTER 30 SANITARY DRAINAGE

The following section is hereby amended by adding a sentence at the end to read as follows:

SECTION P3009 SUBSURFACE LANDSCAPE IRRIGATION SYSTEMS

P3009.1 Scope. Potable Non-potable water systems shall comply with Larimer County Environmental Health Department regulations.

PART VIII – ELECTRICAL

CHAPTERS 34-43 DELETED

Chapters 34 through 43 from the 2015 International Residential Code are hereby deleted in their entirety, and replaced with the latest edition of the National Electrical Code as adopted and enforced by the State of Colorado Electrical Board. Such Electrical code is also hereby adopted by this jurisdiction.

PART X - APPENDICES

The following appendix chapters are adopted as part of the 2015 International Residential Code

Appendix A – Sizing and Capacities of Gas Piping

Appendix B – Sizing of venting systems serving appliances equipped with draft hoods, category I appliances, and appliances listed for use with type B vents.

Appendix C – Exit terminals of mechanical draft and direct venting systems.

Appendix E – Manufactured Housing used as Dwellings.

Appendix H – Patio Covers.

Appendix J – Existing Buildings and Structures.

The following section is hereby added to read as follows:

AJ 102.10 Moved Buildings or structures. Building or structures moved into or within Larimer County shall comply with the provisions of the codes adopted when the building was built or the first building¹ or energy code² adopted by Larimer County if built prior to building or energy codes being adopted. In addition they shall meet the requirements of wind loads, snow loads, flood hazard areas, wildfire hazard areas, and fireplace restricted areas of their new location.

1. The 1971 One and Two Family Dwelling Code was the first building code adopted by Larimer County.
2. The 1977 Colorado Energy Conservation Standards was the first energy code adopted by Larimer County.
3. Manufactured homes meeting 1976 HUD Standards or Factory-Built homes registered with the Colorado Division of Housing.

Appendix N – Venting Methods
