DOUGLAS COUNTY
COLORADO

# 2024 Building Code Adoption with Amendments
# Staff Report

**DATE:** FEBRUARY 19, 2026

**TO:** DOUGLAS COUNTY PLANNING COMMISSION

**FROM:** MATTHEW DZIUBANSKI, CHIEF BUILDING OFFICIAL
TIM PENDLETON, DEPUTY CHIEF BUILDING OFFICIAL

**SUBJECT:** ADOPTION OF THE 2024 INTERNATIONAL BUILDING CODES, 2026 NATIONAL ELECTRICAL CODE, AND COLORADO MODEL ELECTRIC READY AND SOLAR READY CODE WITH AMENDMENTS ALONG WITH THE DOUGLAS COUNTY WILDFIRE RESILIENCY CODE.

| | |
|---|---|
| **PLANNING COMMISSION HEARING:** | **March 02, 2026 @ 6:00 PM** |
| **BOARD OF COUNTY COMMISSIONERS HEARING:** | **March 24, 2026 @ 2:30 PM** |

## I. EXECUTIVE SUMMARY

The Building Division is proposing an update to the County's adopted building codes to reflect the most current editions of the International Codes and applicable state-mandated requirements. Douglas County is currently enforcing the 2021 editions of the International Codes, the 2023 National Electrical Code, and the 2018 International Energy Conservation Code. To maintain consistency with industry standards, preserve the County's Insurance Services Office (ISO) rating, and align with neighboring jurisdictions, the Building Division is proposing adoption of the 2024 editions of the International Building Code, International Residential Code, International Plumbing Code, International Mechanical Code, International Fuel Gas Code, International Swimming Pool and Spa Code, and International Energy Conservation Code, (collectively the "2024 International Codes"), along with the 2026 National Electrical Code, with amendments.

In addition, the County is required to adopt the Colorado Model Electric Ready and Solar Ready Code and a Wildfire Resiliency Code pursuant to state legislation. The Wildfire Resiliency Code will be applicable to areas of unincorporated Douglas County that are outside the boundaries of a fire protection district.

These codes and amendments maintain consistency with other local regulations and support the County's goal to improve the quality and safety of the built environment while minimizing economic impact on builders, costs that are ultimately shared by homeowners and building owners.

## II. REQUEST

The Planning Commission's recommendation for adoption of the 2024 International Codes, and the 2026 National Electrical Code, with amendments. Along with the Colorado Model Electric Ready and Solar Ready Code, with amendments and Douglas County Wildfire Resiliency Code.

## III. PUBLIC NOTICE

Notice of the hearing before the Planning Commission was published in the Douglas County News Press. Notice of hearing before the Board of County Commissioners is also published in the Douglas County News Press before and after it is heard by the Planning Commission.

## IV. STAFF ASSESSMENT

The adoption of the 2024 International Codes and 2026 National Electrical Code along with the Colorado Model Electric Ready and Solar Ready Code and the Douglas County Wildfire Resiliency Code will help maintain consistency throughout Douglas County, coinciding with recent adoptions by other local jurisdictions. The newer codes provide a safer built environment for both residential and commercial structures, and accommodate new materials, design trends and construction methods. The timely adoption of building codes is also a direct positive factor in the community's rating by the (ISO).

## ATTACHMENTS

- Attachment A – Amendments to the 2024 IBC, IRC, IPC, IMC, IFGC, ISPSC, and IECC; 2026 NEC; and the Exhibits A through F
- Attachment B - Douglas Couty Wildfire Resiliency Code

# ATTACHEMENT A

## CODE AMENDMENTS
## TABLE OF CONTENTS


**Exhibit A**

- Amendments common to all adopted International Codes 2
- Amendments to the 2024 International Residential Code 13
- Amendments to the 2024 International Building Code 19
- Amendments to the 2024 International Plumbing Code 21
- Amendments to the 2024 International Mechanical Code 22
- Amendments to the 2024 International Fuel Gas Code 22
- Amendments to the 2024 International Swimming Pool and Spa Code 24
- Amendments to the 2024 International Energy Conservation Code 24
- Amendments to the 2026 National Electrical Code 25

**Exhibit B**

- Wildfire Mitigation Standards 26

**Exhibit C**

- Standard for Water Supplies for Rural Firefighting 40

**Exhibit D**

- Installation Standard IS-22-98 - Installation standards for potable water storage tanks and cisterns for domestic use 49

**Exhibit E**

- 2024 IBC Appendix Q Solar Photovoltaic Power Systems Access, Pathways and Spacing Requirements 53

**Exhibit F**

- Colorado Model Electric Ready and Solar Ready Code 58

# Exhibit A

## AMENDMENTS COMMON TO ALL ADOPTED INTERNATIONAL CODES

Any references made to the below listed codes within the adopted codes are not valid in Douglas County except as noted above.

| | |
|---|---|
| **International Private Sewage Disposal Code** | **Not adopted** |
| **International Property Maintenance Code** | **Not adopted** |
| **ICC Electrical Code** | **Not adopted** |
| **International Zoning Code** | **Not adopted** |
| **International Wildland-Urban Interface Code** | **Not adopted** |
| **International Existing Building Code** | **Not adopted** |

The International Building Code, International Residential Code, International Plumbing Code, International Mechanical Code, International Fuel Gas Code, International Energy Conservation Code, and the International Swimming Pool and Spa Code are published by the International Code Council, Inc., 4051 W. Flossmoor Road, Country Club Hills, IL 60478.

**10.0 FEES** **Add new section and subsections**

**10.1 Payment of fees**
A permit shall not be valid until the fees, prescribed by law, have been paid, nor shall an amendment to a permit be issued until the additional fee, if any, has been paid.

**10.1.1 Related fees**
The payment of the fee for the construction, alteration, removal, or demolition for work done in connection to, or concurrently with the work authorized by a building permit, shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

**10.2 Valuation of work**
The determination of value or valuation shall be established by the Building Official utilizing building valuation data printed in the Building Safety Journal, published by the International Code Council, as a guide and using a modifier of one (1), or the applicant shall provide an estimated project valuation at the time of application. Permit valuations shall include the total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, plumbing equipment, and permanent systems. If, in the opinion of the Building Official, the valuation is underestimated on the application, the permit shall be denied unless the applicant can provide detailed estimates to meet the approval of the Building Official. Final building permit valuation shall be set by the Building Official.

**10.3 Schedule of permit fees**
On new or altered structures, gas, mechanical, plumbing or roofing requiring a permit, a fee for each permit shall be paid in accordance with Table 10.3 (1997 edition of the Uniform Building Code, Table 1-A).

**10.3.1 Plan review fee**
The plan review fee shall be 65% of the permit fee. In cases of stock plans, the plan review fee shall be 10% of the permit fee.

**10.3.2 Electrical permit fee**
Fees for electrical only permits shall be assessed per Table 10.3.2

**Table 10.3.2**
**ELECTRICAL PERMIT FEE SCHEDULE**

If an electrical permit is not obtained prior to installation, the inspection fee may be twice the amount as prescribed by Colorado Revised Statute §12-115-121.3

**Section A. RESIDENTIAL**: In unincorporated Douglas County a single Residential Building Permit Fee covers all building, electrical, mechanical, and plumbing work included on the approved plans.

**Section B. ALL OTHER FEES** including some residential installations that are not based on square footage (not in a living area, i.e., garage, shop, and photovoltaic, etc.). Fees in this section are calculated from the total cost to customer, including electrical materials, components, and labor – whether provided by the contractor or the property owner. Use this formula for a service connection, a temporary meter, and all commercial installations. Such fees shall be computed as follows:

**Valuation of Installation:** (based on cost to customer of labor, materials, and components):

**FEE**

1) Not more than $2,000.....**$ 57**
2) $2,001 and above..... **$ 5 per thousand OR FRACTION thereof PLUS $ 57**

**Example**: The cost of the installation is $8,150 (round up to $9,000)
The base fee is calculated from section (2) above: 9 x $5= $45 *PLUS $*57 =$102

The total fee is: $102

**C. Reinspection fee** for all of the above…… **$ 47**
**D. Add Fee for Extra inspections**…… **$ 50**
**E. Add Fee for Residential Constr. Meter** (for work under Sect. A) … **$ 45**

**10.3.3 Wildfire mitigation assessment fee**
A fee of $120.00 shall be assessed to new structures located in wildfire hazard areas as determined by the Wildfire Hazard Overlay Map that require an on-site assessment and final inspection.

**10.3.4 Driveway permit fee** *(Detached single-family residences only)* A permit fee of $40.00 shall be required for vehicular access to residential dwellings, or buildings accessory thereto, in rural areas generally not served by combination curb, gutter, and sidewalk.

**10.3.5 Drainage, Erosion, and Sediment Control (DESC) permit fee**
*(Detached single-family residents only)*
A DESC permit fee is required on all new single-family residential construction and new construction of accessory structures (e.g., additions, barns, arenas, detached garages, etc.) on existing single-family home sites. Fees for each DESC permit shall be determined in accordance with Table 10.3.5.

**10.3.5.1 DESC plan review fee** *(Detached single-family residences only)*
The DESC plan review fee shall be 65% of the DESC permit fee.

**Table 10.3.5**
**DESC Permit Fee Schedule**

| Project Valuation | Permit Fee |
|---|---|
| $0 to $25,000.00 | $25.00 |
| $25,001.00 to $50,000.00 | $35.00 |
| $50,001.00 to $100,000.00 | $50.00 |
| $100,001.00 to $900,000.00 | $50.00 for the first $100,000.00 plus $32.00 for each additional $100,000.00 of the valuation, or fraction thereof |
| $900,001.00 and up | $338.00 |

**10.3.6 Zoning fee**

**10.3.6.1 One and two-family dwellings or townhouses as defined in the IRC**
A review fee of $50.00 is required per single family/townhouse as each unit is permitted individually. Additionally, a fee of $30.00 will be assessed for permits for accessory structures.

**10.3.6.2 Commercial and multi-family buildings as defined in the IBC**
A review fee of $50.00 is required for each commercial structure as each unit is permitted individually. Apartment and condominium buildings will be assessed a $50.00 fee per building. Additionally, a fee of $30.00 will be assessed for permits for accessory structures.

**10.3.7 Re-inspection fee**
When an inspection has been requested for work that has not been completed, or for identified deviancies that have not been corrected, a re-inspection fee may be assessed.

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 the inspection is requested, or for deviating from approved plans.

When re-inspection fees have been assessed, no additional inspections will be performed until the required fees have been paid. Re-inspection fees shall be in accordance with Table 10.3.

**10.3.8 Investigation fee**
Investigation fees shall be determined in accordance with Table 10.3.

**10.3.8.1 Work commencing before permit issuance**
Investigation fees may be assessed for work regulated by this Resolution that commences prior to a valid permit being issued. An investigation fee may amount to two times the calculated permit fee.

**10.3.9 Elevator/escalator inspection fee**
A conveyance inspection fee in accordance with the Douglas County Administrative Fee Schedule shall be paid for each separate elevator/escalator installed in the county. These fees shall cover annual safety inspections and witness inspections as required by the State. Notice of the fee shall be given to each conveyance owner by the Building Division for the specific inspection service provided.

**10.3.10 Use Tax** A Use Tax on construction and building materials shall be collected at time of permit issuance for most types of permits, in accordance with Resolution R-994-147 and approval by registered electors at general election, and as modified by subsequent statutorily authorized public approval processes.

**10.4 Refunds**
The Building Official may authorize the refunding of fees for the following:

1. The full amount of any fee paid hereunder which was erroneously paid or collected.

2. Not more than 80% of the permit fee paid when no work has been done under a permit issued in accordance with this code.

3. Not more than 80% of the plan review fee paid when an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review effort has been expended.

The Building Official shall not authorize a refund of any fee paid, except upon written application filed by the original permittee, not later than 180 days after the date of fee payment.

**Table 10.3**
*(1997 Uniform Building Code, Table 1-A)*

| Total Valuation | Building Permit Fee |
|---|---|
| $1.00 to $500.00 | $23.50 |
| $501.00 to $2,000.00 | $23.50 for the first $500.00 plus $3.05 for each additional $100.00, or fraction thereof, to and including $2,000.00 |
| $2,001.00 to $25,000.00 | $69.25 for the first $2,000.00 plus $14.00 for each additional $1,000.00, or fraction thereof, to and including $25,000.00 |
| $25,001.00 to $50,000.00 | $391.25 for the first $25,000.00 plus $10.10 for each additional $1,000.00, or fraction thereof, to and including $50,000.00 |
| $50,001.00 to $100,000.00 | $643.75 for the first $50,000.00 plus $7.00 for each additional $1,000.00, or fraction thereof, to and including $100,000.00 |
| $100,001.00 to $500,000.00 | $993.75 for the first $100,000.00 plus $5.60 for each additional $1,000.00, or fraction thereof, to and including $500,000.00 |
| $500,001.00 to $1,000,000.00 | $3,233.75 for the first $500,000.00 plus $4.75 for each additional $1,000.00, or fraction thereof, to and including $1,000,000.00 |
| $1,000,001.00 and up | $5,608.75 for the first $1,000,000.00 plus $3.65 for each additional $1,000.00, or fraction thereof |

Other inspections and fees:

1. Inspections outside normal business hours……..... $47.00 per hour [A]
   (minimum charge of two hours)
2. Re-inspection fees……. $47.00 per hour [A]
   (minimum charge of one hour)
3. Inspections for which no fee is specifically indicated……..... $47.00 per hour [A]
   (minimum charge of one-half hour)
4. Additional plan review required by changes, additions or revisions to plans……... $47.00 per hour [A]
   (minimum charge of one-half hour)
5. For use of outside consultants for plan checking and inspections, or both…… Actual costs [B]
6. Investigation fees……..... $47.00 per hour [A]
   (minimum charge of two hours)

A. $47.00 per hour fee or the total hourly cost to the jurisdiction will be charged, whichever is greatest. The cost shall include supervision, overhead, equipment, hourly wages, and fringe benefits of the employees involved.
B. Actual costs include administrative and overhead costs.

## 20.0 CONTRACTOR REGISTRATION Add new section and subsections

### 20.1 General

No contractor shall hire, employ, contract with, or engage another person to perform any construction work unless the person so hired, employed, contracted with, or engaged to perform construction work is registered with Douglas County Building Division.

**Exceptions:**

1. A homeowner is not required to register and is exempt from this Section.
2. Construction trades other than mechanical, electrical, and plumbing performing work under a registered general contractor are not required to be registered.

A contractor shall be responsible for all work included under the scope of the contractors' registration regardless of whether such work is done by the contractor directly or by a sub-contractor which is exempt pursuant to this Section.

It shall be the duty of any applicant for electrical or plumbing registration to furnish copies of the State contractor's license, master's license and to send updates as new State licenses are issued, or if licensed tradespersons are replaced. No permits for electrical wiring or plumbing work may be issued to any applicant unless such State license is properly verified and registered.

Permits will only be issued to a registered contractor or their authorized representative.

### 20.2 Definitions

**CONTRACTOR**

A contractor is any person, firm, co-partnership, corporation, association, or other organization, or any combination thereof, who builds, constructs, alters, adds to, or repairs any building or structure either on its own property, or who supervises or advises on any such activity, or hires and pays subcontractors.

**HOMEOWNER**

The owner of the property who elects to act as an owner-builder for their residential dwelling or accessory structure, as defined in the International Residential Code (IRC). A homeowner may secure a permit on only one residential dwelling in a twelve (12) month period with the intent of occupying the structure upon completion. Any person who builds two or more residences in unincorporated Douglas County in any twelve (12) month period shall be deemed to be a contractor, who must then comply with Section 20.0.

### 20.3 Class of registration

It shall be unlawful to perform work which is not authorized under the scope or limits of work for which such registration was issued. Registration classifications are as follows:

#### 20.3.1 Building contractor – CLASS "A"

This registration shall entitle the holder to contract for the construction, alteration, tenant finish, or repair of any type or size of structure permitted by the International Building Code (IBC) or International Residential Code (IRC).

**20.3.2 Building contractor – CLASS "B"**
This registration shall entitle the holder to contract for the construction, alteration, or repair of multi-family/townhouses with three or more units per structure as permitted by the IBC or IRC.

**20.3.3 Building contractor – CLASS "C"**
This registration shall entitle the holder to contract for the construction, alteration, or repair of single-family homes and duplexes as permitted by the IRC.

**20.3.4 Building contractor – CLASS "D"**
This registration shall entitle the holder to contract for the construction, alteration and repair of, but not limited to, garages, barns, basement finishes, alterations, decks, remodels, and low voltage wiring as permitted by the IRC.

**20.3.5 Mechanical contractor – CLASS "MA"**
This registration shall entitle the holder to perform work on heating, ventilation, air conditioning, and refrigerating systems.

**20.3.6 Electrical contractor**
Any person, firm, co-partnership, corporation, association, or combination thereof that undertakes or offers to undertake for another the planning, layout, supervision, installation or repair of wiring apparatus and equipment for electrical light, heat, and power. Pursuant to C.R.S. 12-23-105, electrical contractors are licensed by the State of Colorado and are only required to register with Douglas County. Electrical contractors are exempt from the fee requirements of this Section.

**20.3.7 Plumbing contractor**
Any person, firm, co-partnership, corporation, association, or combination thereof that undertakes or offers to undertake for another the planning, layout, supervision, installation, modification, or repair of plumbing systems. Pursuant to C.R.S. 12-58-105, plumbing contractors are licensed by the State of Colorado and as such are only required to register with Douglas County. Plumbing contractors are exempt from the fee requirements of this Section.

**20.3.8 Roofing contractor**
This registration shall entitle the holder to contract for the replacement and repairs of existing roofs as permitted by the IBC or IRC.

**20.4 Contractor registration fee schedule**

Contractor's registration fees shall be as follows:
Class "A" Contractor……..$250.00
Class "B" Contractor……..$200.00
Class "C" Contractor……..$150.00
Class "D" Contractor……..$150.00
Mechanical Contractor…….. $150.00
Roofing Contractor…….....$150.00

Electric Contractor……..... Exempt
Plumbing Contractor…….. Exempt

**Exception:**

Fees for all types of registrations will be waived until further action by the Board of County Commissioners, effective July 1, 2013, per Douglas County Resolution (R-012-068).

**20.5 Probationary registration**

The Building Official may issue a probationary registration where the Building Official determines that qualifications must be established prior to issuance of a regular registration.

**20.6 Expiration of registration and regulations**

All registrations shall expire one (1) year from the date of issuance. Registrations with State issue licenses shall expire thirty (30) days after the State license expires, unless otherwise provided. No permits may be obtained, nor may work already under permit be continued, until the registration has been renewed. Applicants for registration renewals shall meet all current requirements for a new registration.

**20.7 Insurance requirements**

Prior to registration, the contractor shall file with the Building Official a Certificate of Liability insurance and Worker's Compensation insurance. The insurance certificate must be signed by an agent of an insurance company stating that the policy, or policies, required by this Section have been issued to the contractor. The policy, or policies, shall state the name of the company, effective date of such policies, and the expiration date of policy or policies. Each policy of insurance shall contain an endorsement to the effect that the insurance carrier shall notify the Douglas County Building Division of the effective date of a reduction or cancellation of the policy. The cancellation or reduction of insurance below the required amount of coverage shall be cause for automatic suspension of the contractor's registration until coverage is reinstated. All policies shall be kept in effect for the period of the registration.

Single occurrence liability insurance shall have the following minimum coverage amount:

Class "A" Contractor…… $1,000,000.00
Class "B" Contractor…… $1,000,000.00
Class "C" Contractor…… $500,000.00
Class "D" Contractor……..... $300,000.00
Electrical Contractor……. $300,000.00
Plumbing Contractor……. $300,000.00
Mechanical Contractor……. $300,000.00
Roofing Contractor…… $300,000.00

**20.8 Registration suspension and revocation**

The Building Official may suspend or revoke the registration of any registered contractor for good cause, as described in this Section. Upon suspension or revocation, the Building Official shall provide written notice to the registered contractor by delivery to the business

mailing address provided by the contractor at time of registration. The notice of suspension or revocation shall include information regarding the appeals process for the suspension or revocation, including the right of the contractor to appear before the Board of Appeals and show cause why the registration should not be suspended or revoked. At the hearing before the Board of Appeals, the contractor shall have the right to present their case by oral and documentary evidence, to submit rebuttal evidence, as may be required for a full and true disclosure of the facts.

Suspension or revocation of a contractor's registration shall not be construed to release the contractor from liabilities and obligations of completing his contract. During the period prior to the hearing before the Board of Appeals, the contractor shall not be allowed to submit an application for any other projects.

The Board of Appeals, after review of the evidence presented, shall have the power to suspend, revoke or reinstate a contractor's registration for good cause shown. Good cause includes, but is not limited, to the following:

1. Violating any provisions of the Douglas County Building Code including any codes which are adopted by reference.

2. Failure to comply with any lawful order of the Building Official or any other authorized representative of the Building Division pertaining to the administration of the building code and those codes adopted by reference.

3. Using a contractor's registration to obtain a permit required under this code for any other person, corporation, or legal entity.

4. Failure to reveal any material fact in the application for a contractor's registration or permit, or the supplying of information which is untrue or misleading as to any material fact in the application, for a contractor's registration or permit.

5. Failure to obtain a proper permit for any work for which a permit is required.

The Board of Appeals (BOA) may reinstate a registration for any contractor whose registration has been revoked, provided a majority of the BOA votes in favor of such reinstatement for such reason as the BOA may deem sufficient. In such case where the contractor's registration has been revoked and the contractor is petitioning the BOA for reinstatement, the petitioner shall follow the established policies for requesting such hearing and pay all applicable fees.

## 30.0 BOARD OF REVIEW — Add new section and subsections

### 30.1 General

In order to hear and decide appeals of orders, decisions, or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Board of Review (BOR). The Building Official shall be an ex-

officio member of, and shall act as secretary to said BOR, but shall have no vote on any matter before the BOR. The BOR shall operate as and perform the duties of the Board of Review, pursuant to Section 30-28-206, C.R.S. the BOR shall be appointed by the Douglas County Board of County Commissioners and any member of the BOR may be removed for cause by the Douglas County Board of County Commissioners. The BOR shall consist of no less than three members nor more than five members. The member's terms shall be of such length and such arrangement that the term of at least one member shall expire each year. Vacancies shall be filled for an unexpired term in the same manner as in the case of original appointments. The Douglas County Board of County Commissioners shall provide for general rules to cover the organization, procedure, and jurisdiction of the BOR. The BOR may adopt supplemental rules of procedure not inconsistent with Article 28, Title 30, C.R.S. or such general rules. The BOR shall render all decisions and finding, in writing, to the appellant. A duplicate copy shall be sent to the Building Official.

**30.2 Limitations on authority**
Pursuant to Section 30-28-206, C.R.S., the BOR, in appropriate cases and subject to a determination as to the suitability of alternate materials and methods of construction, may make special exceptions to the terms of the Building Code in harmony with its purpose and intent. The BOR shall have no authority to waive requirements of this Code or provide product approvals.

**30.3 Qualifications**
The BOR 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 jurisdiction.

**30.4 Code amendments**
Pursuant to Section 30-28-206(2), C.R.S., the BOR is authorized to formulate suggested amendments to the Douglas County Building Code for consideration by the Douglas County Board of County Commissioners.

**30.5 Administration**
The Building Official shall take immediate action in accordance with the decision of the BOR.

**30.6 Fees**
The fee for a hearing before the Board of Review shall be $250.00. The fee is non-refundable.

**40.0 NOISE MITIGATION** **Add new section and subsections**

**40.1 Interior Noise Level**
All new structures, and the alteration or repair of existing structures, that are located in the Centennial Airport Review Area (CARA) as defined in Section 19 of the Douglas County Zoning Resolution and as amended, requiring noise mitigation, shall comply with this following.

An acoustical engineer, registered with the State of Colorado, shall certify that construction practices and/or materials of the structure will achieve an interior noise level below DNL 45 dBA. The acoustical professional shall submit documentation of the proposed measures to the Building Official before permitting.

Field testing to show compliance with the following Outdoor-Indoor Transmission Class (OITC) ratings shall be formed in accordance with the current ASTM standard.
OITC ratings of wall, floor, roof, window, and door assemblies shall be a value of 32 or greater.

**40.2 Penetrations**
All membrane or through penetrations in the construction assemblies for piping, electrical devices, recessed cabinets, bathtubs, soffits, heating, combustion, ventilation, or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings.

**50.0 SITE SANITATION** **Add new section and subsections**

**50.1 Sanitation facilities required**
Every building site during construction, remodeling, or demolition activities, shall be furnished with approved sanitation facilities for workers in accordance with Section 311 of the International Plumbing Code and an appropriate enclosure or other means approved by Douglas County to contain trash and debris.

**50.2 Location**
Sanitary facilities and approved trash enclosures shall be located within 300 feet of the building site. Sanitary facilities and trash enclosures shall not be located within the public right-of-way. Failure to comply with this section may cause suspension of inspections until compliance is achieved.

## AMENDMENTS TO THE 2024 INTERNATIONAL RESIDENTIAL CODE (IRC)

Note: Refer to the section "Amendments common to all adopted International Codes" for more information.

**Appendix BD Home Day Care Occupancy** **Adopt Appendix**

**Wildfire Mitigation Standards** **Adopt as an appendix**
Attached hereto, as Exhibit "B"

**Water Supply Standard for Rural Firefighting** **Adopt as an appendix**
Attached hereto, as Exhibit "C"

**Installation Standard IS-22-98** **Adopt as an appendix**
Installation standards for potable water storage tanks and cisterns for domestic use
Attached hereto, as Exhibit "D"

**R101.1 Title** [NAME OF JURISDICTION] **Replace**
Douglas County Building Division **Insert**

**R105.2(5) Work exempt from permit (Building)** **Delete words "and driveways"**

**R105.2(11-14) Work exempt from permit (Building)** **Add new exceptions**

11. Manufactured metal shipping containers used as tool and storage sheds with a floor area not larger than 200 square feet and are:
    11.1. Not used for storage of hazardous materials, or
    11.2. Not modified, connected, or stacked on top of each other.

12. Shade structures such as fabric shade sails or fabric covered awnings; and detached, free standing pergolas that do not exceed 200 square feet and are not subject to a uniformly distributed snow load; and detached ornamental garden structures and greenhouses accessory to a dwelling that do not exceed 200 square feet.

13. Replacement windows and doors where no structural modification of the rough opening is required, and the replacement window is 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. This exemption shall not apply within areas subject to the Douglas County Wildfire Resiliency Code.

14. The replacement or repair of roofing less than one square (100 square feet).

All work exempted by this Section R105.2 must comply with applicable zoning requirements and the regulations of other agencies having authority.

Work exempted from permit under Section R105.2 shall comply with the Douglas County Wildfire Resiliency Code when applicable.

**R105.3 Application for permit (8) and (9)** **Add new subsection requirements**

8. Proof of ownership of the property shall be submitted with the building permit application. When access is not from a public road, proof of legal and physical access shall be submitted with the application. If legal access is in question, the Building Official may confer with the County Attorney to determine the legality of the proposed access. If physical access is in question, referral comments may be sought from the Douglas County Department of Public Works and the Fire Protection District serving the property. The Building Official shall then determine whether legal access is available and whether physical access is safe, reasonable, and adequate. If the Building Official determines that the physical access is not safe, reasonable, or adequate, he may recommend whatever improvements would be necessary to provide safe and reasonable access.

9. A soils test of the building site prepared by a professional engineer registered by the State of Colorado shall be submitted with the application for a building permit. A professional engineer registered by the State of Colorado shall design the foundation in accordance with the soils report. Concrete foundations shall comply with ACI 318. When the building site is located in a hillside area, or in the opinion of the Building Official, is located in an area subject to geological hazards or steep slopes, the Building

Official may require an engineering geologist, working within their field of expertise, to submit specific recommendations regarding the building site and the proposed location and design.

**R108 Fees** **Delete section in its entirety**

**R109.1.1 Foundation inspection** **Addition to the end of the subsection**

Inspections shall be performed by a Colorado licensed professional engineer or architect that is registered in the State of Colorado. A sealed written report shall be provided to the Building Official of the results for these inspections by a Colorado licensed professional engineer or architect that is registered in the State of Colorado.

**R112 Means of Appeals** **Delete section in its entirety**

**R202 Definitions**

**Accessory Structure** **Amend to read as follows**

**Accessory Structure.** A structure that is not over two stories in height, the use of which is customarily accessory to and incidental to that of the dwelling(s), or other allowed use, and that is located on the same lot.

**Table R301.2(1) Climatic and geographic design criteria** **Delete chart and substitute**

**TABLE R301.2(1)**

**Climatic & Geographic Design Criteria**

| Topo effects | Seismic category | Subject to damage from | | | Ice barrier underlay | Flood hazards | Wind-borne debris |
|---|---|---|---|---|---|---|---|
| | | Weathering | Frost line depth | Termites | | | |
| Exposure C | B | Severe | 36" | Slight to moderate | Yes above 7,000' | per FEMA | No |

**Manual J Design Criteria**

| Elevation | Altitude correction factor | Coincident wet bulb | Indoor winter dry bulb temp | Air freezing index | Outdoor winter dry bulb temp | Design temp cooling | Heating temp difference |
|---|---|---|---|---|---|---|---|
| Varies | Varies | 59° | 70° | 867 | -3° | 75° | 73° |
| Latitude | Daily range | Indoor summer rel. humidity | Indoor winter rel. humidity | Indoor summer dry bulb temp | Outdoor summer dry bulb temp | Mean annual temp | Cooling temp difference |
| 39.5° N | H | 30% | 50% | 75° | 90° | 48° | 15° |

**TABLE R301.2(2)**
**Wind and Snow Load Design Criteria**

| USGS Elevation Ranges (feet)* | Snow load (psf) | Wind Speed |
|---|---|---|
| 5152-5999 | 30 | 115 Ultimate Wind Speed Exposure C |
| 6000-6499 | 35 | |
| 6500-6999 | 40 | |
| 7000-7499 | 45 | 130 Ultimate Wind Speed Exposure C |
| 7500-7999 | 50 | |
| 8000-8499 | 55 | |
| 8500-8999 | 60 | |
| 9000-9499 | 65 | |
| **Ground Snow Load = Roof Snow Load** | **Reductions for Snow Loads are Not Allowed** | |

*At top of foundation

**R302.13 Fire protection of floors.** **Delete section in its entirety**

**R310.1 Emergency escape and rescue openings required** **Delete exception (2)**

**R309.1 Townhouse automatic fire sprinkler systems** **Delete in its entirety and substitute**

An automatic residential fire sprinkler system *may* be installed in townhouses in accordance with Section P2904 or NFPA 13D.

**R309.2 One and two-family dwellings automatic fire sprinkler systems** **Delete section in its entirety and add**

Owner occupied lodging houses, bed and breakfast with five or fewer guest rooms and 10 or fewer total occupants permitted to be constructed in accordance with the International Residential Code shall be equipped with an automatic residential fire sprinkler system designed and installed in accordance with Section P2904 or NFPA 13D.

**R311.2.2 Alterations, repairs and additions** **Delete exception 2 and 3**

**R311.3 Location** **Delete in its entirety and substitute**

Carbon monoxide alarms in dwelling units shall be installed outside each separate sleeping area within 15 feet of each bedroom's entrance. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom.

**R319.4.1 Minimum size** **Add exception (2)**

**Exception 2.** In basements of existing R-3 (one- or two-family dwellings) occupancies, where existing egress window wells are retained, window wells may have a minimum horizontal projection of 24 inches (610mm) and must be the full width of the window. If a ladder is required in the window well, the ladder must be installed such that it does not interfere with or is in front of the operable side of the window.

**R401.2 Requirements** **Addition to the end of the subsection**

Based on soils reports for lots within the Dipping Bedrock Overlay District, as identified by the Colorado Geological Survey, the Building Official may require additional testing to determine the proper foundation design. Such additional testing may include, but are not limited to, testing for initial water content, initial dry density, grain size distribution, Atterberg Limits (liquid limit and plasticity index), percent swell and test load surcharge, swell pressure, penetration resistance (blow counts), and unconfined compressive strength.

**R401.3 Drainage** **Delete in its entirety and substitute**

Single-family detached dwelling units and accessory structures thereto, shall comply with the Douglas County Drainage, Erosion and Sediment Control (DESC) manual.

**R402.1 Wood foundations** **Delete in its entirety**

**R403.3 Frost-protected shallow foundations** **Delete in its entirety**

**R905.7 Wood shingles.** **Delete in its entirety**

**R905.8 Wood Shakes.** **Delete in its entirety**

**R908.7 Drip edge flashing for asphalt shingle roof** **Add New Subsection**

Drip edge flashing shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of drip edge shall be overlapped a minimum of 2 inches. Drip edges for eaves shall extend a minimum of 1.5 inches below the roof sheathing and extend up the roof deck a minimum of 4 inches. Drip edges for gables shall extend a minimum of .25 inches below the roof sheathing and extend up the roof deck a minimum of 2 inches. Drip edges shall be mechanically fastened to the roof deck at a maximum of 12 inches on center with fasteners as specified in Section R905.2.5. Underlayment shall be installed over the drip edge along eaves and under the drip edge on rakes/gables. Unless specified differently by the shingle manufacturer, shingles are permitted to be flush with the drip edge.

**R908.1 General** **Addition to the end of the subsection**

Roof drainage shall comply with the requirements of Section R801.3.

**R908.4 Roof recover** **Addition to exception (2)**

**Exception 2.** Where the existing roof covering is asphalt shingle, slate, clay, cement, or asbestos-cement tile.

**Chapter 11 Energy efficiency** **Delete Chapter in its entirety and substitute**

IRC Sections N1101 through N1113 (R505) in Chapter 11 are deleted in their entirety and replaced with a new section N1101 to read as follows:

SECTION 1101
GENERAL REQUIREMENTS

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

**N1101.2 Criteria.** Buildings shall be designed and constructed in accordance with the 2024 International Energy Conservation Code (IECC) as amended and adopted by Douglas County. The climate zone for unincorporated Douglas County is established as Zone 5B.

**G2406.2(303.3) (3) and (4) Prohibited locations** **Delete in their entirety**

**G2417.4.1 (406.4.1) Test pressure** **Delete section in its entirety and substitute**

**Test pressure and duration** Low pressure gas piping systems not exceeding six (6) inches of water column shall be tested at ten (10) pounds per square inch on a thirty (30) pounds per square inch gauge using air, CO2, or Nitrogen for not less than fifteen (15) minutes with no perceptible drop in pressure. For welded piping, and for piping carrying gas at pressures in excess of fourteen (14) inches (356 mm) water column pressure, the test pressure shall not be less than sixty (60) pounds per square inch (413.4 kPa) and shall be continued for not less than thirty (30) minutes with no perceptible drop in pressure.

**G2417.4.2 (406.4.2) Test duration** **Delete in its entirety**

**G2425.8 (501.8) (7) Appliances not required to be vented** **Delete in its entirety**

**G2433.1 (603.1) General** **Delete in its entirety and substitute**

Log lighters are prohibited.

**G2445 (621) Unvented room heaters** **Delete section in its entirety and substitute**

Unvented room heaters and unvented fireplaces are prohibited within a dwelling.

**Clarification:** IRC Sections G2425.8, G2445 and IFGC Sections 501.8(8), and 621 are deleted in their entirety and amended to prohibit the use of unvented room heaters and specifically unvented or ventless fireplaces. These are defined as appliances that have no flue collar or flue pipe associated with them and are designed to discharge all products of combustion through the front or face of the appliance and into the room or space being heated. It is the intent of the Building Official to prohibit the installation of these appliances inside dwellings or to provide heat to habitable spaces. However, these appliances may be installed in accordance with their listings and manufacturers specifications, outside or on patios with or without covers, with at least one open side that communicates directly with the atmosphere.

**Chapters 34 through 43**. **Delete Chapters in their entirety and substitute** Chapters 34 through 43 are deleted in their entirety and replaced by a new Chapter 34, General Requirements, which shall read as follows:

CHAPTER 34
GENERAL REQUIREMENTS

**E3401.1 Scope**. This chapter governs all electrical components, equipment and systems used in buildings and structures regulated by this code.

**E3401.2 Criteria.** All electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of NFPA 70 (National Electric Code, NEC), as amended and adopted by Douglas County.

## AMENDMENTS TO THE 2024 INTERNATIONAL BUILDING CODE (IBC)

Note: Refer to the section "Amendments common to all adopted International Codes" for more information.

**Appendix C -** Group U Agricultural Buildings **Adopt Appendix**

**Wildfire Mitigation Standards** **Adopt as an appendix**
Attached hereto, as "Exhibit B"

**Water Supply Standard for Rural Firefighting** **Adopt as an appendix**
Attached hereto, as "Exhibit C"

**Appendix Q– Solar Photovoltaic Power Systems** **Adopt as a new appendix**
Attached hereto, as "Exhibit E"

**101.1 Title** [NAME OF JURISDICTION] **Replace**
Douglas County Building Division **Insert**

**101.4.4 Property Maintenance** **Delete in its entirety**

**105.2(2) Work exempt from permit (Building)** **Delete item 2 and substitute**

2. Fences, other than swimming pool barriers, not over 7 feet high, unless electrically energized. All electrified fences shall require permitting and compliance with this code, the adopted National Electrical Code and International Fire Code as amended and adopted by Douglas County.

Work exempted from permit under Section 105.2 shall comply with the Douglas County Wildfire Resiliency Code when applicable.

**105.3(8) Application for permit** **Add a new section**

Soils testing shall be performed, and a Soils Report of the building site prepared by a professional engineer registered by the State of Colorado shall be submitted with the

application for a building permit. A professional engineer registered by the State of Colorado shall design the foundation in accordance with the Soils Report. When the building site is located in a hillside area or, in the opinion of the Building Official, is located in an area subject to geological hazards or steep slopes, the Building Official may require an engineering geologist, working within their field of expertise, to submit specific recommendations regarding the building site and the proposed location and design. Such recommendations shall include, but are not limited to, the relationships of site grading, structural integrity, site vegetation characteristics (or potential), location of septic drain fields, and protection of adjacent property.

**109 Fees** **Delete section and all subsections to fees in their entirety**

**110.3.1 Footing and foundation inspection** **Add to end of subsection**

Inspections shall be performed by a Colorado registered professional engineer. A sealed written report shall be provided to the Building Official of the results for these inspections by a Colorado registered professional engineer.

**111.1 Change of occupancy** **Add new exception**

2. Certificates of occupancy are not required for buildings and structures permitted under Section 312 Utility and Miscellaneous Group U.

**113 Means of Appeals** **Delete this section in its entirety**

**310.4.2 Lodging Houses.** **Delete in its entirety and substitute**

Owner-occupied lodging houses with five or fewer guest rooms and 10 or fewer total occupants shall be permitted to be constructed in accordance with the International Residential Code, provided an automatic sprinkler system is installed in accordance with IRC Section P2904 or that meets the requirements of NFPA 13D.

**1608.2 Ground snow loads** **Delete in its entirety and substitute**

Snow loads for portions of Douglas County outside of the Pike National Forest boundary shall be 30 pounds per square foot for an elevation up to 6,000 feet and shall increase 5 pounds per square foot for every 500-foot increment above 6,000 feet. Snow loads for all elevations above 8,000 feet shall be determined based on the Snow Load Design Data for Colorado recommendations prepared by the Structural Engineer's Association of Colorado. No reduction for ground snow load to flat roof snow load ($p_g = p_f$).

**1609.3 Basic design wind speed** **Delete in its entirety and substitute**

Risk Category II - Figure 1609.3(1) equals 115 miles per hour
Risk Category III - Figure 1609.3(2) equals 120 miles per hour
Risk Category IV - Figure 1609.3(3) equals 120 miles per hour
Risk Category I - Figure 1609.3(4) equals 105 miles per hour

**1609.4.3 Exposure categories** **Delete in its entirety and substitute**

The design wind exposure category for unincorporated Douglas County shall be Exposure C.

**1612.3 Establishment of flood hazard areas** **Delete in its entirety and substitute**

All flood hazard areas in unincorporated Douglas County shall be defined and governed by the Douglas County Zoning Resolution, Section 18, Floodplain – Overlay District.

**1803.2.1 Investigations required** **Add new subsection**

Based on soils reports for lots within the Dipping Bedrock Overlay District, as identified by the Colorado Geological Survey, the Building Official may require additional testing to determine the proper foundation design. Such additional testing may include, but is not limited to, testing for initial water content, initial dry density, grain size distribution, Atterberg Limits (liquid limit and plasticity index), percent swell and test load surcharge, swell pressure, penetration resistance (blow counts), and unconfined compressive strength.

**1809.5 Frost protection** **Addition as first sentence**

Frost depth for all areas of Douglas County shall be a minimum of 36 inches.

**3111.1 General** **Delete in its entirety and substitute**

Solar photovoltaic panels/modules shall comply with the requirements of this code, the 2026 National Electrical Code (or a subsequently adopted electrical code), and IBC Appendix Q (added herein).

## AMENDMENTS TO THE 2024 INTERNATIONAL PLUMBING CODE (IPC)

Note: Refer to the section "Amendments common to all adopted International Codes" for more information.

**Appendix E Sizing of Water Piping Systems** **Appendix E hereby adopted**

**101.1 Title** [NAME OF JURISDICTION] **Replace**

Douglas County Building Division **Insert**

**112 Means of Appeals** **Delete in its entirety**

**113 Board of Appeals** **Delete in its entirety**

**114.4 Violation penalties** **Delete in its entirety**

**115.4 Failure to comply** **Delete section and substitute**

Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law.

**305.4.1 Sewer depth** **Delete in its entirety**

**308.7.2 Hanger rods** **Add a new subsection**

**308.7.2 Hanger Rods**
Hanger rods shall be sized per Table 308.7.2(1)

**Table 308.7.2(1)**
**Minimum Hanger Rod Size**

| Pipe and Tube Size (inches) | Rod Size (inches) |
|---|---|
| 1/2 - 4 | 3/8 |
| 5 - 8 | 1/2 |
| 10 - 12 | 5/8 |

**903.1.1 Roof extension unprotected** **Delete in its entirety and substitute**
All open vent pipes that extend through a roof shall be terminated at least twelve (12) inches above the roof.

**1003.2.1 Municipalities or special districts** **Add a new subsection**
Regulations by the municipalities or special districts for wastewater into which the grease trap or interceptor effluent is transported and/or treated may supersede the requirements of Section 1003.

## AMENDMENTS TO THE 2024 INTERNATIONAL MECHANICAL CODE (IMC)

Note: Refer to the section "Amendments common to all adopted International Codes" for more information.

**101.1 Title** [NAME OF JURISDICTION] **Replace**
Douglas County Building Division **Insert**

**112 Means of Appeals** **Delete in its entirety**

**113 Board of Appeals** **Delete in its entirety**

**114.4 Violation penalties** **Delete in its entirety**

**115.4 Failure to comply** **Delete section and substitute**
Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law.

## AMENDMENTS TO THE 2024 INTERNATIONAL FUEL GAS CODE (IFGC)

Note: Refer to the section "Amendments common to all adopted International Codes" for more information.

**101.1 Title** [NAME OF JURISDICTION] **Replace**
Douglas County Building Division **Insert**

**103.1 [**INSERT NAME OF DEPT] **Replace**
Douglas County Building Division **Insert**

**112 Means of Appeals** **Delete in its entirety**

**113.4 Violation penalties** **Delete in its entirety**

**114.4 Failure to comply** **Delete section and substitute**
Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law.

**303.3(3) and (4) Prohibited locations** **Delete in their entirety**

**404.12 Minimum burial depth** **Delete and substitute**
Underground piping systems shall be installed at a minimum depth of eighteen (18) inches (457 mm) below grade.

**404.12.1 Individual outdoor appliances** **Delete in its entirety**

**406.4.1 Test pressure** **Delete and substitute**

**406.4.1 Test pressure and duration**
Low pressure gas piping systems not exceeding six (6) inches of water column shall be tested at ten (10) pounds per square inch on a thirty (30) pounds per square inch gauge using air, CO2, or Nitrogen for not less than fifteen (15) minutes with no perceptible drop in pressure. For welded piping, and for piping carrying gas at pressures in excess of fourteen (14) inches (356 mm) water column pressure, the test pressure shall not be less than sixty (60) pounds per square inch (413.4 kPa) and shall be continued for not less than thirty (30) minutes with no perceptible drop in pressure.

**406.4.2 Test duration** **Delete in its entirety**

**501.8 (8) Appliances not required to be vented** **Delete in its entirety**

**603.1 General** **Delete in its entirety and substitute**
Log lighters are prohibited.

**621 Unvented room heaters** **Delete section in its entirety and substitute**
Unvented room heaters and unvented fireplaces are prohibited within dwellings. (See clarification in the IRC amendments).

## AMENDMENTS TO THE 2024 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISPSC)

Note: Refer to the section "Amendments common to all adopted International Codes" for more information.

| | |
|---|---|
| **101.1 Title** [NAME OF JURISDICTION] | **Replace** |
| Douglas County Building Division | **Insert** |
| **109 Fees** | **Delete section and all subsections to fees in their entirety** |
| **112 Means of Appeals** | **Delete section in its entirety** |
| **114.4 Failure to comply** | **Delete section and substitute** |

Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law.

## AMENDMENTS TO THE 2024 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

Note: Refer to the section "Amendments common to all adopted International Codes" for more information.

| | |
|---|---|
| **101.1 Title** [NAME OF JURISDICTION] | **Replace** |
| Douglas County Building Division | **Insert** |
| **106 Fees** | **Delete section and all subsections to fees in their entirety** |
| **109 Means of Appeals** | **Delete section in its entirety** |
| **110.4 Failure to comply** | **Delete section and substitute** |

Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law.

| | |
|---|---|
| **C103.6.3 Systems operation control** | **Delete subsection in its entirety** |
| **R202 Definitions** | **Delete in their entirety and substitute** |

**RESIDENTIAL BUILDING**
For this code, includes single-family as defined in the IRC, R-3 buildings, as well as R-2 and R-4, buildings three stories or less in height above grade.

**EQUIPMENT ROOM**
A space that contains either electrical equipment, mechanical equipment, machinery, water pumps, or hydraulic pumps that are a function of the buildings' services.

**R401.3 Certificate** **Delete the first two sentences and substitute**

A permanent certificate shall be completed by the builder or permit holder and be posted on the return air plenum of the furnace where it is readily accessible. Where a return air plenum is not available, the certificate shall be posted in the area housing the mechanical equipment.

## AMENDMENTS TO THE 2026 NATIONAL ELECTRICAL CODE (NEC)

The National Electrical Code is published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts, 02169

**Article 210.23 (B) - 15- and 20-amp branch circuits**; Addition to the end of the subsection: In dwelling units, the general-purpose branch circuits for receptacles and lighting shall be limited to no more than (10) openings on a 15-amp circuit and no more than (12) openings on a 20-amp circuit. Branch circuits for lighting only shall not exceed 80% of the branch circuit rating. The calculated load shall be determined on the maximum allowable wattage of the fixtures.

**Article 210.52 (B) 3- Kitchen Receptacles Requirements;** Modify the first sentence to read: Receptacles installed in a kitchen to serve countertop surfaces shall be supplied by not fewer than two small appliance circuits, **these circuits shall have no more than four openings,** either or both of which shall also be permitted to supply receptacle outlets in the same kitchen or other rooms specified in 210.52 (B) (1).

**Article 215.4(A) 2 Informational Note #2 – Delete and substitute**

**Article 215.4(A) 2** Service Conductors and Feeder Conductors, as defined in Article 100, shall be sized to prevent a voltage drop exceeding 3 percent at the furthest termination and will provide reasonable efficiency of operation.

# Exhibit B

## WILDFIRE MITIGATION STANDARDS

### General

**(a). Purpose.** The provisions of this standard are intended to promote public safety and welfare by reducing the risk of fire-induced damages to property and the environment.

**(b). Scope.** This standard applies to all property, buildings and structures located within wildfire hazard areas as determined by the Wildfire Overlay District Map, site-specific analysis, and wildfire hazard assessment. Buildings or conditions in existence at the time of the adoption of this standard are allowed to have their use or occupancy continued, if such condition, use, or occupancy was legal at the time of the adoption of this standard.

**(c). Design and Construction.** The design and construction of buildings and structures located within the boundaries of a Wildfire Hazard Area shall be in accordance with the standard set forth below.

### Chapter 1 Introduction

**1-1** **Scope.** This standard presents minimum planning criteria for the protection of life and property from wildfire. It includes information on safe procedures and best practices at the wildland-urban interface or intermix.

**1-2** **Purpose**. The purpose of this standard is to provide criteria for fire agencies, land use planners, architects, developers, forestry consultants and local government for development in areas that may be threatened by wildfire.

**1-3** **Definitions**. For the purpose of this standard, the following terms have the meanings shown below:

**Access Routes.** Principal vehicular ingress and egress to a structure or through a development, crossing more than one parcel, including public and private roads, streets, and lanes, that extend to and intersect with a publicly maintained road, street, or lane.

**Accessory Building or Structure.** Any building or structure used incidentally to another building or structure or other allowed use, and which is located on the same lot or parcel.

**Aerial Fuels.** Standing and supported live and dead combustibles not in direct contact with the ground and consisting mainly of foliage, twigs, branches, stems, cones, bark, and vines.

**Approved.** Acceptable to the "authority having jurisdiction."

**Aspect.** Direction towards which the slope faces.

**Authority Having Jurisdiction.** The "authority having jurisdiction" shall be the Building Official and the Douglas County Office of Emergency Management. When matters of joint interest are involved, the Building Official or the Douglas County Office of Emergency Management may request referral comments from other organizations, offices, or individuals.

**Brush**. Shrubs and scrub vegetation or other vegetative growth heavier than grass but not full tree size.

**Building.** Any structure used or intended for supporting any use or occupancy.

**Classified Roof**. A roof constructed with a roof covering that is listed as meeting the requirements for Class A, B, or C roof covering materials (see NFPA 256, Standard Methods of Fire Tests of Roof Coverings).

**Combustible**. Any material that, in the form in which it is used and under the condition anticipated, will ignite and burn.

**Defensible Space.** An area either natural or man-made, where material capable of allowing a fire to spread unchecked has been treated, cleared, or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

**Development**. Any human made change to improved or unimproved real estate, including but not limited to buildings, structures, grading, excavation or any alteration to land, buildings or structures which falls under the purview of Douglas County's adopted regulations.

**Dwelling Unit**. Any building or structure or portion thereof that contains living facilities with provisions for sleeping, eating, cooking, and sanitation for not more than one family.

**Fire Hydrant**. A valved connection on a piped water supply system having one or more outlets and that is used to supply hose and fire department pumpers with water.

**Fuel Break**. An area, usually a long strip strategically located, wherein vegetative fuels are reduced in volume and maintained to cause a reduction of fire intensity if ignited by a wildland fire.

**Fuel Loading.** The volume of fuel in a given area, generally expressed in tons per acre.

**Fuel Modification**. The removal of fuels, increased spacing of individual plants, or reduction of fuel loading.

**Fuels**. All combustible materials within the wildland-urban Interface or wildland-urban intermix, including, but not limited to, vegetation and structures.

**Ground Fuels**. Any native or landscape vegetation not considered a tree and generally in contact with the ground, including, but not limited to, duff layer and loose surface litter.

**Home Ignition Zone.** The structure itself and everything around it up to a minimum of 100 feet unless limited by property boundaries.

**Listed**. Equipment or materials included in a list published by an organization acceptable to the "authority having jurisdiction" and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or materials and whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

**Noncombustible**. A material that, in the form in which it is used and under the conditions anticipated, will not aid combustion, or add appreciable heat to an ambient fire. Materials tested in accordance with Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750º C (1382º F), ASTM E 136, and conforming to the criteria contained in Section 7 of the referenced standard shall be considered non-combustible.

**Occupancy**. The purpose for which a building, or part thereof, is used or intended to be used.

**Residential Driveway**. A vehicular access for private use that serves one lot or parcel connecting a house, garage, or other allowed use, to the public or private road.

**Residential Shared Driveway.** A vehicular access for private use that may serve no more than three lots or parcels for the purpose(s) of ingress and egress to buildings, structures, or other allowed use.

**Roadway**. Any surface improved, designed, or ordinarily used for vehicular travel other than a private residential driveway or residential shared driveway as defined in this Standard.

**Slope**. Upward or downward incline or slant, usually calculated as a percent of slope [rise or fall per 100 feet of horizontal distance].

**Standard.** This Exhibit B, Douglas County Wildfire Mitigation Standards.

**Structure**. That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

**Traveled Way**. The portion of a roadway that provides for vehicular travel in all permitted directions.

**Turnaround**. A portion of a roadway or driveway unobstructed by parking, that allows for a safe reversal of direction for emergency equipment.

**Turnouts**. A widening in a roadway or driveway of sufficient length and width to allow vehicles to pass one another.

**Wildland/Urban Interface**. An area where development and wildland fuels meet at a well-defined boundary.

**Wildland-Urban Intermix.** An area where development and wildland fuels meet with no clearly defined boundary.

**Wildfire**. An unplanned and unwanted fire requiring suppression action; an uncontrolled fire, usually spreading through vegetative fuels but often threatening structures.

## Chapter 2 Wildland-Urban Interface and Wildland-Urban Intermix Analysis

**2-1 General.** The analysis of the wildland-urban interface or wildland-urban intermix will help identify and document local problem areas and guide the application of standards and establishment of priorities relative to fire danger.

**2-1.1 Scope.** The provisions of this chapter establish general requirements for wildfire hazard assessment, inspection, and analysis for development, new and existing buildings, structures, and premises located within the wildfire hazard area, as determined by the Wildfire Hazard Overlay District Map.

**2-1.2 Objective.** The objective of this chapter is to establish minimum requirements to reduce the likelihood of life and property loss due to wildland fire, reduce exposures from adjacent structures and to prevent structure fires from spreading to wildland fuels. The wildfire hazard assessment, inspection and analysis shall assess all applicable wildfire hazards and risks as they relate to the natural and built environments. Results of the assessment will establish minimum requirements for project development as it relates to land use applications, including 35 acre and larger developments and building permits.

**2-2 Analysis.** The authority having jurisdiction shall perform a wildland fire hazard assessment of all developments, existing or planned, to determine the amount of wildfire mitigation necessary. The analysis developed under the authority of this section shall be the basis for the implementation of fire conscious design and construction criteria. The analysis shall be based on a project-specific wildfire hazard assessment that includes considerations of location, topography, aspect, and vegetative fuel loading, as well as any existing developments.

**2-3 Analysis Components.** The analysis shall consider the following components:

(a) Wildland-urban interface or wildland-urban intermix boundaries

(b) Slope & Aspect

(c) Climatic Conditions

(d) Structure Building Materials

(e) Vegetative Fuels

(f) Neighborhood Scale Hazard Potential

**2-4 Assessing Fuel Hazards.** For purposes of this sub-paragraph, "fuel" means any combustible material, including petroleum-based products, cultivated landscape plants, grasses, weeds, and wildland vegetation. The amount of fuel modification necessary shall consider the flammability of the structure as affected by building material, building standards, location, and types of vegetation. Fuels shall be maintained and spaced in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. Fuels modification will be supported by available science, risk models and best practices, and shall be at the discretion of the Authority Having Jurisdiction.

**2-4.1 Assessment Relating to the Land-Use Process.** Development determined to be subject to the provisions of the Wildfire Hazard Overlay District and identified by wildfire mitigation staff as a significant wildfire hazard, must provide a Wildfire Mitigation or Forest Management Plan to be submitted by a professional forester, reviewed, and approved by Douglas County staff, and executed prior to the issuance of building permits within the development.

**2-4.2 Assessment Relating to the Building Permitting Process**. Each construction project permitted through the Building Division is subject to review under the adopted regulations. Any property undergoing development within the wildfire hazard area, as identified by the boundaries of the Wildfire Hazard Overlay District Map, whether new construction or modification to existing development, will require a wildfire hazard assessment from the Douglas County Office of Emergency Management. The assessment will examine the area within the first 100 feet from the edge of the built environment or to the property line, whichever comes first. The intensity of fuels management may vary within the 100-foot perimeter of the structure, with more intense fuel reductions being utilized between 5 and 30 feet around the structure, and an ember-resistant zone being required within 5 feet of the structure.

## Chapter 3 Fuel Modification Planning

**3-1 General.** This chapter will provide guidance in the mitigation measures associated with fuel hazards and special hazard conditions. Fuel modifications shall be the primary mitigation measure. New subdivisions or developments shall complete the hazardous fuel reduction and mitigation work outlined in the Douglas County approved forest management or wildfire mitigation plan submitted by the applicant, if required, prior to the issuance of building permits for structures within the development. The Douglas County Office of Emergency Management shall determine whether a wildfire mitigation or forest management plan is required based on current forest conditions

**3-2 Evaluation Factors**. As prescribed in Chapter 2 of this standard, a comprehensive assessment of the fuel hazard shall be made. Factors that shall be considered in the assessment include:

(a) Fuel-type identification

(b) Fuel loading (volume)

(c) Size of fuel bed (acres)

(d) Slope and aspect

**3-2.1 Fuel-type Identification**. All fuel, natural vegetation, as well as other flammable materials existing within the area shall be identified and rated as its potential to increase the hazard. The ease of ignition and ability to assist in the spread of fire are important factors.

**3-2.2 Fuel Loading**. The volume of fuels, both presently existing and likely to be present under expected development, shall be estimated and included on maps.

**3-2.3 Slope**. Percent of slope and aspect shall be determined and indicated during the assessment process.

**3-2.4 Fuel Modification.** The purpose of the fuel modification effort shall be to reduce the volume of vegetative fuel to protect structures from approaching wildfire as well as to reduce the potential for a structure fire from spreading to the wildland. The fuel modification shall be initially provided by the developer prior to building permit issuance for buildings or structures, through the implementation of a Douglas County approved wildfire mitigation or forest management plan and shall be maintained by the property owner. Additional fuel modification may be required when buildings or structures are proposed through the building permit process to create defensible space management zones around buildings or structures. The permit process will require the applicant to create and maintain defensible space of 100 feet from each side and from the front and rear of the structure or to the property line, whichever comes first.

**3-2.5 Maintenance of Defensible Space.**

**Responsibility.** Persons owning, leasing, controlling, operating, or maintaining buildings or structures are responsible for maintenance of defensible space. Fuels shall be maintained and spaced in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure including, but not limited to removing non-fire resistive vegetation and keeping leaves, needles and other dead vegetative material regularly removed from roofs of buildings and the area immediately adjacent to structures.

**Trees.** Prune tree branches extending to within 10 feet of any structure to maintain a minimum horizontal clearance of 10 feet. Prune tree branches within the defensible space to remove limbs located less than 10 feet above the ground surface adjacent to trees. Prune portions of tree branches that extend within 10 feet of the outlet of a chimney to maintain a minimum horizontal clearance of 10 feet.

**3-3 Defensible Space Management Zones**.

**Zone 1** is the area of maximum modification and treatment. It consists of an area of 5 feet around the structure in which all flammable native vegetation is removed. These 5 feet are generally measured from the outside edge of the building or structure's eaves and any attached structures, such as decks.

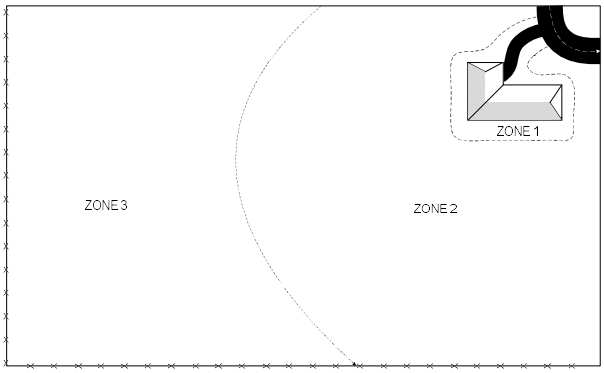



**Figure 3-3:** Forested property showing the three fire-defensible zones around a home or other structure.

**Zone 2** is an area of fuel reduction. It is a transitional area between zones 1 and 3. The defensible zone, or home ignition zone (HIZ) consisting of the home or structure itself, zone 1 and zone 2, shall extend at least 100 feet from the structure unless limited by property boundaries. Within this zone, the continuity and arrangement of vegetation is modified. The intensity of fuels management may vary within the 100-foot perimeter of the structure, with more intense fuel reductions being utilized between 5 and 30 feet around the structure. Examples of fuel modifications include but are not limited to removal of stressed, diseased, dead, or dying trees and shrubs; thinning and pruning the remaining larger trees and shrubs; extending thinning along either side of the driveway all the way to the main access road. These actions help eliminate the continuous fuel surrounding a structure while enhancing safety and the aesthetics of the property.

**Zone 3** is an area of traditional forest management and is of no particular size. It extends from the edge of the defensible space zone to the property boundaries.

**3-3.1 Modification of Fuel Types**. Where consistent with ecological factors, less fire-prone, native vegetation shall be encouraged.

**3-3.2 Reduction of Fuel Loading.** Trees and brush shall be cleared away from structures for a distance that is in accordance with section 3-3 to prevent ignition of either the structure or the vegetation, should the other burn. Vegetation existing away from the immediate area of the structure shall be thinned and pruned to prevent a fire from being carried toward or away from the structure. Annual grasses shall be mowed to 6 inches or less in accordance with Figure 6. Ground litter shall be removed annually. Over-mature, dead, and dying trees shall be evaluated as to their potential to ignite and to carry fire. All trees determined to contain such potential shall be removed.

**3-3.3 Mitigation of Slope and Aspect Impact**. Slope and aspect greatly affect the potential for carrying fire, and very little opportunity exists to modify them directly. Where the degree of slope or aspect is determined to affect the hazards, fuels will require a greater degree of modification or fuel breaks shall be required.

**3-3.4 Building Envelope Siting.** Building envelope siting shall comply with Chapter 3 of this standard. If proper building envelope siting cannot be or is not met as required by Chapter 3, the Building Official, in his or her sole discretion, may approve alternative mitigation methods to include, but not be limited to, private fire protection systems, classified siding, Class "A" roofing, or triple pane windows.

**Delete Chapter 4 in its entirety**

**Chapter 5 Emergency Water Supplies**

Where, in any specific case, the amount of water storage for rural fire fighting conflicts with International Fire Code, the Standard for Water Supplies for Rural Firefighting, attached hereto as Exhibit "C" shall govern.

**5-1 General.** This chapter describes the process by which provisions for emergency water supplies shall be evaluated, designed, constructed, and maintained.

**5-2 Notification.** The authority having jurisdiction shall be notified in writing before any water system is constructed, altered, or removed and before site development or construction of any structure commences so that fire protection can be evaluated and ample water supply capabilities pertinent to such construction can be established.

**5-3 Evaluation of Water Supply Needs.**

**5-3.1 Authority.** The fire protection agency having jurisdiction shall evaluate all buildings, proposed and existing, to obtain information required for computing minimum water supply. Information obtained from plans or on-site surveys and determinations made and recorded shall reflect the water supply category required. The computation of minimum water supplies for other than municipal, domestic, or fixed fire protection systems shall be in accordance with NFPA 1142 or other approved method.

**5-3.2 Design, Construction, and Maintenance.** Based upon the water supply evaluation, the authority having jurisdiction shall approve the design, construction, and maintenance of water supplies and distribution systems to ensure that the fire protection concerns have been addressed and adequate water supplies and access thereto have been provided.

**5-4 Minimum Water Supply Requirements.** Water shall be available to provide a minimum fire flow of two hundred fifty (250) gallons per minute for a two (2) hour duration in accordance with Exhibit C of this Resolution.

**5-5 Static Water Supplies.** The design and construction of and access to static water supplies shall be in accordance with NFPA 1142 or other approved method.

**5-6 Signage of Water Supplies.** When required by the authority having jurisdiction, each fire hydrant or access to water shall be identified as follows:

(a) A reflectorized marker, with a minimum dimension of three (3) inches, shall be located on the driveway address sign signifying the hydrant location and on a fire-retardant post located near the fire hydrant, and;

(b) A fire-retardant reflectorized sign with the words "DRAFT WATER" or "PRESSURE WATER" having letters a minimum of four (4) inches in height, with ½-inch stroke, reflectorized and contrasting to the background color, shall be located near the hydrant or access to water.

(c) The signpost shall be within three (3) feet of said fire hydrant or access to water, with the sign no less than three (3) feet nor greater than five (5) feet above the ground and visible from the driveway.

## Chapter 6 Structural Design and Construction

**6-1 General.** All proposed buildings or structures in the wildland-urban interface or the wildland-urban intermix shall be designed and constructed to comply with the requirements of this chapter and with this standard. All buildings and structures located in the National Forest shall be required to comply with the requirements of this chapter and with this standard. Agricultural properties, not located in a subdivision, shall have the applicability of this standard determined upon application for a building permit.

**6-1.1 Minimum Requirements.** Structures and developments in or adjacent to wildland fire hazard areas shall be located, designed, and constructed in a manner to minimize the possibility of ignition from a wildfire and to minimize the spread of a structural fire to the wildland.

**6-2 Roofing.** Only listed roof covering tested and rated in accordance with UL 790, NFPA 256, Standard Methods of Fire Tests of Roof Coverings; ASTM E 108, Standard Test Methods for Fire Tests of Roof Coverings; or equivalent, shall be used. Subdivision covenants, conditions, and restrictions shall not require the use of roof covering materials that do not meet this Standard.

**6-2.1 Wood Shakes and Wood Shingles.** Wood shakes and wood shingles are prohibited within the boundaries of the Wildfire Hazard Overlay District.

**6-2.2 Replacement or Repair of Roof Coverings.** The roof covering on buildings or structures in existence prior to the adoption of this standard that are replaced or have 100 square feet or more replaced in a 12-month period shall be replaced entirely with a roof covering required for new construction in accordance with Chapter 7 of this Standard.

**6-3 Vents.** Vents for attic and subfloor ventilation shall be screened with a corrosion-resistant, noncombustible wire mesh with the mesh not to exceed nominal 1/8 inches in size.

**6-4 Exterior Vertical Walls.** Exterior vertical walls shall be constructed of at least ½-inch nominal sheathing or equivalent material and shall extend from the top of the foundation to the roof line.

**6-5 Chimneys and Flues.**

**6-5.1 Outlet Screen.** Every chimney, flue, or vent shall be provided with an approved spark arrester consisting of 12-gauge welded or woven wire mesh not exceeding ½ inch.

**6-5.2 Construction.** Chimney or flue outlets shall be constructed with 10-foot clearance from all vegetation and obstructions.

**6-6 Manufactured Homes.** Manufactured homes shall meet all applicable construction and safety standards. Permanently located mobile and manufactured homes with an open space beneath shall be provided with full skirting constructed of noncombustible material or a fire resistive assembly having a minimum fire resistive rating of 20 minutes.

**6-6.1 Enclosed space beneath the mobile or manufactured homes.** Any enclosed space beneath the mobile or manufactured home shall be vented according to 7-3.

**6-7 Location of LP Fuel Storage Tanks**. Location of LP fuel storage tanks shall be in accordance with the International Fire Code.

## Chapter 7 Public Fire Prevention and Fire Safety Information and Education

**7-1 Information and Education Plan.** The authority having jurisdiction shall prepare a year-round fire prevention and fire safety public information/education plan. The plan, at a minimum, shall identify and analyze:

(a) Specific hazards

(b) Risks

(c) Fire causes

(d) Applicable prevention and safety programs

(e) Target audiences

(f) Activities.

The plan shall utilize a variety of communication techniques to achieve desired objectives.

## Chapter 8 Referenced Publications

**8-1** The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document.

### 8-1.1 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 1144, Standard for Reducing Structure Ignition Hazards from Wildland Fire 2018 edition

NFPA 1141, Standard for Fire Protection in Planned Building Groups, 2017 edition

NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting, 2022 edition

### 8-1.2 International Code Council

International Wildland-Urban Interface Code 2024 edition

### 8-1.2 Colorado State Forest Service

Standard for Creating and Maintaining the Home Ignition Zone - 2021

## Commentary on Defensible Space Zone Prescriptions

**Descriptions**

**Zone 1**

The size of Zone 1 is 5 feet, measured from the edges of the structure.

Remove all native vegetation from Zone 1 to reduce fire hazards. If you do keep a tree, consider it part of the structure, and extend the distance of the entire defensible space accordingly. Isolate the tree from any other surrounding trees. Prune it to at least 10 feet above the ground. Remove any branches that interfere with the roof or are within 10 feet of the chimney. Remove all "ladder fuels" from beneath the tree. Ladder fuels are vegetation with vertical continuity that allows fire to burn from ground level up into the branches and crowns of trees. Ladder fuels are potentially very hazardous but are easy to mitigate. No ladder fuels can be allowed under tree canopies. In all other areas, prune all branches of shrubs or trees up to a height of 10 feet above ground (or 1/2 the height, whichever is the least).

**Zone 2**

Zone 2 is an area of fuel reduction designed to reduce the intensity of any fire approaching a building or structure. Follow these management steps.

Thin trees and large shrubs so there are at least 10 feet between crowns. Crown separation is measured from the furthest branch of one tree to the nearest branch on the next tree (Figure 3).

On steep slopes, allow more space between tree crowns. (See Figure 4 for minimum required spacing for trees on steep slopes.) Remove all ladder fuels from under these remaining trees. Carefully prune trees to a height of at least 10 feet.

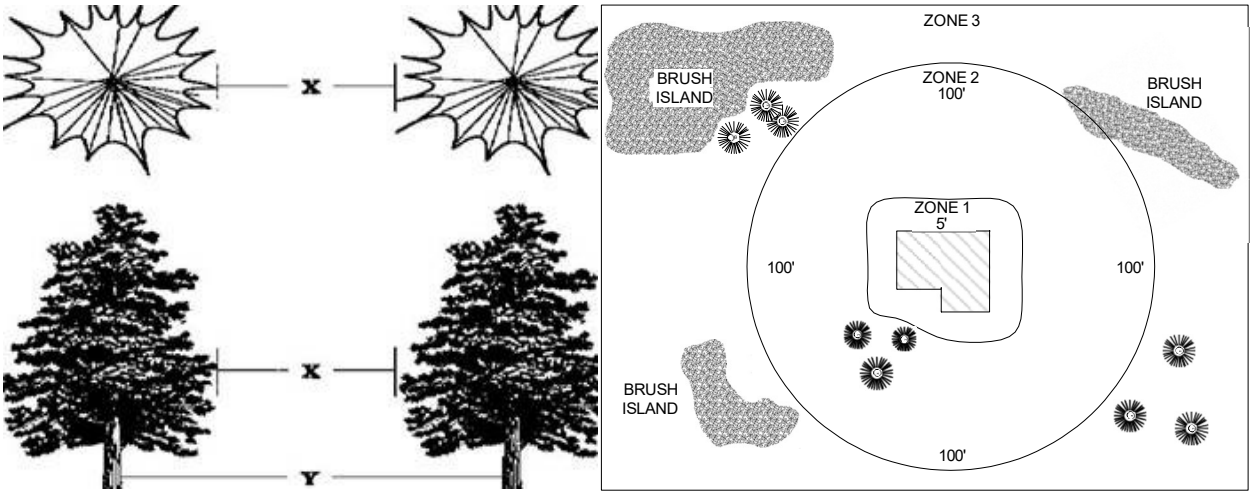



**Figure 1:** X = crown spacing; Y = stem spacing. Do not measure between stems for crown spacing, measure between the edges of tree crowns.

Small clumps of 2 to 3 trees may be occasionally left in Zone 2. Leave more space between the crowns of these clumps and surrounding trees.

Because Zone 2 forms an aesthetic buffer and provides a transition between zones, it is necessary to blend the requirements for Zones 1 and 3. Thin the portions of Zone 3 adjacent to Zone 2 more heavily than the outer portions.

**Zone 3**

This zone is of no specified size. It extends from the edge of the defensible space to the property lines.

Forest management in Zone 3 is an opportunity to increase the health and growth rate of the forest in this zone. Keep in mind that root competition for available moisture limits tree growth and ultimately the health of the forest.

A greater number of wildlife trees can remain in Zone 3. Make sure that dead trees pose no threat to power lines or vehicular access.

Mowing is not necessary in Zone 3.

Any approved method of slash treatment is acceptable for this zone, including chipping or lop-and-scatter.

**Grasses**

Keep dead, dry or curing grasses mowed to less than 6 inches. Defensible space size where grass is the predominant fuel can be reduced. Use Figure 4 when applying this practice.

**Figure 2:** Minimum tree crown and shrub clump spacing

| **% Slope** | Tree Crown Spacing | Brush and Shrub Clump Spacing |
|---|---|---|
| 0 -10 % | 10′ | 2 1/2 x shrub height |
| 11 - 20% | 15′ | 3 x shrub height |
| 21 - 40% | 20′ | 4 x shrub height |
| > 40% | 30′ | 6 x shrub height |

**Figure 3:** Minimum tree spacing for Zone 3.

**Tree Diameter Average Stem Spacing Between Trees**

| **(In inches)** | **(In feet)** |
|---|---|
| 3 | 10 |
| 4 | 11 |
| 5 | 12 |
| 6 | 13 |
| 7 | 14 |
| 8 | 15 |
| 9 | 16 |
| 10 | 17 |
| 11 | 19 |
| 12 | 21 |
| 13 | 23 |
| 14 | 24 |
| 15 | 26 |
| 16 | 28 |
| 17 | 29 |
| 18 | 31 |
| 19 | 33 |
| 20 | 35 |
| 21 | 36 |
| 22 | 38 |
| 23 | 40 |
| 24 | 42 |

**Figure 4:** Minimum defensible space size for grass fuels.

| % Slope | Defensible space size (uphill, downhill, sidehill) |
|---|---|
| 0 - 20 % | 30’ Feet |
| 21 - 40% | 50’ Feet |
| > 40% | 70’ Feet |

# Exhibit C

## STANDARD FOR WATER SUPPLIES FOR RURAL FIRE FIGHTING

TABLE OF CONTENTS

Section 1. Administration

1-1 Scope

1-2 Purpose

1-3 Referenced Criteria

1-4 Definitions

Section 2. Rural Water Supply Standard for One and Two-Family Dwellings

2-1 General

2-2 Cistern Design

2-3 Natural Bodies of Water

2-4 Water Supply Access

2-5 Testing and Maintenance

Section 3. Rural Water Supply Standard for Buildings Other Than One and Two-Family Dwellings

Appendix A

A-2-1 General

A-2-2 Cistern

A-2-3 Natural Bodies of Water

A-2-4 Testing and Maintenance

Figure (1) 45 Foot Radius

Figure (2) 20 Foot X 60 Foot Rectangle

Figure (3) Intersection

Appendix B

Dry Hydrant Manual, A Guide for Developing Alternative Water Sources for Rural Fire Protection; Chestatee- Chattahoochee Resource Conservation & Development Council of Gainesville, Georgia.

NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates explanatory material on that paragraph in Appendix A.

## Section 1 Administration

**1-1 Scope**.
This standard defines the minimum requirements for fire protection water supplies necessary for the protection of property in rural areas of Douglas County. This standard applies to new parcels in rural areas in which adequate and reliable water supplies do not exist and shall apply to all portions of unincorporated Douglas County. Douglas County subdivision regulations may require greater amounts of water storage. Where, in any specific case, the amount of water storage for rural fire fighting conflicts with the International Fire Code for Group R- 3 occupancies, the requirements of this chapter shall govern.

**1-2 Purpose**.
This standard specifies minimum requirements for water supply for firefighting purposes to protect property from fire in areas where water must be transported from a river, lake, canal, stream, pond, cistern, or other similar source of water that is available as a suction supply for fire department use. A hydrant served by a water distribution system shall be permitted to be the source of supply for water that is transported to the rural fire area.

It is the intent of this standard to provide and maintain water supplies for firefighting purposes through the establishment of a cooperative working arrangement among the Douglas County Fire Districts, the developers of rural parcels, and the property owners.

**1-3 Referenced Criteria**.
The fire protection water requirements in this standard are based in part on NFPA 1142, NFPA 1144, ISO Fire Suppression Rating Schedule, and the International Fire Code. The information from these publications was evaluated and incorporated into this minimum standard in a manner which accounted for the actual fire flow and storage amounts, the ability of Douglas County Fire Districts to utilize the water, the need to account for increased and more effective operations as the fire districts strive to obtain the improved fire insurance ratings for their citizens, and the existing but sometimes unrecorded or undeveloped natural water sources within Douglas County.

**1-4 Definitions.**
**Accessible**. A condition that allows for fire department vehicles to approach and connect to a water supply. It shall be an all-weather road surface, capable of supporting a 20-ton fire apparatus, and it shall be maintained during all weather conditions to assure unimpeded vehicular access every day of the year.

**Authority Having Jurisdiction (AHJ)**. The Douglas County Building Official shall be the "authority having jurisdiction".

**Cistern**. A water storage tank, usually underground and designed with positive pressure, designed to contain a designated volume of water and to permit the removal of water at no less than 1,000 gallons per minute.

**Dry Barrel Hydrant**. An outlet, for suction supply of fire protection water, connected to a cistern, which is designed with positive pressure and / or requires freeze protection. Dry barrel hydrants shall have a five (5) inch National Standard Thread (NST) outlet and be adapted for the

local fire district suction hose. Dry barrel hydrants shall meet the requirements of American Water Works Association (AWWA C502-85 Standard for Dry Barrel Hydrants).

**Dry Hydrant**. An outlet for suction supply of fire protection water connected to a natural body of water or cistern, which is designed without positive pressure or does not require freeze protection. Dry hydrants shall have a five (5) inch National Standard Thread (NST) outlet and be adapted for local fire district suction hose. Dry hydrants shall meet the requirements of the dry hydrant section of this standard and the Dry Hydrant Manual in Appendix B.

**Fire Flow**. The total amount of water expressed in volume at a prescribed rate (in gallons per minute) applied to suppress a fire and protect exposures.

**ISO**. The Insurance Service Office.

**Natural Body of Water**. A river, lake, canal, stream, or pond which, if upon evaluation is deemed acceptable during drought or freezing weather, could be utilized as a reliable and adequate source of water for fire protection.

## Section 2 Rural Water Supply Standard for One and Two-Family Dwellings

### 2-1* General.

The standard requires a water supply system which is capable of providing two hundred fifty (250) gallons per minute (GPM) fire flow, with water storage sufficient to maintain the fire flow for a duration of two (2) hours. The water storage shall not be more than two (2) miles travel distance from the vehicular entrance to any parcel served by the water storage site. The water storage facility shall be funded and installed by the developer/owner prior to construction of any structure within the development.

### 2-1.1 Water Supply Evaluation Criteria.

The Fire Districts within Douglas County shall perform a survey of all developed water supplies suitable for fire protection use within their respective jurisdictions. This information shall be compiled into a usable format and shall be kept in the office of the Building Official for Douglas County. All Fire Districts shall be responsible for providing updated information to the Building Official, to maintain a current County Water Supply Report.

When reviewing proposed developments, the Building Official shall consult with the Fire District for a joint review of existing water for fire protection, utilizing the County Water Supply Report. This review shall evaluate water supplies within the Fire District's jurisdiction as well as those located within the two (2) miles travel distance within neighboring jurisdictions. All currently recognized water supplies shall be credited when determining the need for and the placement of new water storage sites.

### 2-1.2 Application.

This standard shall apply to all new rural developments that contain or create four (4) or more residential parcels. Developments legally in existence at the time of the adoption of this standard, or new developments that contain or create less than four (4) residential parcels, and

additions or modifications to existing homes, are not required to provide minimum water supplies or upgrade existing water supplies to meet this standard.

**2-1.3 Design Approval.**
One (1) set of installation drawings, manufacturer's installation instructions, and a site plan shall be submitted to the Building Official for approval, and all permits required by Douglas County shall be obtained. All water storage systems shall be installed according to manufacturer's installation instructions. The Fire District and the Building Official may inspect the installation at any time.

**2-2* Cistern Design.**

**2-2.1 Tank Size.**
The minimum tank capacity shall not be less than thirty thousand (30,000) gallons. Two smaller tanks may be utilized in areas which may present unique installation problems. If two smaller tanks are installed, they must be connected to allow proper filling as well as discharge, and the combined capacity of both tanks shall not be less than thirty thousand (30,000) gallons.

**2-2.2 Tank Material.**
All water supply tanks shall be constructed of steel, fiberglass, plastic, or engineered concrete and shall be approved by the manufacturer to be appropriate for non-potable water storage. Steel tanks shall be coated and shall be provided with cathodic protection. Fiberglass and plastic tanks shall be constructed in accordance with appropriate ASTM Standards. Tanks and associated piping and appurtenances shall be new and have been used for no other purpose.

**2-2.3 Outlet Piping.**
All discharge piping shall be a minimum of six (6) inch diameter PVC Schedule Forty (40). Drain, waste and vent (DWV) pipe and fittings are not acceptable.

**2-2.4 Fittings.**
All fittings shall be of the type and schedule to be compatible with the piping being used.

**2-2.5 Tank Access.**
Tanks shall have a manhole or other approved means of access for tank inspection and repair. This access shall be capable of being closed and secured for purposes of safety.

**2-2.6 Tank Fill Valve.**
A tank fill valve shall be installed on the supply line from the well and shall be controlled by an approved tank level sensor that will ensure that the tank remains full.

**2-2.7 Suction Supply Outlet.**
All water supply cisterns shall have a minimum of one outlet that meets the size and design requirements of the local fire district. Cisterns designed with positive pressure and systems with

discharge pipes that require freeze protection shall have at least one Dry Barrel Hydrant. Cisterns designed without positive pressure shall have at least one Dry Hydrant.

**2-2.8 Tank to Outlet Line Valve.**
All water storage tanks designed with positive pressure shall have a valve between the tanks and the outlet pipe. This valve shall be capable of being manually operated from ground level.

**2-2.9 Tank Installation.**
Tanks shall be installed in accordance with manufacturer's recommendations. The tank shall be installed in a manner, which will prevent freezing and surface erosion.

**2-2.10 Pipe Installation.**
Piping shall be installed in accordance with manufacturer's recommendations. Piping shall be installed in a manner which will prevent freezing and surface erosion.

**2-2.11 Water Supply Easement.**
An easement shall be recorded to allow the Fire District to repair, use, and maintain the water storage facility.

**2-2.12 Water Use Agreement.**
An agreement shall be signed and recorded, encumbering the property, granting the Fire District the perpetual right to utilize the water for the fire protection needs of the property to be served.

**2-2.13 Well.**
A well, installed in accordance with the requirements of the Colorado Division of Water Resources shall be connected to a cistern to maintain the fill level. The well may be a low volume (15 GPM) and shall be connected to the tank in an appropriate manner.

**2-3* Natural Bodies of Water.**

**2-3.1 Outlet Piping.**
All discharge piping shall be a minimum of six (6) inch diameter PVC Schedule Forty (40). Drain, waste and vent (DWV) pipe and fittings are not acceptable.

**2-3.2 Fittings.**
All fittings shall be of the type and schedule to be compatible with the piping being used.

**2-3.3 Suction Supply Outlet**.
All natural bodies of water utilized for fire protection water supplies shall have a minimum of one outlet that meets the size and design requirements of the local fire district. Natural bodies of water designed with positive pressure and systems with discharge pipes which required freeze protection shall have a minimum of one Dry Barrel Hydrant. Natural bodies of water with suction outlets designed without positive pressure shall have at least one Dry Hydrant.

**2-3.4 Pipe Installation.**
Piping shall be installed in accordance with manufacturer's recommendations. Piping shall be installed in a manner, which will prevent freezing and surface erosion.

**2-3.5 Water Supply Easement.**
An easement shall be recorded to allow the Fire District to repair, use, and maintain the water supply facility.

**2-3.6 Water Use Agreement.**
An agreement shall be signed and recorded, encumbering the property, granting the Fire District the perpetual right to utilize the water for the fire protection needs of the property to be served.

**2-4* Water Supply Access.**
The water supply site shall be accessible from a public or private roadway.
A fire apparatus pullout shall be connected to the roadway and constructed to permit fire apparatus to position for water removal and to permit tenders to be filled and turned around. The pullout shall be designed as a forty-five (45) foot radius or twenty (20) foot by sixty (60) foot rectangular area with the water supply hydrant outlet located at the apex of the radius or the centerline of a rectangle. The outlet shall be located not more than eight (8) feet or less than six (6) feet from the edge of the all-weather surface. Two steel posts (bollards) shall be placed at the edge of the all-weather surface to protect the hydrant.

**2-5* Testing and Maintenance.**

**2-5.1 Testing.**
Acceptance testing shall be performed jointly by the Building Official and the Fire District whenever possible, prior to the construction of any structures within the development served by the water storage facility. Acceptance testing shall include vacuum test of draft piping, pressure testing at fifty (50) pounds per square inch for pipes in those systems designed with head pressure, and a flow test.

After acceptance, each water storage location shall be checked periodically, and reports kept by the Fire District. Fire Districts should establish a program for testing and maintenance of water supply facilities within their jurisdiction.

**2-5.2 Maintenance.**
The Fire District shall be responsible to ensure the operational readiness of the water supply facility. The Fire District may choose to delegate the cost and responsibility of the water system maintenance to an organization other than the Fire District. In such case the Fire District shall stipulate to a maintenance agreement, which must be reviewed and approved by Douglas County, that ensures the operational readiness and continued maintenance of each water supply facility.

## Section 3 Rural Water Supply Standard for Buildings Other Than One and Two-Family Dwellings

**3-1 General.**
The required fire flow for buildings other than one and two-family dwellings shall be in accordance with the International Fire Code as amended.

**3-2 Application.**
Fire flow requirements may be modified when agreed upon by the fire code official and the building official. The Douglas County Standard for Water Supplies for Rural Fire Fighting, NFPA 1141, NFPA 1142, ISO Fire Suppression Rating Schedule or other approved method may be utilized to determine fire flow requirements.

## APPENDIX "A"

**A-2-1 General.**
The application of this standard will, over a period of time, ensure adequate fire suppression water supplies for a large portion of Douglas County. The standard uses a systems approach to fire protection water supply requirements by encouraging a uniform application of these requirements. The installation of standard water supplies, in developed areas of the county, enhances the operation of mutual and auto aide companies in routine and conflagration fires. The use of a uniform standard by all fire districts can diminish the review problems encountered by fire personnel, planners, and developers.

**Fire Flow.**
The minimum fire flow requirement is two hundred fifty (250) GPM based on the Fire Districts ability to transport water using their equipment. The ability to increase the fire flow from two hundred fifty (250) GPM to five hundred (500) GPM or more can be accomplished by utilizing auto aid or additions of tenders by the Fire District.

The two hundred fifty (250) GPM is recognized by ISO as the minimum fire flow necessary for credit as a protected property (Class 9) and a strong argument can be made for all Douglas County Fire Districts ability to apply the available fire flow to the fire. An analysis of response times for arriving engines and tankers can demonstrate the initial ability to utilize a fire flow of two hundred fifty (250) GPM. As other apparatus arrives from more distant locations, including auto aide water hauling tenders, increases in fire flow can be expected and utilized.

**Water Storage.**
Water for fire protection can utilize either stored water in an underground tank (cistern) or by access to a natural body of water. The minimum amount of water storage is thirty thousand (30,000) gallons, which translates into two (2) hours of the minimum fire flow.

The storage of two (2) hours of fire flow is an accepted fire service standard (IFC Appendix B) and is substantiated by the minimum requirements of the insurance standard. The resulting cistern size of thirty thousand (30,000) gallons works well in a system approach to suppression water. Natural Bodies of Water offer an excellent source for fire protection.

The initial use of the closest water source to develop two hundred fifty (250) GPM may be supplemented by more distant sources by auto aid water hauling tenders. The use of more water storage sites may become a necessary requirement to relieve congestion at a single water storage site used to fill tenders at a set rate.

**Travel Distance.**
The maximum travel distance shall be two (2) miles from the water source (cistern or natural body of water) to each parcel. The travel distance is computed using ISO formulas for time and distance based on average speed of thirty-five (35) miles per hour. Since rural operations often involve standard operations, which account for long driveways, the driveways are not included. The maximum travel distance of two miles limits the total travel to four miles round trip and places the thirty thousand (30,000) gallon cisterns every four miles. The limit of four travel miles, round trip, encourages developers to ensure an effective roadway network with connections that maximizes the effectiveness of each water storage site.

**A-2-2 Cistern Design.**
Cisterns shall be built to hold thirty thousand (30,000) gallons and installed with a low volume well, less than fifteen (15) gallons per minute to maintain the water level once the cistern is full. An all-weather road shall accommodate access to engines and tenders and provide a hydrant (wet or dry) with standardized NST connections installed with head pressure whenever possible. The well can be utilized for domestic water supply to a building site, which is encouraged. The daily use of the well helps to ensure it's in service operation and does not compromise the ability to maintain the water level in the cistern. The developer must grant an easement on the building site, which best serves, the area as the cistern location. An agreement for reimbursement of cost to operate the well for large usage can be arranged with the homeowner, while incidental "topping off" is paid for by the daily user of the well.

**A-2-3 Natural Bodies of Water.**
The use of natural bodies of water requires a field survey which:

- Measures the potential for fire protection water availability every date of the year
- Measures the useful depth of the water as a function of draftable height to the pump intake
- Studies flow characteristics during each of the annual weather seasons for a stream or river source
- Addresses the ability to install an accessible hydrant

The Dry Hydrant Manual referenced in Appendix B provides detailed checklists for the field survey and the draftable limits in feet as function of elevation as designated by the Colorado State Forest Service.

**A-2-4 Water Supply Access.**
The access specified in Section 2-4 can be accomplished by utilizing different designs provided that the design accommodates an unobstructed area, located outside of the traffic lanes, and permits fire engine connection to the outlet and clearance to accommodate tender approach hose connection, and turn around. See examples in Figures 1 through 3.

**A-2-5 Testing and Maintenance.**
It is important for the Fire District not only to require the proper placement and design of water storage facilities, but also to ensure the continued operational effectiveness. As additional water supplies are installed, the Fire District must formulate a plan to address the future maintenance of the facilities. The standard allows the Fire District many options to meet this end. For example, the Fire District may choose to allow the well serving a facility to be utilized for the domestic needs of the parcel on which the storage facility is located. By doing so, the Fire District has ensured the continued daily function of the well at no cost to the Fire District and has provided an economic incentive to the developer and/or property owner. The balance of the water supply system should be relatively cost effective as little or no maintenance is required on a properly designed and installed system. The standard will allow and encourage creative and individual methods for Fire Districts to address the maintenance requirements of a growing number of water supply facilities located within their jurisdiction.

## APPENDIX "B"

Dry Hydrant Manual, A Guide for Developing Alternative Water Sources for Rural Fire Protection; Chestatee-Chattahoochee Resource Conservation & Development Council of Gainesville, Georgia. Copies are available by contacting the Franktown District of the Colorado State Forest Service; P.O. Box 485; Franktown, Colorado 80116. Telephone (303) 660-9625. Copies are also available at the Douglas County Building Division.

# Exhibit D

## INSTALLATION STANDARDS FOR POTABLE WATER STORAGE TANKS AND CISTERNS FOR DOMESTIC USE IS - 22 – 98

This standard shall govern the installation of potable water storage tanks and underground cisterns for domestic water use in dwellings. This standard includes both interior and exterior underground installations and establishes minimum standards for installation. Interior installations are recommended because they are more suitable for periodic inspection and maintenance by the homeowner.

This standard shall be utilized only when a reliable source of water is not available. In areas where wells are the primary source of water, a well test shall be performed to indicate the gallons per minute flow from the well. If the well fails to produce water or the flow is deemed inadequate by the authority having jurisdiction, only then shall this standard be utilized.

This standard shall apply to all new dwellings and additions or alterations where bedrooms are being added. In cases where existing wells are being used, a well test must be performed to indicate the gallons per minute flow from the well.

**301.1 Minimum Standards.**

301.1.1 Potable water above ground storage tanks and underground cisterns shall be of materials that are listed for potable use and approved by FDA Title 21, NSF, or AWWA. Steel and concrete tanks must be properly prepared and painted on the inside using an NSF epoxy paint. Additionally, underground steel tanks must be asphaltic coated, or epoxy coated on the outside to retard rusting.

301.1.2 Concrete cisterns or vaults shall be of such design that there are no seams below the fill line of the tank or vault. Concrete cisterns or vaults shall be properly prepared and coated on the inside using an NSF approved epoxy paint.

301.1.3 All piping, fittings, and valves must meet the mandatory referenced standards included in Chapter 14 of the 2024 International Plumbing Code.

301.1.4 The minimum capacity of water storage required for a single-family dwelling shall be based upon a formula using 80 gallons of water per day, per person. Homes served by wells producing less than .5 gallons per minute shall be sized for a minimum 5-day supply. Homes served by wells producing .5 gallons per minute and greater shall be sized for 3-day supply. The number of persons shall be based on a bedroom count assuming that the first bedroom will count for two people and additional bedrooms counting for one person (i.e., 3-bedroom house counts for 4 people and requires 960 gallons storage if gpm is .5 gpm or greater and 1600 gallons of storage if less than .5 gallons). The actual storage capacity of the pressure tank and the water heater may be taken into consideration for the total amount of water storage required.

301.1.5 Buried tanks shall be placed upon and completely surrounded with pea gravel or other manufacturer's approved material and shall not be less than 12 inches in thickness at any point.

301.1.6 All tanks shall be placed in a fashion to permit periodic maintenance, inspection, and repair. This shall include, but not be limited to:

1) Minimum 22 inches manway access into the cistern.

2) Vent piping to the atmosphere must be brass-screened mesh #24 and terminate not less than 36 inches above grade.

3) All connections of wet piping to the cistern shall be made with approved flexible couplings permitting independent movement of the tank due to seismic activity or shrink/swell movement of the soils.

301.1.7 Cisterns shall be located at least 25 feet from buildings, 50 feet away from sewer lines or septic tanks, and at least 100 feet from sewage disposal field.

301.1.8 No structure or traffic path may be constructed over a buried tank system unless required and must be approved by the tank manufacturer.

301.2 All installations shall conform to applicable codes and regulations adopted by the jurisdiction and shall be reviewed for compliance and approved by the Building Official prior to commencement of work.

301.3 Water storage cisterns and associated piping shall not be used for bonding of the electrical system. An alternative method of bonding, compatible with the most current edition of the National Electrical Code shall be used.

301.4 All such systems and associated piping shall be cleaned and sanitized prior to being placed into service.

301.5 All storage vessels shall be new and have been used for no other purpose.

301.6 All systems shall be capable of being filled from an outside source.

301.7 All systems shall be tested for leaks by filling the system with water. No system shall be tested using air pressure (hydrostatic). The test shall incorporate the use of either the vent pipe or fill pipe as a water column with no increase or decrease of more than one inch in the water column over a 24-hour period.

**302.1 Interior Water Storage.**

302.1.1 Interior spaces where water storage tanks are located shall be a conditioned space to prevent freezing. Tanks and piping shall be accessible for removal, replacement,

inspection, and repair. Interior spaces where tanks are located shall be provided with a floor drain. Pumps, pressure vessels, controls, and associated equipment shall be listed by an approved testing agency and approved by the Building Official.
302.1.2 Tanks shall be securely mounted into position. Vertical, upright positioned tanks exceeding 5 feet in height shall be provided with at least two wall mounted supports, one at the top and one at the bottom of the tank.

**303.1 Exterior Buried Cisterns.**

303.1.1 Exterior buried vessels shall be positioned at least one foot below frost line. The average frost line in Douglas County has been established at 36 inches. A minimum 22" diameter manway and extension with gasketed, bolted cover shall extend to 6 inches above grade for service and maintenance.

303.1.2 Penetrations of the cistern walls, connections, or joints of any kind in any buried cistern for piping and manways shall incorporate the use of flanged, bolted connections.

**Explanatory Notes.**

Tanks and cisterns are an acceptable means of providing water to a residence where the water well may be a low producing well or in cases where wells have become non-producing. This should not be considered an alternative to being served by a water district or other reliable source of water.

Locating storage tanks within a conditioned space should be strongly considered to eliminate the need for frost protection. The system can be installed in a multiple tank configuration, which allows the owner or occupant the opportunity to clean and provide maintenance on one tank at a time without taking the entire potable water system out of service. Inside translucent polyethylene tank systems can be more easily monitored for visual volume and quality of the water that is being used. Any type of system will eventually accumulate silt particles in the bottom of the tank over a period of time. Exterior buried systems will be much more difficult to clean and maintain and likely will have a higher silt accumulation over a period of time when compared to inside installations.

Water quality should be checked at regular intervals. Water should be tested for bacteria and other harmful waterborne agents. Bacteria or minerals can usually be removed or destroyed with proper treatment technology should such a situation be identified after testing.

Individuals may find that the minimum amount of water storage required by regulation is insufficient and may want to install a larger capacity storage tank. Consideration should also be taken into account that you may see a reduction in the quality of water that has been stored for too long a period of time.

Another issue that should be considered is pump protection for low producing wells. Well pumps can be wired into protective switches that shut off the pump when the pump is running free (i.e., not pumping water because there is no water to pump). Such a condition can shorten the life of a

pump and replacement of a well pump usually involves pulling the pump, which can be expensive, even with a shallow well.

**Exhibit E**

**<u>2024 IBC Appendix Chapter Q</u>**

**Section Q-1205 Solar Photovoltaic Power Systems**

**Q-1205.1 General.** Solar photovoltaic (PV) systems shall be installed in accordance with the *International Building Code* or *International Residential Code*. The electrical portion of solar PV systems shall be installed in accordance with NFPA 70. Rooftop-mounted solar photovoltaic systems shall be installed in accordance with Sections 1205.2 through 1205.4.3. Ground-mounted solar photovoltaic systems shall comply with Section 1205.5.

**Q-1205.2 Access and pathways.** Roof access, pathways and spacing requirements shall be provided in accordance with Sections 1205.2.1 through 1205.3.3. Pathways shall be over areas capable of supporting fire fighters accessing the roof. Pathways shall be located in areas with minimal obstructions, such as vent pipes, conduit, or mechanical equipment.

**Exceptions:**

(1) Detached, non-habitable Group U structures including, but not limited to, detached garages serving Group R-3 buildings, parking shade structures, carports, solar trellises, and similar structures.

(2) Roof access, pathways and spacing requirements need not be provided where the *fire code official* has determined that rooftop operations will not be employed.

(3) Building-integrated photovoltaic (BIPV) systems where the BIPV systems are *approved*, integrated into the finished roof surface, and are *listed* in accordance with a national test standard developed to address Section 690.12(B)(2) of NFPA way of portions of the PV system during fire-fighting operations shall expose a fire fighter to electrical shock

**Q-1205.2.1 Solar photovoltaic (PV) systems for Group R- 3 buildings.** Solar photovoltaic (PV) systems for Group R-3 buildings shall comply with Sections 1205.2.1.1 through 1205.2.3.

**Exceptions:**

1. These requirements shall not apply to structures designed and constructed in accordance with the *International Residential Code*.
2. These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.7-percent slope) or less.

**Q-1205.2.1.1 Pathways to ridge.** Not fewer than two 36- inch-wide (914 mm) pathways on separate roof planes, from lowest roof edge to ridge, shall be provided on all buildings. Not fewer than one pathway shall be provided on the street or driveway side of the roof. For each roof plane with a photovoltaic array, not fewer than one 36-inch-wide (914 mm) pathway from lowest roof edge to ridge shall be provided on the same roof plane as the photovoltaic array, on an adjacent roof plane or straddling the same and adjacent roof planes.

**Q-1205.2.1.2 Setbacks at ridge.** For photovoltaic arrays occupying 33 percent or less of the plan view total roof area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the

plan view total roof area, a setback of not less than 36 inches (457 mm) wide is required on both sides of a horizontal ridge.

**Q-1205.2.1.3 Alternative setbacks at ridge.** Where an *automatic sprinkler system* is installed within the *dwelling* in accordance with Section 903.3.1.3, setbacks at the ridge shall conform to one of the following:

1. For photovoltaic arrays occupying 66 percent or less of the plan view total roof area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge.
2. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, a setback of not less than 36 inches (914 mm) wide is required on both sides of a horizontal ridge.

**Q-1205.2.2 Emergency escape and rescue openings.** Panels and modules installed on Group R-3 buildings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening. A pathway of not less than 36 inches (914 mm) wide shall be provided to the emergency escape and rescue opening.

**Q-1205.2.3 Building-integrated photovoltaic (BIPV) systems.** Where building-integrated photovoltaic (BIPV) systems are installed in a manner that creates areas with electrical hazards to be hidden from view, markings shall be provided to identify the hazardous areas to avoid. The markings shall be reflective and be visible from grade.

> **Exception:** BIPV systems *listed* in accordance with Section 690.12(B)(2) of NFPA 70, where the removal or cutting away of portions of the BIPV system during fire-fighting operations have been determined to not expose a fire fighter to electrical shock hazards.

**Q-1205.3 Other than Group R-3 buildings.** Access to systems for buildings, other than those containing Group R-3 occupancies, shall be provided in accordance with Sections 1205.3.1 through 1205.3.3.

> **Exception:** Where it is determined by the *fire code official* that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 1205.2.1.1 through 1205.2.1.3 are a suitable alternative.

**Q-1205.3.1 Perimeter pathways.** There shall be a mini- mum 6-foot-wide (1829 mm) clear perimeter around the edges of the roof.

> **Exception:** Where either axis of the building is 250 feet (76 200 mm) or less, the clear perimeter around the edges of the roof shall be permitted to be reduced to a minimum width of 4 feet (1219 mm).

**Q-1205.3.2 Interior pathways.** Interior pathways shall be provided between array sections to meet the following requirements:

1. Pathways shall be provided at intervals not greater than 150 feet (45 720 mm) throughout the length and width of the roof.
2. A pathway not less than 4 feet (1219 mm) wide in a straight line to roof standpipes or ventilation hatches.

3. A pathway not less than 4 feet (1219 mm) wide around roof access hatches, with not fewer than one such pathway to a parapet or roof edge.

**Q-1205.3.3 Smoke ventilation.** The solar installation shall be designed to meet the following requirements:

1. Where non-gravity-operated smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide shall be provided bordering all sides.
2. Where gravity-operated dropout smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide on not fewer than one side.
3. Smoke ventilation options between array sections shall be one of the following:
   - 3.1. A pathway not less than 8 feet (2438 mm) wide.
   - 3.2. A pathway not less than 4 feet wide bordering 4-foot by 8-foot venting cutouts every 20 feet (6096mm) on alternating sides of the pathway.

**Q-1205.4 Buildings with rapid shutdown.** Buildings with rapid shutdown solar photovoltaic systems shall have permanent labels in accordance with Sections 1205.4.1 through 1205.4.3.

**Q-1205.4.1 Rapid shutdown type.** The type of solar photovoltaic system rapid shutdown shall be labeled with one of the following:

1. For solar photovoltaic systems that shut down the array and the conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of 3/8 inch (10 mm) in black on a yellow background. The remaining characters shall be uppercase with a minimum height of 3/16 inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1205.4.1(1) and state the following:

   SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY.

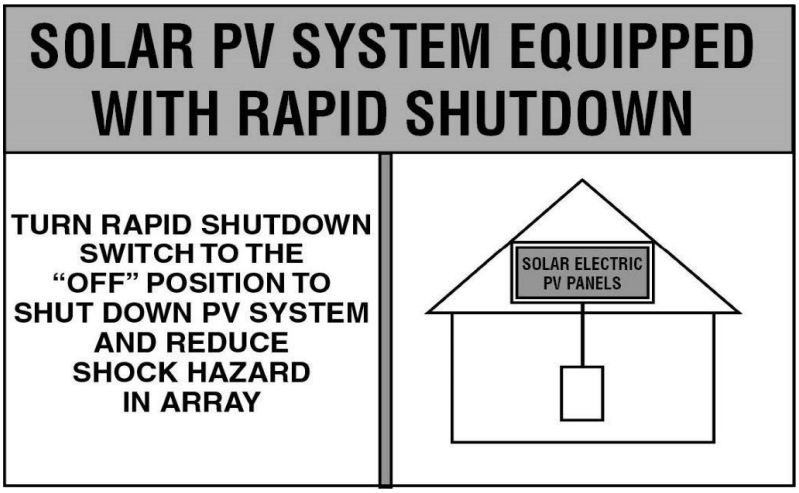



**FIGURE 1205.4.1(1)**
**LABEL FOR SOLAR PV SYSTEMS THAT REDUCE SHOCK HAZARD WITHIN ARRAY AND SHUT DOWN CONDUCTORS LEAVING ARRAY**

2. For photovoltaic systems that only shut down conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of 3/8 inch (10 mm) in white on a red background and the remaining characters shall be capitalized with a minimum height of 3/16 inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1205.4.1(2) and state the following:

THIS SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN ARRAY REMAIN ENERGIZED IN SUNLIGHT.

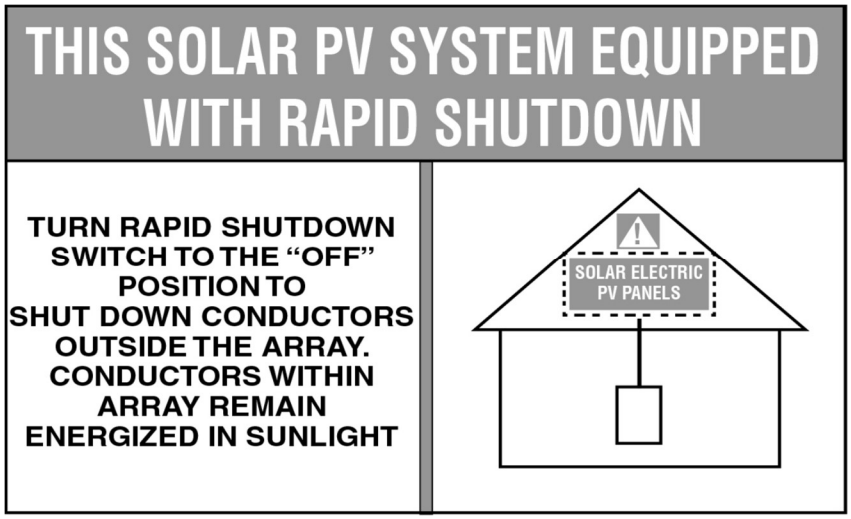



**FIGURE 1205.4.1(2)**
**LABEL FOR SOLAR PV SYSTEMS THAT ONLY SHUT DOWN CONDUCTORS LEAVING ARRAY**

**Q-1205.4.1.1 Diagram.** The labels in Section 1205.4.1 shall include a simple diagram of a building with a roof. Diagram sections in red signify sections of the solar photovoltaic system that are not shut down when the rapid shutdown switch is turned off.

**Q-1205.4.1.2 Location.** The rapid shutdown label in Section 1205.4.1 shall be located not greater than 3 feet (914 mm) from the service disconnecting means to which the photovoltaic systems are connected and shall indicate the location of all identified rapid shutdown switches if not at the same location.

**Q-1205.4.2 Buildings with more than one rapid shutdown type.** Solar photovoltaic systems that contain rapid shutdown in accordance with both Items 1 and 2 of Section 1205.4.1 or solar photovoltaic systems where only portions of the systems on the building contain rapid shutdown, shall provide a detailed plan view diagram of the roof showing each different photovoltaic system and a dotted line around areas that remain energized after the rapid shutdown switch is operated.

**Q-1205.4.3 Rapid shutdown switch.** A rapid shutdown switch shall have a label located not greater than 3 feet (914 mm) from the switch that states the following:

**Q-1205.5 Ground-mounted photovoltaic panel systems.** Ground-mounted photovoltaic panel systems shall be installed in accordance with this section. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays.

**Q-1205.5.1 Vegetation control.** A clear, brush-free area of 10 feet (3048 mm) shall be required around the perimeter of the ground-mounted photovoltaic arrays. A noncombustible base of gravel or a maintained vegetative surface or a noncombustible base, *approved* by the *fire code official*, shall be installed, and maintained under the photovoltaic arrays and associated electrical equipment installations.

**Exhibit F**

COLORADO
Energy Office

# Colorado Model Electric Ready and Solar Ready Code

Published: June 1, 2023

COLORADO
Department of Local Affairs

# Chapter 1 Scope and Administration

## SECTION 101 SCOPE AND GENERAL REQUIREMENTS.

**101.1 Title.** This code shall be known as the **Electric Ready and Solar Ready Code** of Douglas County and shall be cited as such. It is referred to herein as "this code".

**101.2 Scope.** This code applies to all buildings and dwelling units, and the buildings' sites and associated systems and equipment.

**101.3 Intent.** This code shall regulate the design and construction of buildings to prepare new buildings for solar photovoltaic or solar thermal, electric vehicle charging infrastructure, and electrification of building systems. This code is intended to provide flexibility and balance upfront construction costs with the future cost to retrofit buildings to accommodate these systems. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

**101.4. Applicability.** Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

> **101.4.1 Residential Buildings.** *Residential buildings* must comply with the Residential Chapters of this code.
>
> **101.4.2 Commercial Buildings.** *Commercial buildings* must comply with the Commercial Chapters of this code.

## SECTION 102 WAIVER AND VARIANCE.

**102.1 Scope.** The following waivers shall be permitted to be requested if buildings meet the following requirements.

> **102.1.1 Commercial Buildings Greater than 10,000 sq. ft.** *Commercial buildings* that have a gross floor area greater than 10,000 sq. ft. shall be eligible to request a partial waiver to the requirements of this code if they meet the requirements of Section **102.2**.
>
> **102.1.2 Buildings Impacted by a Natural Disaster.** Douglas County Building Division is permitted to authorize, upon appeal in specific cases, a waiver from the requirements of this code where, owing to a declared natural disaster that has destroyed buildings or resulted in other exceptional and extraordinary circumstances as determined by Douglas County Building Division, and Douglas County Building Division determines enforcement of the provisions of this code will result in unnecessary hardship.

**102.2 Substantial Cost Differential Waiver.** Douglas County Building Division shall be permitted to authorize, upon appeal, a waiver from the requirements of this code for an applicant that asserts that compliance with this code will result in a substantial cost differential. Douglas County Building Division, when authorizing such a waiver, shall be permitted to waive certain requirements of this code only until

the cost differential for compliance with the remaining requirements reaches one percent or less. The burden of proof is upon the applicant to provide substantiation of a cost differential, such as quotes or other licensed design professional analyses as *approved* by Douglas County Building Division.

> **102.2.1 Substantial Cost Differential.** For the purposes of Section **102.2**, "substantial cost differential" means costs incurred as a result of compliance with the requirements of this code would exceed one percent of total mechanical, electrical, and plumbing construction costs inclusive of materials and labor.

## SECTION 103 CONSTRUCTION DOCUMENTS.

**103.1 General.** Construction documents and other supporting data shall be submitted in one or more sets, or in a digital format where allowed by the *code official*, with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require necessary construction documents to be prepared by a registered design professional.

> **Exception**: The *code official* is authorized to waive the requirements for construction documents or other supporting data if the *code official* determines they are not necessary to confirm compliance with this code.

**103.2 Information on Construction Documents.** Construction documents shall be drawn to scale on suitable material. Electronic media documents are permitted to be submitted where *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems, and equipment as herein governed. Details shall include, but are not limited to, the following as applicable:

1. Location and size of the *solar-ready zone.*
2. Structural design loads of roof dead load and roof live load.
3. Pathways for routing of conduit from the *solar-ready zone* to the electrical service panel.
4. Number and location of *EV capable light spaces.*
5. Number and location of *EV capable spaces.*
6. Number and location of *EV ready spaces.*
7. Number and location of *EVSE installed spaces.*
8. Locations of conduit and termination points serving the aforementioned parking spaces.
9. Location for condensate drainage where *combustion equipment* for space heating and water heating is installed.

**103.3 Examination of Documents.** The *code official* shall examine or cause to be examined the accompanying documents and shall ascertain whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances. The *code official*

is authorized to utilize a registered design professional, or other *approved* entity not affiliated with the building design or construction, in conducting the review of the plans and specifications for compliance with the code.

**103.3.1 Approval of Construction Documents.** When the *code official* issues a permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "Reviewed for Code Compliance". Such *approved* construction documents shall not be changed, modified, or altered without authorization from the *code official*. Work shall be done in accordance with the *approved* construction documents.

One set of "Reviewed for Code Compliance" construction documents shall be retained by the *code official*. The other set shall be returned to the applicant, kept at the site of work, and shall be open to inspection by the *code official* or a duly authorized representative.

**103.3.2 Previous Approvals.** This code shall not require changes in the construction documents, construction, or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned; except that the *code official* is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each.

**103.3.3 Phased Approval.** The *code official* shall have the authority to issue a permit for the construction of part of a solar ready, EV ready, or electric ready installation before the construction documents for the entire system have been submitted or *approved*, provided that adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire solar ready, EV ready, or electric ready installation will be granted.

**l03.4 Amended Construction Documents.** Changes made during construction that are not in compliance with the *approved* construction documents shall be resubmitted for approval as an amended set of construction documents.

**103.5 Retention of Construction Documents.** One set of *approved* construction documents shall be retained by the *code official* for a period of not less than 180 days from the date of completion of the permitted work, or as required by state or local laws.

**103.6 Building Documentation and Closeout Submittal Requirements.** The construction documents shall specify that the documents described in this section be provided to the building

owner or owner's authorized agent within 90 days of the date of receipt of the certificate of occupancy.

**Exception:** *Residential buildings.*

**103.6.1 Record Documents.** Construction documents shall be updated to convey a record of the completed work. Such updates shall include mechanical, electrical, and control drawings that indicate all changes to size, type, and location of components, equipment, and assemblies.

**103.6.2 Compliance Documentation.** Compliance documentation and supporting calculations shall be delivered in one document to the building owner as a part of the project record documents or manuals, or as a standalone document. This document shall include the specific energy code edition utilized for compliance determination for each system.

## SECTION 104 INSPECTIONS.

**104.1 General.** Construction or work for which a permit is required shall be subject to inspection by the *code official*, his or her designated agent or an *approved agency*, and such construction or work shall remain visible and able to be accessed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain visible and/or able to be accessed for inspection purposes. Neither the *code official* nor the jurisdiction shall be liable for expenses entailed in the removal or replacement of any material, product, system or building component required to allow an inspection to validate compliance with this code.

**104.2 Required Inspections.** The *code official*, his or her designated agent or an *approved agency*, upon notification, shall make the inspections set forth in Sections **104.2.1** through **104.2.4**.

**104.2.1 Solar Ready.** Inspections shall verify all of the following as required by this code, *approved* plans, and specifications:

1. The location and size of the *solar-ready zone* or the capacity of an installed on-site renewable energy system.
2. Electrical capacity and reserved physical space for circuit breakers in the main electrical service panel that are properly labeled.

**104.2.2 Electric Vehicle Ready.** Inspections shall verify all of the following as required by this code, *approved* plans, and specifications:

1. *EV* power transfer infrastructure requirements.
2. Electrical equipment associated with each parking space type, including branch circuits, conduit and/or raceway, junction boxes, receptacles, and *EVSE* are properly labeled and installed.
3. Electrical capacity and reserved physical space for circuit breakers in the main electrical service panel are properly labeled, if applicable.

**104.2.3 Electric Ready.** Inspections shall verify all of the following as required by this code, *approved* plans, and specifications:

1. Branch circuits, conduit and/or raceway, wiring, junction boxes, and receptacles for *future electric equipment* or appliances are properly labeled and installed, as applicable.
2. Reserved physical space for *future electric equipment* or appliances.
3. Electrical capacity and reserved physical space for circuit breakers in the main electrical service panel are properly labeled.

**104.2.4 Final Inspection.** The final inspection shall include verification of the installation and proper labeling of all requirements of this code.

**104.3 Reinspection.** A building shall be reinspected where determined necessary by the *code official*.

**104.4 Approved Inspection Agencies.** The *code official* is authorized to accept reports of third-party inspection agencies not affiliated with the building design or construction, provided that such agencies are *approved* as to qualifications and reliability relevant to the building components and systems that they are inspecting.

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

**104.6 Reinspection and Testing.** Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made to achieve compliance with this code. The work or installation shall then be resubmitted to the *code official* for inspection and testing.

## SECTION 105 NOTICE OF APPROVAL.

**105.1 Approval.** After the prescribed inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the *code official*.

**105.2 Revocation.** The *code official* is authorized to suspend or revoke, in writing, a notice of approval issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure, premise, or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

## SECTION 106 VALIDITY.

**106.1 General.** If a portion of this code is held to be illegal or void, such a decision shall not affect the validity of the remainder of this code.

## SECTION 107 REFERENCED STANDARDS.

**107.1 General.** The codes and standards referenced in this code shall be listed in Section **107.2**, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference.

**107.2 Referenced Codes and Standards.** The codes and standards referenced in this code are as follows:

1. International Building Code
    a. Chapter 3
    b. Chapter 11
2. International Energy Conservation Code
3. International Fire Code
4. International Residential Code
5. National Electrical Code Article 625
6. UL2202 and 2594

**107.2.1 Conflicts.** Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

**107.2.2 Provisions in Referenced Codes and Standards.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the

provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

**107.3 Applications of References.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section, or provision of this code.

**107.4 Other Laws.** The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law.

## SECTION 108 STOP WORK ORDER.

**108.1 Authority.** Where the *code official* finds any work regulated by this code being performed in a manner contrary to the provisions of this code or in a dangerous or unsafe manner, the *code official* is authorized to issue a stop work order.

**108.2 Issuance.** The stop work order shall be in writing and shall be given to the owner of the property, the owner's authorized agent, or the person performing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work is authorized to resume.

**108.3 Emergencies.** Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work.

**108.4 Failure to Comply.** Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to fines established by Douglas County Building Division.

## SECTION 109 BOARD OF REVIEW.

**109.1 General.** In order to hear and decide appeals of orders, decisions, or determinations made by the *code official* relative to the application and interpretation of this code, there shall be and is hereby created a board of review. The *code official* shall be an ex officio member of said board but shall not have a vote on any matter before the board. The board of review shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *code official*.

**109.2 Limitations on Authority.** An application for review shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall not have the authority to waive the requirements of this code.

**109.3 Qualifications.** The board of review shall consist of members who are qualified by experience and training and are not employees of Douglas County.

# Chapter 2 Definitions

**SECTION 201 GENERAL.**

**201.1 Scope.** Unless stated otherwise, the following words and terms in this code shall have the meanings indicated in this chapter.

**201.2 Interchangeability.** Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural includes the singular.

**201.3 Terms Defined in Other Codes.** Terms that are not defined in this code but are defined in the International Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Energy Conservation Code, or International Residential Code shall have the meanings ascribed to them in those codes.

**201.4 Terms not Defined.** Terms not defined by this chapter or the codes listed under 201.3 shall have ordinarily accepted meanings such as the context implies.

**SECTION 202 GENERAL DEFINITIONS.**

**ADDITIONS.** An increase in occupiable gross floor area of an existing building or structure by more than 500 square feet, or any increase in the number of stories or height of a building or structure.

**APPROVED.** Acceptable to the *code official*.

**APPROVED AGENCY.** An established and recognized agency that is regularly engaged in conducting tests or furnishing inspection services, or furnishing product certification, where such agency has been approved by the *code official.*

**CODE OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

**COMBUSTION EQUIPMENT.** For this code, any equipment or appliance used for spaceheating, service water heating, cooking, clothes drying or lighting that uses *fuel gas* or *fuel oil*.

**COMMERCIAL BUILDING.** For this code, all commercial buildings and R-Occupancies that are covered by the International Building Code.

**CORE AND SHELL.** The first phase of a commercial project that has the outer building envelope constructed and may contain interior lighting and heating and has not received a permanent Certificate of Occupancy.

**DIRECT CURRENT FAST CHARGER (DCFC) EVSE.** Equipment capable of fast charging on a 100A or higher 480VAC three-phase branch circuit. AC power is converted into a controlled DC voltage and current within the *EVSE* that will then directly charge the *electric vehicle*.

**ELECTRIC VEHICLE (EV).** An automotive-type vehicle for on-road use, including but not limited to, passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, and electric motorcycles, primarily powered by an electric motor that draws current from a building electrical service, *EVSE*, a rechargeable storage battery, a fuel cell, a photovoltaic array, or another source of electric current. Off-road, self-propelled electric mobile equipment, including but not limited to, industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, and boats are not considered electric vehicles.

**ELECTRIC VEHICLE CAPABLE LIGHT SPACE (EV CAPABLE LIGHT SPACE).** A designated vehicle parking space that has conduit and/or raceway installed to support future implementation of *electric vehicle* charging installation, and has sufficient physical space adjacent to the existing electrical equipment for future electric upgrades.

**ELECTRIC VEHICLE CAPABLE SPACE (EV CAPABLE SPACE).** A designated vehicle parking space that has the electric panel capacity and conduit and/or raceway installed to support future implementation of *electric vehicle* charging.

**ELECTRIC VEHICLE READY SPACE (EV READY SPACE).** A designated vehicle parking space that has the electric panel capacity, raceway wiring, receptacle, and circuit overprotection devices installed to support future implementation of *electrical vehicle* charging.

**ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).** An *electric vehicle* charging system or device that is used to provide electricity to a plug-in *electric vehicle* or *plug-in hybrid electric vehicle*, is designed to ensure that a safe connection has been made between the electrical grid and the vehicle, and is able to communicate with the vehicle's control system so that electricity flows at an appropriate voltage and current level.

**ELECTRIC VEHICLE SUPPLY EQUIPMENT INSTALLED SPACE (EVSE INSTALLED SPACE).** A vehicle parking space that is provided with a dedicated *EVSE* connection.

**FIRST TENANT FINISH.** The first tenant finish(es) in a new structure or *core and shell* building that is credited towards meeting the requirements of this Chapter.

**FUEL GAS.** A natural gas, manufactured gas, liquefied petroleum gas, or mixtures of these gasses.

**FUEL OIL.** Kerosene or any hydrocarbon oil having a flash point of not less than 100°F (38°C).

**FUTURE ELECTRIC EQUIPMENT.** Equipment or appliances necessary to support future all-electric space and water heating, cooking, or clothes drying.

**MAJOR RENOVATIONS.** Any alteration, repair, reconstruction, or combination thereof that requires a permit and affects more than 50 percent of the gross floor area of an existing building or structure, as measured within any 12-month period.

**PLUG-IN HYBRID ELECTRIC VEHICLE.** An *electric vehicle* having a second source of motive power.

**RESIDENTIAL BUILDING.** For this code, one- and two-family dwellings and townhouses as defined in the International Residential Code.

**SOLAR-READY ZONE.** A section or sections of the roof or building overhang designated and reserved for future installation of a solar photovoltaic system or solar thermal system.

# Chapter 3 Electric Ready

## *PART 1 RESIDENTIAL ELECTRIC READY*

### SECTION RE301 SCOPE

**RE301.1 General.** These provisions shall be applicable for all new buildings, and major renovations and additions.

### SECTION RE302 ADDITIONAL ELECTRIC INFRASTRUCTURE

**RE302.1 Additional Electric Infrastructure.** *Combustion equipment* in *residential buildings* must meet the requirements of Sections **RE302.2** through **RE302.6**.

**Exceptions**:

1. Interior fireplaces that do not serve as a primary source of heating.
2. Exterior fireplaces and firepits.

**RE302.2 Combustion Equipment.** *Combustion equipment* shall be provided with all of the following:

1. A dedicated, appropriately phased branch circuit sized to accommodate *future electric equipment* or appliances to serve a comparable capacity to meet the heating load.

2. An electric receptacle or junction box that meets the requirements of Section **RE302.5**, and is connected to the electrical panel through the branch circuit. Each electrical receptacle or junction box shall have reasonable access to the *combustion equipment* or dedicated physical space for *future electric equipment* with no obstructions other than the current *combustion equipment*.

3. Where *combustion equipment* is used for space or water heating, dedicated physical space shall be provided for *future electric equipment,* including an electric resistance backup coil for ducted systems, if applicable.

   **Exception**: Dwelling units with installed air conditioning systems are not required to provide additional dedicated physical space for an outdoor heat pump.

**RE302.3 Electrical Panel Space.** The electrical panel shall have a reserved space for a minimum two-pole circuit breaker for each branch circuit provided for *future electric equipment* or appliances.

**RE302.4 Labeling.** The junction box or receptacle and the dedicated circuit breaker space serving *future electric equipment* or appliances in the electrical panel shall be labeled for their intended use.

**RE302.5 Adjacency.** The electrical receptacle or junction box must be provided within 3 feet of the *combustion equipment* or appliances, or within 3 feet of the dedicated physical space for *future electric equipment* or appliances.

**Exception:** For *combustion equipment* dedicated to space or water heating, the electrical receptacle or junction box shall be located not more than 6 feet from the *combustion equipment* or the dedicated physical space for *future electric equipment*.

**RE302.6 Condensate Drain.** Where *combustion equipment* for space heating and water heating is installed, a location shall be provided for condensate drainage.

## *PART 2 COMMERCIAL ELECTRIC READY*

### SECTION CE301 SCOPE

**CE301.1 General.** These provisions shall be applicable for all new buildings, additions, and *first tenant finish* permits.

**CE301.1.1 First Tenant Finishes.** In the case that a *first tenant finish* to a commercial *core and shell* building or unfinished space is credited towards meeting the requirements of this Chapter, the *code official* shall not issue a Certificate of Occupancy to the tenant until the requirements of Section **CE302** are met.

### SECTION CE302 ADDITIONAL ELECTRIC INFRASTRUCTURE

**CE302.1 Additional Electric Infrastructure.** *Combustion equipment* in *commercial buildings* shall meet the electric infrastructure requirements of Sections **CE302.2** or **CE302.3**.

**Exceptions:**

1. Interior fireplaces that do not serve as a primary source of heating.
2. Exterior fireplaces and fire pits.

3. Additions to buildings that do not provide new space-heating equipment will not be required to provide additional electrical infrastructure to the existing space-heating equipment.

**CE302.2 Commercial Buildings Less than 10,000 sq. ft. and all R-Occupancies.** *Commercial buildings* that have a gross floor area of less than 10,000 sq. ft., and all Roccupancies of any size, shall comply with Sections **CE302.2.1** through **CE302.2.5**.

**CE302.2.1 Combustion Equipment.** *Combustion equipment* shall be provided with all of the following:

1. A dedicated, appropriately phased branch circuit sized to accommodate *future electric equipment* or appliances to serve a comparable capacity to meet the heating load.

2. An electric receptacle or junction box that meets the requirements of Section **CE302.2.5**, and is connected to the electrical panel through the branch circuit. Each electrical receptacle or junction box shall have reasonable access to the *combustion equipment* or dedicated physical space for *future electric equipment* with no obstructions other than the current *combustion equipment*.

3. Where *combustion equipment* is used for space or water heating, dedicated space shall be provided for all *future electric equipment*, including an electric resistance backup coil for ducted systems if applicable.

   **Exception:** Buildings with installed air conditioning systems are not required to provide additional dedicated physical space for an outdoor heat pump.

**CE302.2.2 Electrical Panel Space.** The electrical panel shall have reserved physical space for a minimum two-pole or three-pole circuit breaker for each branch circuit provided for *future electric equipment* or appliances. The physical space in the electrical panel for each circuit breaker shall be sized with sufficient breaker capacity to meet the electrical demand of the *future electric equipment* or appliance that is sized to serve a comparable capacity to meet the heating load.

**CE302.2.3 Labeling.** The junction box or receptacle and the dedicated circuit breaker space serving *future electric equipment* or appliances in the electrical panel shall be labeled for their intended use.

**CE302.2.4 Adjacency.** The electrical receptacle or junction box must be provided within 3 feet of the *combustion equipment* or appliances or within 3 feet of the dedicated physical space for *future electric equipment* or appliances.

**Exception:** For *combustion equipment* dedicated to space or water heating, the electrical receptacle or junction box shall be located not more than 6 feet from the *combustion equipment* or the dedicated physical space for *future electric equipment*.

**CE302.2.5 Condensate Drain.** Where *combustion equipment* dedicated to space heating and water heating is installed, a location shall be provided for condensate drainage.

**CE302.3 Commercial Buildings 10,000 sq. ft. or Greater.** All *commercial buildings* that have a gross floor area of 10,000 sq. ft. or greater shall comply with the following requirements.

**Exception**: R-occupancies.

**CE302.3.1 Combustion Equipment or Appliances.** All *combustion equipment* shall be provided with the following:

1. A junction box that is located in the same physical space as the *combustion equipment* and is reasonably accessible, and that is connected to the electrical panel by continuous conduit and/or raceways.
2. Dedicated electrical panel space for an appropriately phased branch circuit sized to accommodate *future electric equipment* or appliances to serve a comparable capacity to meet the heating load.
3. Where *combustion equipment* is used for space and water heating, dedicated physical space shall be provided for all *future electric equipment*.

**CE302.3.2 Electrical Panel Space.** The electrical panel shall have reserved physical space for a minimum two-pole or three-pole circuit breaker for each branch circuit provided for *future electric equipment* or appliances. The physical space in the electrical panel for each circuit breaker shall be sized with sufficient breaker capacity to meet the electrical demand of the *future electric equipment* or appliance that is sized to serve a comparable capacity to meet the heating load.

**CE302.3.3 Labeling**. The dedicated circuit breaker space serving *future electric equipment* or appliances in the electrical panel shall be labeled ”For future electric equipment”.

**CE302.3.4 Physical Space.** Dedicated physical space shall be provided for additional electric equipment, including but not limited to transformers and cabinets, necessary for electrical service to *future electric equipment* or appliances.

# Chapter 4 Solar Ready

## PART 1 RESIDENTIAL SOLAR READY.

### SECTION RS401 SCOPE.

**RS401.1 General.** These provisions shall be applicable for new buildings, and major renovations and additions.

## SECTION RS402 SOLAR READY ZONE.

**RS402.1 General.** New *residential buildings* with not less than 600 square feet of roof area oriented between 110 degrees and 270 degrees of true north or that is a lowsloped roof, shall comply with Sections **RS402.2** through **RS402.8**.

**Exceptions**:

1. New residential dwelling units with a permanently installed on-site renewable energy system that provides electricity to the dwelling unit's electrical system.
2. A building where all areas of the roof that would otherwise meet the requirements of Section **RS402** are in full or partial shade for more than 70 percent of daylight hours annually.

**RS402.2 Construction Document Requirements for Solar-Ready Zone**. Construction documents shall indicate the *solar-ready zone*.

**RS402.3 Solar-Ready Zone Areas.** The total *solar-ready zone* area for each dwelling unit shall be not less than 300 square feet exclusive of mandatory access or setback areas as required by the International Fire Code. The *solar-ready zone* shall be composed of areas not less than 5 feet in width and not less than 80 square feet exclusive of access or setback areas as required by the International Fire Code.

**Exception**: New townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet of conditioned space per townhouse unit shall have a *solar-ready zone* area of not less than 150 square feet.

**RS402.4 Obstructions.** *Solar-ready zones* shall be free from obstructions, including but not limited to, vents, chimneys, and roof-mounted equipment.

**RS402.5 Shading.** The *solar-ready zone* shall be set back from any existing or new permanently affixed object on the building or site that is located south, east, or west of the *solar-ready zone* a distance not less than two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees, and roof plantings either existing at the time of permit application or planned for on the construction documents.

**RS402.6 Roof Load Documentation.** The structural design loads of roof dead load and roof live load shall be clearly indicated on the construction documents.

**RS402.7 Interconnection Pathway.** Construction documents shall indicate at least one potential pathway for routing of conduit and/or raceway from the *solar-ready zone* to the electrical service panel and shall be labeled as "Potential Pathway" on the construction documents.

**RS402.8 Electrical Service Reserved Space.** The main electrical service panel shall have sufficient reserved space to allow the installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

**RS402.9 Construction Documentation Certificate.** A permanent certificate, indicating the *solar-ready zone* and other requirements of this Part, shall be posted near the electrical distribution panel, water heater, or other conspicuous location.

## *PART 2 COMMERCIAL SOLAR READY*

### SECTION CS401 SCOPE

**CS401.1 General.** These provisions shall be applicable for new buildings, and major renovations and additions.

### SECTION CS402 SOLAR-READY ZONE

**CS402.1 General.** A *solar-ready zone* shall be located on the roof of all new *commercial buildings* that are oriented between 110 and 270 degrees of true north or have low-sloped roofs. *Solar-ready zones* shall comply with Sections **CS402.2** through **CS402.7**.

**Exceptions:**

1. A building with a permanently-installed, on-site renewable energy system that meets the following criteria.
    a. The system produces the energy output equivalent to covering 40 percent of the net roof area with solar photovoltaic calculated as the horizontally projected gross roof area less the area covered by skylights, occupied roof decks, vegetative roof areas, and mandatory access or set back areas as required by the International Fire Code.
    b. The system is located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet of the building, on the building premises, on covered parking, or another *approved* location installed with the building project and under the same property ownership.
2. A building with a *solar-ready zone* that is shaded for more than 70 percent of daylight hours annually.
3. A building where a licensed design professional certifies that the incident solar radiation available to the building is not suitable for a *solar-ready zone*.

4. A building where a licensed design professional certifies that the *solarready zone* area required by Section **CS402.3** cannot be met because of extensive rooftop equipment, skylights, vegetative roof areas, or other obstructions.

**CS402.2 Construction Document Requirements for a Solar-Ready Zone.** Construction documents shall indicate the *solar-ready zone*.

**CS402.3 Solar-Ready Zone Area.** The total *solar-ready zone* area shall not be less than 40 percent of the roof area calculated as the horizontally projected gross roof area less the area covered by skylights, occupied roof decks, vegetative roof areas, and mandatory access or set back areas as required by the International Fire Code. The *solar-ready zone* shall be a single area or smaller, separated sub-zone areas. Each sub-zone area shall be not less than 5 feet in width in the narrowest dimension.

The *solar-ready zone* shall be located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet of the building, on the building premises, on covered parking, or another *approved* location installed with the building project and under the same property ownership .

**CS402.4 Obstructions.** *Solar-ready zones* shall be free from obstructions, including pipes, vents, ducts, HVAC equipment, skylights, and roof-mounted equipment.

**CS402.5 Roof Loads and Documentation.** The structural design loads for roof dead load and roof live load shall be indicated on the construction documents.

**CS402.6 Interconnection Pathway.** Construction documents shall indicate at least one potential pathway for routing of conduit and/or raceway from the *solar-ready zone* to an electrical service panel and shall be labeled as “Potential Pathway” on the construction documents.

**CS402.7 Electrical Service Reserved Space.** The main electrical service panel shall have a minimum bus bar rating of not less than 200 amps. The main electrical service panel shall have a reserved space to allow installation of a dual-pole circuit breaker for future solar electric. This space shall be labeled “For Future Solar Electric.” The reserved space shall be positioned at the end of the panel that is opposite from the panel supply conductor connection.

## *PART 3 RESIDENTIAL SOLAR PANEL CAPACITY*

### SECTION RS410 SCOPE

**RS410.1 General.** These provisions shall be applicable for all new buildings, and major renovations and additions.

**RS410.2 Electric Service Reserved Space.** The main electrical service panel shall have sufficient reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled “For Future Solar Electric.” The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

**Exception**: A dwelling unit that already must comply with the solar ready provisions in Chapter 4 or that has a permanently installed on-site renewable energy system that provides electricity to the dwelling unit's electrical system.

### *PART 4 COMMERCIAL SOLAR PANEL CAPACITY*

#### SECTION CS410 SCOPE

**CS410.1 General.** These provisions shall be applicable for new buildings, and major renovations and additions.

**CS410.2 Electric Service Reserved Space.** The main electrical service panel shall have a minimum bus bar rating of not less than 200 amps. The main electrical service panel shall have sufficient reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

**Exception:** A building that already must comply with the solar ready provisions in Chapter 4 or that has a permanently installed on-site renewable energy system that provides electricity to the building's electrical system.

# Chapter 5 Electric Vehicle Ready

### *PART 1 RESIDENTIAL ELECTRIC VEHICLE READY*

#### SECTION RV501 SCOPE

**RV501.1 General.** These provisions shall be applicable for all new buildings, and major renovations and additions.

#### SECTION RV502 ELECTRIC VEHICLE POWER TRANSFER INFRASTRUCTURE

**RV502 Electric Vehicle Power Transfer Infrastructure.** New vehicle parking spaces for *residential buildings* shall be provided in accordance with Sections **RV502.1** and **RV502.3**.

**RV502.1 One- and Two-family Dwellings and Townhouses.** Each dwelling unit with a dedicated attached or detached garage or other onsite designated parking provided for the dwelling unit shall be provided with one *EV ready space* per dwelling unit.

**RV502.2 EV Ready Spaces.** Each *EV ready space* shall have a branch circuit that complies with all of the following:

1. Terminates at a receptacle, located within 3 feet of each *EV ready space* it serves. *EV ready* includes two adjacent parking spaces if the receptacle for the electrical facilities of this section is installed adjacent to and between both parking spaces.
2. Has a minimum circuit capacity of 8.3 kVA (40A 208/240V).
3. The electrical panel, electrical distribution equipment directory, and all outlets or enclosures shall be marked "For future electric vehicle supply equipment".

**Exception:** A receptacle need not be provided if a hard-wired *EVSE* is installed.

**RV502.3 Identification.** Construction documents shall designate the *EV ready space* and indicate the locations of raceway and/or conduit and the termination points serving them. The circuits or spaces reserved in the electrical panel for *EV ready spaces* shall be clearly identified in the panel or subpanel directory.

## *PART 2 COMMERCIAL ELECTRIC VEHICLE READY*

### SECTION CV501 SCOPE

**CV501.1 General.** These provisions shall be applicable for all new buildings, and major renovations and additions.

### SECTION CV502 ELECTRIC VEHICLE POWER TRANSFER INFRASTRUCTURE

**CV502 Electric Vehicle Power Transfer Infrastructure.** Where new parking is provided for *commercial buildings,* it shall be provided with *electric vehicle* power transfer infrastructure in compliance with Sections **CV502.1** through **CV502.9**.

**CV502.1 Quantity.** The number of required *EVSE installed spaces, EV ready spaces, EV capable spaces,* and *EV capable light spaces* shall be determined in accordance with this Section and **Table CV502.1** based on the total number of provided vehicle parking spaces and shall be rounded up to the nearest whole number. This includes all covered parking under carports or detached garages.

**CV502.1.1** Where more than one parking lot is provided on a building site, the number of provided vehicle parking spaces required to have *EV* power transfer infrastructure shall be calculated separately for each parking lot.

**CV502.1.1.1** R-2 Occupancies, as defined in Chapter 3 of the International Building Code, shall use the total parking requirement for the entire development to determine the *EV* power transfer infrastructure requirements using **Table CV502.1**.

**CV502.1.2** For *commercial buildings* that install a *DCFC EVSE,* each *DCFC EVSE* installed shall be permitted to be substituted for other space types as follows:

1. *Commercial buildings* other than R-2 Occupancies shall be permitted to substitute up to 10 spaces when the building provides a minimum of 20 percent of parking spaces as a combination of *EV Capable*, *EV ready*, or *EVSE installed spaces*.
2. R-2 Occupancies shall be permitted to substitute up to 5 spaces when the building provides a minimum of 60 percent of parking spaces as a combination of *EV Capable light, EV Capable, EV ready*, or *EVSE installed spaces*.

**CV502.1.3** *EVSE installed spaces* that exceed the minimum requirements of this section are permitted to be used to meet minimum requirements for *EV ready spaces*, *EV capable spaces*, and *EV capable light spaces*.

**CV502.1.4** E*V ready spaces* that exceed the minimum requirements of this section are permitted to be used to meet minimum requirements for *EV capable spaces* and *EV capable light spaces*.

**CV502.1.5** *EV capable spaces* that exceed the minimum requirements of this section are permitted to be used to meet the minimum requirements for *EV capable light spaces*.

**CV502.1.6** All attached garages with direct connection to a dwelling unit will be required to have one *EV ready space*.

*Table CV502.1: EV Power Transfer Infrastructure Requirements*

| Building Type / Space Type | *EVSE Installed Space* | *EV Ready Space* | *EV Capable Space* | *EV Capable Light Space* |
|---|---|---|---|---|
| **All *commercial buildings*, except for R-2 occupancies, with 10 or less parking spaces.** | 0 | 2 spaces | 0 | 0 |
| ***Commercial buildings*, except for R-2 occupancies, with greater than 10 parking spaces.** | 2% of spaces | 8% of spaces | 10% of spaces | 10% of spaces |
| **R-2 occupancies with 10 or less parking spaces** | 0 | 15% of spaces | 10% of spaces | 10% of spaces |

| | | | | |
|---|---|---|---|---|
| **R-2 occupancies with greater than 10 parking spaces.** | 5% of spaces | 15% of spaces | 10% of spaces | 30% of spaces |

**CV502.2 EV Capable Light Spaces.** Each *EV capable light space* shall comply with all of the following:

1. A continuous raceway and/or conduit shall be installed between a suitable electrical panel or other electrical distribution equipment and terminate within 3 feet of the *EV capable light space* and shall be capped. *EV capable light* includes two adjacent parking spaces if the raceway and/or conduit terminates adjacent to and between both parking spaces.
2. Installed raceway and/or conduit shall be sized and rated to supply a minimum of 208 volts and a minimum of 40-ampere rated circuits.
3. Dedicated physical space to accommodate all equipment necessary for electrical service to future *EVSE*.
4. The routing of the raceway and/or conduit must be noted on the construction documents and the raceway shall be permanently and visibly marked "EV CAPABLE" at the load center and termination point locations.

**CV502.3 EV Capable Spaces.** Each *EV capable space* shall comply with all of the following:

1. A continuous raceway and/or conduit shall be installed between a suitable electrical panel or other electrical distribution equipment and terminate within 3 feet of the *EV capable space* and shall be capped. *EV capable* includes two adjacent parking spaces if the raceway and/or conduit terminates adjacent to and between both parking spaces.
2. The installed raceway and/or conduit shall be sized and rated to supply a minimum of 208 volts and a minimum of 40-ampere rated circuits.
3. The electrical panel or other electrical distribution equipment to which the raceway and/or conduit connects shall have sufficient dedicated space and spare electrical capacity to supply a minimum of 208 volts and a minimum of 40-ampere rated circuits.
4. The termination point of the conduit and/or raceway and the electrical distribution equipment directory shall be marked: "For future electric vehicle supply equipment (EVSE)."
5. Reserved capacity shall be no less than 8.3 kVA (40A 208/240V) for each *EV capable space*.

**CV502.4 EV Ready Spaces.** Each *EV ready space* shall have a branch circuit that complies with all of the following:

1. Terminates at a receptacle or junction box located within 3 feet of each *EV ready space* it serves. *EV ready* includes two adjacent parking spaces if the receptacle is installed adjacent to and between both parking spaces.
2. Has a minimum circuit capacity of 8.3 kVA (40A 208/240V).
3. The electrical panel, electrical distribution equipment directory, and all outlets or enclosures shall be marked "For future electric vehicle supply equipment (EVSE)."

**CV502.5 Electric Vehicle Supply Equipment (EVSE).** All *EVSE* shall meet all of the following requirements:

1. The installed *EVSE* shall meet one of the following requirements:
   a. A power capacity of at least 6.2 kVa (or 30A at 208/240V) and has the ability to connect to the internet.
   b. An inductive charging system for battery-powered *electric vehicles* that:
      i. Is ENERGY STAR certified; and
      ii. Has the ability to connect to the internet.
2. An *electric vehicle* charging system shall be wall-mounted or pedestal style and may provide multiple cords to connect with *electric vehicles*.
3. An *electric vehicle* charging system shall be listed and labeled for *EV* charging and must comply with the current version of Article 625 of the National Electrical Code.

**CV502.6 EVSE Installed Spaces.** An installed *EVSE* with multiple output connections shall be permitted to serve multiple *EVSE installed spaces*. Each *EVSE* installed serving either a single *EVSE installed space* or multiple *EVSE installed spaces*, shall comply with all of the following:

1. Have a minimum charging rate in accordance with Section **CV502.7**.
2. Be located within 3 feet of each *EVSE installed space* it serves.
3. Be installed in accordance with Section **CV502.8**.
4. Have a minimum circuit capacity of 8.3 kVA (40A 208/240V).
5. Must meet the requirements of Section **CV502.5**.

**CV502.7 EVSE Minimum Charging Rate.** Each installed *EVSE* shall comply with one of the following:

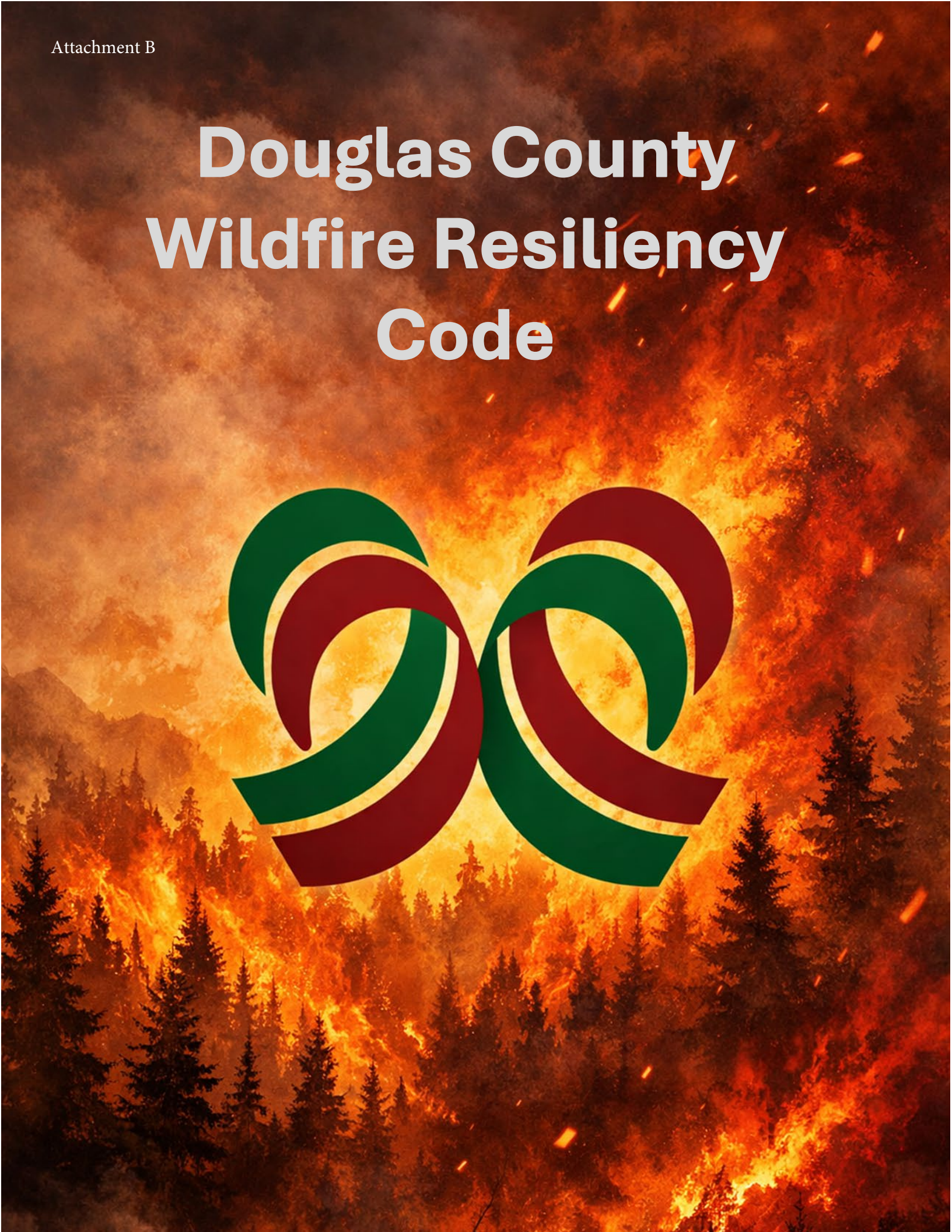
1. Be capable of charging at a minimum rate of 6.2 kVA (or 30A at 208/240V).
2. When serving multiple *EVSE installed spaces* and controlled by an energy management system providing load management, be capable of simultaneously sharing each *EVSE installed space* at a minimum charging rate of no less than 3.3 kVA.

**CV502.8 EVSE Installation.** *EVSE* shall be installed in accordance with NFPA 70 and shall be listed and labeled in accordance with UL 2202 or UL 2594. When serving an accessible parking space, *EVSE* shall be accessible in accordance with the International Building Code Chapter 11.

**CV502.9 Identification.** Construction documents shall designate all *EVSE installed spaces, EV ready spaces, EV capable spaces,* and *EV capable light spaces,* and indicate the locations of raceway and/or conduit and termination points serving them. The circuits or spaces reserved for *EVSE installed spaces, EV ready spaces,* and *EV capable spaces* shall be clearly identified in the panel or subpanel directory. The raceway and/or conduit for *EV ready spaces, EV capable spaces* and *EV capable light spaces* shall be clearly identified at both the panel or subpanel and the termination point at the parking space.

Attachment B

# Douglas County Wildfire Resiliency Code



# ATTRIBUTIONS

***This Code is comprised of a majority of the 2025 Colorado Wildfire Resiliency Code adopted by the Colorado Wildfire Resiliency Code Board.***

# Table of Contents


Chapter 1 - Scope and Administration ..... 1
PART 1 GENERAL PROVISIONS ..... 1
SECTION 101 SCOPE AND GENERAL REQUIREMENTS ..... 1
SECTION 102—APPLICABILITY ..... 3
PART 2—ADMINISTRATION AND ENFORCEMENT ..... 4
SECTION 103—CODE COMPLIANCE AGENCY ..... 4
SECTION 104—DUTIES AND POWERS OF THE CODE OFFICIAL ..... 5
SECTION 105—TEMPORARY USES, EQUIPMENT AND SYSTEMS ..... 8
SECTION 106—FEES ..... 9
SECTION 107—FAILURE TO COMPLY, STOP WORK ORDER AND ENFORCEMENT ..... 9
Chapter 2 - Definitions ..... 10
SECTION 201 GENERAL ..... 10
SECTION 202 DEFINITIONS ..... 10
Chapter 3 - Wildfire Hazard Identification ..... 13
SECTION 301 GENERAL ..... 13
SECTION 302 WILDLAND-URBAN INTERFACE AREA DESIGNATIONS ..... 13
SECTION 303 MAPPING AND APPLICABILITY ..... 13
SECTION 304 GROUND-TRUTHING ..... 15
Chapter 4- Structure Hardening ..... 16
SECTION 401 GENERAL ..... 16
SECTION 402 BUILDING MATERIAL ..... 16
SECTION 403 CLASS 1 STRUCTURE HARDENING ..... 17
SECTION 404 CLASS 2 STRUCTURE HARDENING ..... 18
Chapter 5- Site and Area Requirements ..... 21
SECTION 501 GENERAL ..... 21
SECTION 502 CLASS 1 REQUIREMENTS ..... 21
SECTION 503 CLASS 2 REQUIREMENTS ..... 22

# Chapter 1 - Scope and Administration

## PART 1 GENERAL PROVISIONS

### SECTION 101 SCOPE AND GENERAL REQUIREMENTS

**101.1 Title.** These regulations shall be known as the Douglas County Wildfire Resiliency Code as adopted by Douglas County, hereinafter referred to as "this code."

**101.2 Scope.** The provisions of this code shall apply to the construction, alteration, movement, repair, maintenance and use of any building, structure or premises that contain *occupiable* and/or *habitable space*, or change in use resulting in an occupiable and/or habitable space, unless excepted, within the *wildland-urban interface* areas of Douglas County that are outside the corporate limits of a city or town and outside the boundaries of a fire protection district. Buildings or conditions in existence at the time of the adoption of this code are allowed to have their use or occupancy continued, if such condition, use or occupancy was legal at the time of the adoption of this code, provided that such continued use does not constitute a distinct danger to life or property. Buildings or structures moved into or within the *wildland-urban interface* areas of Douglas County, unless excepted, that are outside the corporate limits of a city or town and outside the boundaries of a fire protection district shall comply with the provisions of this code for new buildings or structures.

**101.2.1 Appendices.** Nonapplicable. None adopted.

**101.2.2 Factory-Built Structures (nonresidential, residential, and tiny homes)**. Structure hardening provisions of this code for factory-built structures as defined by sections 24-32-3302(9), (10), (11), and (35), C.R.S., are in accordance with Rules adopted by the Division of Housing in 8 CCR 1302-1, Rule 2 Codes and Standards.

**101.2.3 HUD Code Homes.** Homes built to the HUD Manufactured Home Construction and Safety Standards are exempt from structure hardening requirements on their first installation. Homes built to the HUD Manufactured Home Construction and Safety Standards which are moved into an applicable Wildfire Resiliency code area are subject to the provisions of this code as required by the authority having jurisdiction.

**101.3 Purpose.** The purpose of this code is to establish minimum regulations for the safeguarding of life and for property protection. Regulations in this code are intended to mitigate the risk to life and structures from intrusion of fire from wildland fire exposures and fire exposures from adjacent structures and to mitigate structure fires from spreading to wildland fuels. The extent of this regulation is intended to be tiered commensurate with the relative level of hazard present.

The unrestricted use of property in *wildland-urban interface* areas is a potential threat to life and property from fire and resulting erosion. Safeguards to prevent the occurrence of fires and to provide adequate fire protection facilities to control the spread of fire in *wildland-urban interface* areas shall be in accordance with this code.

This code shall supplement Douglas County's building and fire codes, if such codes have been adopted, to provide for special regulations to mitigate the fire- and life-safety hazards of the

*wildland-urban interface* areas.

**101.4 Retroactivity.** The provisions of the code shall apply to conditions arising after the adoption thereof, conditions not legally in existence at the adoption of this code and conditions that, in the opinion of the *code official*, constitute a distinct hazard to life or property.

> **Exception:** Provisions of this code that specifically apply to existing conditions are retroactive.

**101.5 Additions or alterations.** Additions or alterations shall be permitted to be made to any building or structure without requiring the existing building or structure to comply with all of the requirements of this code, provided that, when the work increases the footprint of the existing structure by 500 square feet or greater, the addition or alteration conforms to that required for a new building or structure.

> **Exception:** Provisions of this code that specifically apply to existing conditions are retroactive.

Additions or alterations shall not be made to an existing building or structure that will cause the existing building or structure to be in violation of any of the provisions of this code nor shall such additions or alterations cause the existing building or structure to become unsafe. An unsafe condition shall be deemed to have been created if an addition or alteration will cause the existing building or structure to become structurally unsafe or overloaded; will not provide adequate access in compliance with the provisions of this code or will obstruct existing exits or access; will create a fire hazard; will reduce required fire resistance or will otherwise create conditions dangerous to human life.

**101.6 Roof coverings.** The *roof covering* on buildings or structures in existence prior to adoption of this code that are replaced or have 25 percent or more of the surface area of the roof replaced, or where work to reconstruct, alter, or repair the *roof covering* effectively replaces such material, shall require the entirety of the *roof covering* to be replaced with a *roof covering* required for new construction specified in Sections 403.2 through 403.2.2.

> **Exception:** Existing *roof coverings* that are compliant with Section 403.2.

**101.7 Exterior walls.** The exterior walls of building or structures in existence prior to adoption of this code where 25 percent or more of the total exterior wall surface area is replaced, or where work to reconstruct, alter or repair the exterior walls effectively replaces the exterior wall material, shall require the entirety of the exterior wall surface area, including attachments, to be replaced with materials required for new construction specified in Section 404.3 through 404.3.2 and the immediate zone within 5 feet of the structure shall be made to comply with Section 503.1.

> **Exception:** Existing exterior walls that are compliant with Section 404.3.

**101.8 Maintenance.** Buildings, structures, landscape materials, vegetation, *defensible space* or other devices or safeguards required by this code shall be maintained in conformance to the code edition under which installed. The owner or the owner's authorized agent shall be responsible for the maintenance of buildings, structures, landscape materials and vegetation.

## SECTION 102—APPLICABILITY

**102.1 General.** Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in any specific case, different sections of this code, or any other adopted code, specify different materials, methods of construction or other requirements, the most restrictive shall govern.

**102.2 Other laws.** The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

**102.3 Application of references.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

**102.4 Referenced codes and standards.** The codes and standards referenced in this code are listed throughout this code. Such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections 102.4.1 and 102.4.2.

> **102.4.1 Conflicts.** Where conflicts occur between provisions of this code and the referenced codes and standards, the provisions of this code shall govern.
>
> **102.4.2 Provisions in referenced codes and standards.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced standard.

**102.5 Subjects not regulated by this code.** Where applicable standards or requirements are not set forth in this code, or are contained within other laws, codes, regulations, ordinances or policies adopted by Douglas County, compliance with applicable standards of other nationally recognized safety standards, as *approved*, shall be deemed as prima facie evidence of compliance with the intent of this code. Nothing herein shall derogate from the authority of the *code official* to determine compliance with codes or standards for those activities or installations within Douglas County.

**102.6 Matters not provided for.** Requirements that are essential for the public safety of an existing or proposed activity, building or structure, or for the safety of the occupants thereof, which are not specifically provided for by this code, shall be determined by the *code official* consistent with the necessity to establish the minimum requirements to safeguard the public health, safety and general welfare.

**102.7 Partial invalidity.** In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

**102.8 Existing conditions.** The legal occupancy or use of any structure or condition existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *Internation Building Code*, *International Residential Code*, *International Fire Code*, or as is deemed necessary by the *code official* for the general safety and welfare of the occupants and the public.

**102.9 Historic structures.** A variance is authorized to be issued for the repair or rehabilitation of a historic structure or construction of a contributing structure upon a determination that the

proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and the variance is the minimum necessary to preserve the historic character and design of the structure, within the spirit of this code.

**Exception:** Within wildfire hazard areas, historic structures that do not meet one or more of the following designations:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
2. Determined as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.
3. Designated as historic under a state or local historic preservation program.

**102.9.1 Historic preservation exemption.** Douglas County may establish a historic preservation exemption or exemptions in their jurisdiction that consists of the spirit and intent of this code.

**102.10 Work exempt from permit under this code.** Exemptions from code requirements 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 Douglas County. Compliance with this code shall not be required for the following:

1. Interior alterations of existing structures.
2. Additions that do not increase the footprint of a structure by more than 500 square feet.
3. The reconstruction, replacement, alteration, or repair of the exterior walls of an existing building, when less than 25 percent of the surface area of all exterior walls is affected.
4. The reconstruction, replacement, alteration, or repair of the exterior *roof covering* of an existing building, when less than 25 percent of the surface area of the exterior *roof covering* or an attachment thereto is affected.
5. Alterations or repairs to the exterior of an existing structure, or an attachment to it, when less than twenty-five percent of the exterior of the structure is affected by the alteration or repair.
6. Painting, staining and similar maintenance or restorative work.
7. One-story detached accessory, nonhabitable structures, such as tool and storage sheds, playhouses and similar uses, provided that the floor area does not exceed 120 square feet and the structure is located greater than or equal to 10 feet from the nearest adjacent occupiable structure.
8. *Accessory structures* and buildings of an accessory character classified as Utility and Miscellaneous Group U (including Agricultural Structures) located more than 50 feet from a structure containing *occupiable* or *habitable space*.
9. Fences located more than 8 feet from a habitable structure.
10. Any thirty-five acre parcel with only one residential structure on it that does not abut a residential or commercial area.

## PART 2—ADMINISTRATION AND ENFORCEMENT

## SECTION 103—CODE COMPLIANCE AGENCY

**103.1 Creation of agency.** The Douglas County Building Division is hereby the agency responsible

and the official in charge thereof shall be known as the *code official*. The function of the agency shall be the implementation, administration and enforcement of the provisions of this code.

**103.2 Appointment.** The *code official* shall be the Douglas County Chief Building Official.

**103.3 Deputies.** In accordance with the prescribed procedures of Douglas County, the *code official* shall have the authority to appoint a deputy *code official*, other related technical officers, inspectors and other employees. Such employees shall have powers as delegated by the *code official*.

## SECTION 104—DUTIES AND POWERS OF THE CODE OFFICIAL

**104.1 Powers and duties of the code official.** The *code official* is hereby authorized to enforce the provisions of this code.

**104.2 Determination of compliance.** The *code official* shall have the authority to determine compliance with this code, to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures:

1. Shall be in compliance with the intent and purpose of this code.
2. Shall not have the effect of waiving requirements specifically provided for in this code.

**104.2.1 Technical assistance.** To determine compliance with this code, the *code officia*l is authorized to require the owner, the owner's authorized agent or the person in possession or control of the building or premises to provide a technical opinion and report.

**104.2.1.1 Costs.** A technical opinion and report shall be provided without charge to Douglas County.

**104.2.1.2 Preparer qualifications**. The technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

**104.2.1.3 Content.** The technical opinion and report shall analyze the properties of the design, operation or use of the building or premises, the facilities and appurtenances situated thereon and fuel management to identify and propose necessary recommendations.

**104.2.1.4 Tests.** Where there is insufficient evidence of compliance with the provisions of this code, the *code official* shall have the authority to require tests as evidence of compliance. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized test standards, the *code official* shall approve the testing procedures. Such tests shall be performed by a party acceptable to the *code official*.

**104.2.2 Alternative materials, design and methods.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*.

**104.2.2.1 Approval authority.** An alternative material, design or method shall be *approved* where the *code official* finds that the proposed alternative is satisfactory and complies with Sections 104.2.2.2 through 104.2.2.7, as applicable.

**104.2.2.2 Application and disposition.** Where required, a request to use an alternative material, design or method of construction shall be submitted in writing to the *code official* for approval. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

**104.2.2.3 Compliance with code intent.** An alternative material, design or method of construction shall comply with the intent of the provisions of this code.

**104.2.2.4 Equivalency criteria.** An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

**104.2.2.5 Tests.** Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official.*

**104.2.2.5.1 Fire tests.** Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

**104.2.2.6 Reports.** Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall comply with Sections 104.2.2.6.1 and 104.2.2.6.2.

**104.2.2.6.1 Evaluation reports.** Evaluation reports shall be issued by an *approved* agency and use of the evaluation report shall require approval by the *code official* for the installation. The alternate material, design or method of construction and product evaluated shall be within the scope of the *code official*'s recognition of the *approved* agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the *code official*.

**104.2.2.6.2 Other reports.** Reports not complying with Section 104.2.2.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. The report shall be prepared by a qualified engineer, specialist, laboratory or fire safety

specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

**104.2.2.7 Peer review.** The *code official* is authorized to require submittal of a peer review report in conjunction with a request to use an alternative material, design or method of construction, prepared by a peer reviewer that is *approved* by the *code official*.

**104.2.3 Modifications.** Where there are practical difficulties involved in carrying out the provisions of this code, the *code official* shall have the authority to grant modifications for individual cases, provided that the *code official* shall first find that one or more special individual reasons make the strict letter of this code impractical, that the modification is in conformance with the intent and purpose of this code, and that such modification does not lessen health, life and fire safety requirements. The details of the written request and action granting modifications shall be recorded and entered into the files of the Douglas County Building Division.

**104.3 Applications and permits.** The *code official* is authorized to receive applications, review construction documents and issue permits for construction regulated by this code, issue permits for operations regulated by this code, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code. Any permit required for compliance with this code will be reviewed and processed by the Douglas County Building Division through existing procedures.

**104.4 Access to Property.** For the purpose of inspecting and enforcing the provisions of this code and the terms and conditions of any permit issued under this code, the *code official* is authorized to enter upon private property at reasonable times and upon reasonable notice for the purpose of determining compliance with this code and to evaluate conditions relative to the permit application.

**104.4.1 Authorization.** The owner or occupant of the property having a permit under this code shall allow the *code official* access to the property to perform the required inspections. If access is denied, the *code official* shall apply to the Court with jurisdiction to seek authority to access the property.

**104.5 Identification.** The *code official* shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

**104.6 Notices and orders.** The *code official* shall issue all necessary notices or orders to ensure compliance with this code.

**104.7 Official records.** The *code official* shall keep official records as required by Sections 104.7.1 104.7.1 through 104.7.5. Such official records shall be retained for not less than 5 years or for as long as the structure or activity to which such records relate remains in existence, unless otherwise provided by other regulations.

**104.7.1 Approvals.** A record of approvals shall be maintained by the *code official* and shall be available for public inspection during business hours in accordance with applicable laws.

**104.7.2 Inspections.** The *code official* shall keep a record of each inspection made, including notices and orders issued, showing the findings and disposition of each.

**104.7.3 Code alternatives and modifications.** Application for alternative materials, design and methods of construction and equipment in accordance with Section 104.2.2; modifications in accordance with Section 104.2.3; and documentation of the final decision of the *code official* for either shall be in writing and shall be retained in the official records.

**104.7.4 Tests.** The *code official* shall keep a record of tests conducted to comply with Sections 104.2.1.4 and 104.2.2.5.

**104.7.5 Fees.** The *code official* shall keep a record of fees collected and refunded in accordance with Section 106.

**104.8 Liability.** The *code official*, member of the board of appeals or employee charged with the enforcement of this code, while acting for Douglas County, in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered personally liable, either civilly or criminally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of an act or by reason of any act or omission in the discharge of official duties.

**104.8.1 Legal defense.** Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code or other laws or ordinances implemented through the enforcement of this code shall be defended by legal representatives of Douglas County until final termination of the proceedings. The *code official* or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code.

**104.9 Approved materials and equipment.** Materials, equipment and devices approved by the *code official* shall be constructed and installed in accordance with such approval.

**104.9.1 Materials and equipment reuse.** Materials, equipment and devices shall not be reused unless such elements are in good working order and *approved*.

**104.10 Other agencies.** When requested to do so by the *code official*, other officials of Douglas County shall assist and cooperate with the *code official* in the discharge of the duties required by this code.

## SECTION 105—TEMPORARY USES, EQUIPMENT AND SYSTEMS

**105.1 General.** The *code official* is authorized to issue a permit for temporary uses, equipment and systems. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The *code official* is authorized to grant extensions for demonstrated cause.

**105.2 Conformance.** Temporary uses, equipment and systems shall conform to the requirements of this code as necessary to ensure health, safety and general welfare.

**105.3 Temporary service utilities.** The *code official* is authorized to give permission to temporarily supply service utilities.

**105.4 Termination of approval.** The *code official* is authorized to terminate such permit for

temporary uses, equipment and systems and to order the same to be discontinued.

## SECTION 106—FEES

**106.1 General.** Douglas County has not established any fees related to this code.

## SECTION 107—FAILURE TO COMPLY, STOP WORK ORDER AND ENFORCEMENT

**107.1 Authority.** Where the *code official* finds any work regulated by this code being performed or already performed in a manner contrary to the provisions of this code or in a dangerous or unsafe manner, the *code official* is authorized to issue a stop work order or a Notice of Violation.

**107.2 Issuance.** A stop work order or Notice of Violation shall be in writing and shall be given to the owner of the property, the owner's authorized agent or the person performing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work is authorized to resume. The Notice of Violation shall specify the violation, required corrective action, and compliance deadline.

**107.3 Emergencies.** Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work.

**107.4 Failure to comply.** Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, or fails to correct a violation of the code as specified in a Notice of Violation shall be subject to fines established by Douglas County. Code violation penalties will be sought in accordance with Sections 30-28-209 and 30-28-210 Colorado Revised Statutes (C.R.S.).

# Chapter 2 - Definitions

## SECTION 201 GENERAL

**201.1 Scope.** Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

**201.2 Interchangeability.** Words stated in the present tense include the future; words stated in the masculine gender include the feminine and neuter; and the singular number includes the plural and the plural the singular.

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other International Codes, such terms shall have the meanings ascribed to them as in those codes.

**201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have their ordinarily accepted meanings such as the context implies.

## SECTION 202 DEFINITIONS

**ACCESSORY STRUCTURE.** A building or structure used to shelter or support any material, equipment, chattel or occupancy other than a habitable building.

**AGRICULTURAL BUILDING.** A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

**APPROVED.** Acceptable to the *code official*.

**BUILDING.** Any structure intended for supporting or sheltering any occupancy.

**CLASS A TESTS.** Class A Tests are applicable to *roof coverings* that are expected to be effective against severe fire exposure, afford a high degree of fire protection to the *roof deck*, do not slip from position, and are not expected to present a flying brand hazard.

**CODE OFFICIAL.** The code official is the Chief Building Official.

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

**EMBELLISHMENTS.** Elements incorporated in design and construction for ornamental or decorative purpose that are not integral to the structure or structural support.

**FIRE INTENSITY CLASSIFICATION.** The level of fire intensity identified for areas where significant fuel hazards and associated dangerous fire behavior may exist, based upon vegetative fuels, topography, weather conditions, and flame length value.

**FIRE-RESISTANCE-RATED CONSTRUCTION.** The use of materials and systems in the

design and construction of a building or structure to safeguard against the spread of fire within a building or structure and the spread of fire to or from buildings or structures to the *wildland-urban interface* area.

**FIRE-RETARDANT-TREATED WOOD.** Fire-retardant-treated wood is any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84 or UL 723, a listed *flame spread index* of 25 or less. The ASTM E84 or UL723 test shall be continued for an additional 20-minute period and the flame front shall not progress more than 10.5 feet beyond the centerline of the burners at any time during the test.

**FLAME SPREAD INDEX.** A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E84.

**FUEL MODIFICATION.** A method of modifying fuel load by reducing the amount of nonfire-resistive vegetation or altering the type of vegetation to reduce the fuel load.

**HABITABLE SPACE.** A space in a building for living, sleeping, eating or cooking.

**HEAVY TIMBER CONSTRUCTION.** As described in Section 602.4 of the 2024 *International Building Code*.

**HOME IGNITION ZONE.** Home Ignition Zone is the home and the area around the home (or structure). The HIZ takes into account both the potential of the structure to ignite and the quality of *defensible space* surrounding it.

**IGNITION-RESISTANT BUILDING MATERIAL.** A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildfire exposure of burning embers and small flames.

**IGNITION-RESISTANT VEGETATION.** Plants that are less likely to readily ignite from a flame or other ignition source and produce fewer embers. While they can still be damaged by fire, their foliage and stems don't significantly contribute to the intensity of the fire.

**LOG WALL CONSTRUCTION.** A type of construction in which exterior walls are constructed of solid wood members and where the smallest horizontal dimension of each solid wood member is not less than 6 inches. Log wall construction shall follow requirements of ICC 400.

**MULTILAYERED GLAZED PANELS.** Window or door assemblies that consist of two or more independently glazed panels installed parallel to each other, having a sealed air gap in between, within a frame designed to fill completely the window or door opening in which the assembly is intended to be installed.

**NONCOMBUSTIBLE.** As applied to building construction material means a material that, in the

form in which it is used, is either one of the following:

1. Material of which no part will ignite and burn when subjected to fire.

2. Any material conforming to ASTM E136 shall be considered noncombustible within the meaning of this section.

3. For the purposes of this code, fire-rated gypsum board tested in accordance with ASTM C1396 with no less than a 1-hour fire-resistance-rating with fire exposure from the outside only is considered a noncombustible material.

**OCCUPIABLE SPACE.** A room or enclosed space designed for human occupancy in which individuals congregate for amusement, education or similar purposes or in which occupants are engaged at labor.

**ROOF ASSEMBLY.** A system designed to provide weather protection and resistance to design loads. The system consists of a *roof covering* and *roof deck* or a single component serving as both the *roof covering* and the *roof deck*. A *roof assembly* can include an underlayment, thermal barrier, ignition barrier, insulation or a vapor retarder.

**ROOF COVERING.** The covering applied to the *roof deck* for weather resistance, fire classification or appearance.

**ROOF DECK.** The flat or sloped surface not including its supporting members or vertical supports.

**SLOPE.** The variation of terrain from the horizontal; the number of feet rise or fall per 100 feet measured horizontally, expressed as a percentage.

**STRUCTURE.** That which is built or constructed.

**STRUCTURE IGNITION ZONE.** Structure Ignition Zone is the structure and the area around the structure (or home). The SIZ takes into account both the potential of the structure to ignite and the quality of *defensible space* surrounding it.

**TREE CROWN.** The primary and secondary branches growing out from the main stem, together with twigs and foliage.

**WILDLAND-URBAN INTERFACE.** The geographic areas within Douglas County identified on the Colorado Wildfire Resiliency Code Map where structures and other human development meet or intermingle with wildland or vegetative fuels.

# Chapter 3 - Wildfire Hazard Identification

## SECTION 301 GENERAL

**301.1 Scope.** The provisions of this chapter provide methodology to establish and record wildfire hazard based on the findings of fact to be regulated by this code.

**301.2 Objective**. The objective of this chapter is to provide simple baseline criteria for determining *wildland-urban interface* areas based on the wildfire hazard.

## SECTION 302 WILDLAND-URBAN INTERFACE AREA DESIGNATIONS

**302.1 Declaration.** Douglas County declares the *wildland-urban interface* areas within Douglas County as shown on the Colorado Wildfire Resiliency Code Map, available at: https://experience.arcgis.com/experience/34c113129c044004bc672ca5493378de/

## SECTION 303 MAPPING AND APPLICABILITY

**303.1 Mapping of Wildfire Hazard Areas.** The Wildfire Hazard area map for Douglas Count is the Colorado Wildfire Resiliency Code Map. This map identifies areas subject to the provisions of this code and is available at the link provided above and at the Douglas County Building Division Office.

**303.1.1 Map.** This map is based on a combination of factors including, but not limited to, vegetative fuels, topography, local weather patterns, and fire behavior modeling data.

**303.1.2 Locally Developed Mapping.** Douglas County may develop and adopt local maps designating wildfire hazard and *fire intensity classifications* within its jurisdictional boundaries in accordance with Sections 303.1 through 303.3.

**303.2 Fire Intensity Classification.** *Fire Intensity Classification* is identified on the map in accordance with Section 303.1. *Fire Intensity Classification* is determined by expected wildfire behavior, including flame length and suppression difficulty and is separated into three levels: low, moderate, and high. The identified *fire intensity classification* establishes code requirements for construction and mitigation.

**303.2.1 Low Fire Intensity Classification.** Low *Fire Intensity Classification* is identified in areas with light to medium surface fuels, such as grasses, shrubs, and scattered low-density vegetation. These fuels are often discontinuous, which limits flame propagation but can sustain burning under moderate weather conditions. Fires in this class may occur on gentle to moderate *slopes*, where topography begins to influence the rate of spread. Although flame lengths remain relatively small—typically less than two feet—limited spotting may occur, especially with wind. Trained firefighters with protective equipment and standard hand tools can usually suppress these fires through direct attack, particularly on *slopes* under 30 percent. Mechanized equipment is typically unnecessary.

**Key Characteristics Include:**

1. **Fuels**: Light to medium surface fuels, including grasses, shrubs, and scattered vegetation (e.g., WNL, USL fuel types).

2. **Flame Length**: Less than 2 feet.
3. **Rate of Spread**: Low, increasing with *slopes* over 20 percent.
4. **Spotting**: Very short-range spotting is possible under windy conditions.
5. **Terrain Influence**: More active fire behavior on moderate *slopes* (20 to 30 percent).
6. **Suppression Difficulty**: Easily suppressed by trained firefighters using basic protective gear and hand tools. Direct attack is effective, and mechanized support is rarely needed.

**303.2.2 Moderate Fire Intensity Classification.** Moderate *Fire Intensity Classification* is identified in areas with moderate to heavy fuel loads, such as dense shrubs, small trees, and accumulated ground fuels. Fires in this class present continuous horizontal and vertical fuel arrangements, allowing flames to reach up to 8 feet in length. Fire behavior is notably influenced by moderate to steep *slopes*, often accelerating the spread.

Short-range spotting becomes more common, complicating suppression efforts. Ground crews typically require mechanized support, such as engines and dozers, to establish control lines. Aircraft assistance may be necessary, particularly in inaccessible terrain. There is a significant increase in the potential for property damage and risk to life, especially in *wildland-urban interface* areas.

**Key Characteristics Include:**

1. **Fuels**: Moderate to heavy fuels, including dense shrublands, small trees, timber litter, and canopy fuels (e.g., USH, UIH fuel types).
2. **Flame Length**: Up to 8 feet.
3. **Rate of Spread**: Moderate to high, increasing significantly on *slopes* over 30 percent.
4. **Spotting**: Short-range spotting is common.
5. **Terrain Influence**: Steep *slopes* (30 percent or greater) increase fire spread and intensity.
6. **Suppression Difficulty**: Challenging for ground crews without support from engines, dozers, or aircraft. Dozers and plows are generally effective on moderate terrain.

**303.2.3 High Fire Intensity Classification.** High *Fire Intensity Classification* is identified in areas with heavy, continuous fuel loads, such as dense forest canopies, thick understory growth, and heavy dead/downed material. Fires in this class frequently occur on steep *slopes*, often exceeding 40 percent, where topography dramatically increases the rate of spread and severity. Flame lengths can exceed 30 feet, and both short- and medium-range spotting are common, particularly in windy conditions. Direct suppression by ground crews is typically ineffective, requiring indirect attack strategies, such as backburns and aerial retardant drops. Fires in this class pose extreme risk to life, property, and firefighter safety, especially in rugged or remote areas.

**Key Characteristics Include:**

1. **Fuels**: Heavy fuels, including dense forests, urban core areas with heavy fuel loads, and canopy-dominated regions (e.g., WNH, USH, UCH fuel types).

2. **Flame Length**: Up to 30 feet or more.
3. **Rate of Spread**: Rapid, especially on *slopes* greater than 40 percent.
4. **Spotting**: Short-range spotting is common; medium-range spotting is possible under windy conditions.
5. **Terrain Influence**: *Slopes* over 40 percent amplify intensity and spread, creating dangerous conditions for suppression.
6. **Suppression Difficulty**: Direct attack by ground forces and dozers is generally ineffective. Indirect strategies (backburning, aerial support) are often necessary. These fires present significant danger to life, property, and responder safety.

**303.3 Applicability of Code Provisions.** The requirements of this code shall apply to all parcels located within the designated Wildfire Hazard Areas and corresponding *fire intensity classifications* as identified on the Colorado Wildfire Resiliency Code Map. The level of structure hardening, *defensible space*, and other mitigation measures required shall correspond to the applicable *fire intensity classification*—Low, Moderate, or High—as established by the board.

Structures and parcels identified with low *fire intensity classification* shall be constructed and maintained in accordance with the provisions for Class 1 structure hardening and site and area requirements.

Structures and parcels identified with moderate to high *fire intensity classifications* shall be constructed and maintained in accordance with the provisions for Class 2 structure hardening and site and area requirements.

## SECTION 304 GROUND-TRUTHING

**304.1 Purpose.** This section establishes a process for owners or the owners authorized representative to request a ground-truthing review of their property's Wildfire Hazard or *fire intensity classification* as identified on state or locally adopted maps. The intent is to provide an opportunity to verify that mapping accurately reflects current, site-specific conditions.

**304.2 Determination of Fire Intensity Classification and Code Requirements.** As determined by the *code official,* the *fire intensity classification* and associated requirements shall be based on a review of the vegetative fuels on the parcel and within 300' of the parcel boundary, topography, local weather patterns, and fire behavior modeling data and in accordance with the following *fire intensity classifications*:

**304.2.1** Low *Fire Intensity Classification* in accordance with Section 303.2.1

**304.2.2** Moderate *Fire Intensity Classification* in accordance with Section 303.2.2

**304.2.3** High *Fire Intensity Classification* in accordance with Section 303.2.3

This determination shall be made based on existing conditions or conditions that have been established by a development plan approved by Douglas County. Technical documentation shall be submitted in support of such request by a qualified wildfire professional and in accordance with Section 104.2.

# Chapter 4- Structure Hardening

## SECTION 401 GENERAL

**401.1 Scope.** Exterior design and construction of new buildings and structures within the *wildland-urban interface* areas of Douglas County that are outside the corporate limits of a city or town and outside the boundaries of a fire protection district shall be constructed in accordance with this chapter.

**Exceptions:**

1. Buildings of an accessory character classified as Group U occupancy (including *agricultural buildings*) of any size located at least 50 feet from a structure containing *occupiable* or *habitable space*.
2. One-story detached accessory, nonhabitable structures, such as tool and storage sheds, playhouses and similar uses, provided that the floor area does not exceed 120 square feet and the structure is located greater than or equal to 10 feet from the nearest adjacent occupiable structure.
3. The reconstruction, replacement, alteration, or repair of the exterior walls of an existing building, when less than 25 percent of the surface area of all exterior walls is affected.
4. The reconstruction, replacement, alteration, or repair of the exterior *roof covering* of an existing building, when less than 25 percent of the surface area of the exterior *roof covering* or an attachment thereto is affected.
5. Alterations or repairs to the exterior of an existing structure, or an attachment to it, when less than twenty-five percent of the exterior of the structure is affected by the alteration or repair.
6. Additions that do not increase the footprint of a structure by more than 500 square feet.

## SECTION 402 BUILDING MATERIAL

**402.1 Building material.** Building materials shall comply with any one of the requirements in Section 402.2 through 402.4.

**402.2 Noncombustible material.** *Noncombustible* material shall comply with the definition of *noncombustible* materials in Section 202.

**402.3 Fire-retardant-treated wood.** *Fire-retardant-treated wood* shall be identified for exterior use and shall meet the requirements of Section 2303.2 of the 2024 *International Building Code*.

**402.4 Ignition-resistant building material.** Material shall be tested on the front and back faces in accordance with the extended ASTM E84 or UL 723 test, for a total test period of 30 minutes, or with the ASTM E2768 test. The materials shall bear identification showing the fire test results. Panel products shall be tested with a ripped or cut longitudinal gap of 1/8 inch. The materials, when tested in accordance with the test procedures set forth in ASTM E84 or UL 723 for a test period of 30 minutes, or with ASTM E2768, shall comply with Sections 402.4.1 through 402.4.3.3. Materials or products which melt, drip or delaminate to the extent that the flame front is interrupted are not permitted.

**Exception:** Materials composed of a combustible core and a noncombustible exterior covering made from either aluminum at a minimum 0.019 inch thickness or corrosion-

resistant steel at a minimum 0.0149 inch thickness shall not be required to be tested with a ripped or cut longitudinal gap.

**402.4.1 Flame spread.** The material shall exhibit a *flame spread index* not exceeding 25.

**402.4.2 Flame front.** The material shall exhibit a flame front that does not progress more than 10 feet 6 inches beyond the centerline of the burner at any time during the test.

**402.4.3 Weathering.** *Ignition-resistant building materials* shall maintain their performance in accordance with this section under conditions of use. The materials shall meet the performance requirements for weathering (including exposure to temperature, moisture and ultraviolet radiation) contained in Sections 402.4.3.1 through 402.4.3.3, as applicable to the materials and conditions of use.

**402.4.3.1 Evaluation requirements for weathering.** Fire-retardant-treated wood, wood-plastic composite materials and plastic lumber materials shall be evaluated after weathering in accordance with Method A "Test Method for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing" in ASTM D2898.

**402.4.3.2 Wood-plastic composite materials.** Wood-plastic composite materials shall also demonstrate acceptable fire performance after weathering by the following procedure: first testing in accordance with ASTM E1354 at an incident heat flux of 50 kW/m2 in the horizontal orientation, then weathering in accordance with ASTM D7032 and then retesting in accordance with ASTM E1354 and exhibiting an increase of no more than 10 percent in peak rate of heat release when compared to the peak heat release rate of the nonweathered material.

**402.4.3.3 Plastic lumber materials**. Plastic lumber materials shall also demonstrate acceptable fire performance after weathering by the following procedure: first testing in accordance with ASTM E1354 at an incident heat flux of 50 kW/m2 in the horizontal orientation, then weathering in accordance with ASTM D6662 and then retesting in accordance with ASTM E1354 and exhibiting an increase of no more than 10 percent in peak rate of heat release when compared to the peak heat release rate of the nonweathered material.

## SECTION 403 CLASS 1 STRUCTURE HARDENING

**General.** Class 1 structure hardening shall be in accordance with Sections 403.2 through 403.4.2 and shall apply to buildings and structures hereafter constructed, modified or relocated into or within areas of the *wildland-urban interface* having a low fire hazard severity.

**403.1 Roofing.** Roofs shall have a *roof covering* or *roof assembly* classified as Class A when tested in accordance with ASTM E108 or UL 790.

**403.1.1 Flame and ember protection of roofs.** For roof assemblies where the roof covering profile creates a space between the roof covering and roof deck, the space shall resist the entry of flames and embers by one or more of the following methods:

1. Firestopping with noncombustible material of the space between the roof covering and the roof deck.

2. Installation of one layer of cap sheet complying with ASTM D3909 over the combustible roof deck.
3. Installation of a listed Class A classified roof assembly.

**403.1.2 Roof valley flashings.** Valley flashings shall be not less than 0.019 inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36- inch-wide underlayment consisting of one layer of cap sheet complying with ASTM D3909 running the full length of the valley.

**403.2 Gutters and downspouts.** Gutters and downspouts shall be constructed of *noncombustible* material.

**403.3 Ventilation Openings.** Ventilation openings for enclosed attics, enclosed rafter spaces, and underfloor spaces shall be in accordance with Section 403.4.1 or Section 403.4.2 as applicable.

**403.3.1 Performance Requirements.** Ventilation openings shall be fully covered with listed vents, tested in accordance with ASTM E2886, to demonstrate compliance with all the following requirements:

1. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
2. There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
3. The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

**403.3.2 Prescriptive Requirements.** Ventilation openings for enclosed attics, enclosed rafter spaces, and underfloor spaces shall be covered with *noncombustible* 404.3corrosion-resistant mesh with openings not to exceed ⅛-inch.

## SECTION 404 CLASS 2 STRUCTURE HARDENING

**404.1 General.** Class 2 structure hardening shall be in accordance with Sections 404.2 through 404.10.1 as well as the provisions of Class 1 structure hardening in Sections 403.2-403.4.2 and shall apply to buildings and structures hereafter constructed, modified or relocated into or within areas of the *wildland-urban interface* having a moderate or high fire hazard severity. See also Sections 101.6-101.7.

**404.2 Protection of eaves.** Eaves and soffits shall be protected on the exposed underside by *noncombustible material, ignition-resistant materials,* or by materials approved for not less than 1-hour *fire-resistance-rated construction*, *⅝-inch Type X drywall,* 2-inch nominal dimension lumber, or 1 inch nominal *fire-retardant-treated wood* or ¾ inch nominal fire-retardant-treated plywood, identified for exterior use and meeting the requirements of Section 2303.2 of the 2024 *International Building Code*. Fascias are required and shall be protected on the backside by *noncombustible material, ignition-resistant materials,* or by materials approved for not less than 1-hour *fire-resistance-rated construction, ⅝-inch Type X drywall,* or 2-inch nominal dimension lumber.

**404.3 Exterior Walls.** Exterior walls of buildings or structures shall be constructed with one of

the following methods:

1. Exterior wall assemblies with a minimum of 1-hour fire-resistance rating, rated for exposure on the exterior side.
2. *Approved noncombustible materials.*
3. *Heavy timber* or *log wall construction.*
4. *Noncombustible* materials complying with Section 402.2 on the exterior side.
5. *Fire-retardant treated wood* complying with Section 402.3 on the exterior side. The *fire-retardant-treated wood* shall be labeled for exterior use and meet the requirements of Section 2303.2 of the 2024 *International Building Code*.
6. Ignition-resistant materials complying with Section 402.4 on the exterior side.

Such material shall extend from the top of the foundation to the underside of the eave or the underside of the roof sheathing.

**Exceptions:**

1. Exterior wall *embellishments* and architectural trim (exclusive of trim on exterior windows and doors) not to exceed 5 percent of the square footage of the exterior wall.
2. Roof or wall top cornice projections and similar assemblies.
3. Solid wood rafter tails and solid wood blocking installed between rafters having minimum dimension 2 inch nominal.

**404.3.1 Exterior Wall Coverings.** Exterior wall coverings shall be limited to the following:

1. *Noncombustible* materials.
2. *Fire-retardant-treated wood*.
3. *Ignition-resistant building materials*.

**Exception:** Where options 1 or 2 in section 404.3 are used, vinyl siding may be used as an exterior covering.

**404.3.2 Flashing.** A minimum of 6 inches of metal flashing or *noncombustible* material applied vertically between the wall sheathing and the exterior cladding shall be installed at the ground, decking, and roof intersections.

Combustible sheathing products exposed by the gap created at the base of the exterior walls, posts, or columns must be protected with *noncombustible material* or *ignition-resistant building materials* while still permitting drainage and moisture control from behind exterior cladding.

**404.4 Underfloor enclosure.** Buildings or structures shall have underfloor areas enclosed to the ground or comply with exterior walls in accordance with Section 404.3.

**404.5 Decking.** Unenclosed decks shall have the deck walking surface constructed of one of the following:

1. *Approved noncombustible* materials
2. Class A rated material

   **Exception:** Composite decking material with a minimum of Class B rating
3. *Fire-retardant-treated wood* identified for exterior use and meeting the requirements of Section 2303.2 of the 2024 *International Building Code*
4. *Ignition-resistant building materials* in accordance with Section 402.4.

**404.6 Appendages and Projections.** Appendages and projections shall be constructed in

accordance with Section 404.3.

**404.7 Exterior Glazing.** Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, *multilayered glazed panels*, glass block or have a fire protection rating of not less than 20 minutes.

**404.8 Exterior Doors.** Exterior doors shall be *approved noncombustible* construction, solid core wood not less than 1 ¾-inches thick, or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with Section 404.7.

**Exception:** Vehicle access doors.

**404.9 Vehicle Access Door Perimeter Gap.** Exterior vehicle access doors shall resist the intrusion of embers from entering by preventing gaps between doors and door openings, at the head, sill, and jamb of doors from exceeding ⅛ inch as approved by the AHJ.

Gaps between doors and door openings shall be controlled by one of the following methods:

1. Weather-stripping products made of materials that: (a) have been tested for tensile strength in accordance with ASTM D638 (Standard Test Method for Tensile Properties of Plastics) after exposure to ASTM G155 (Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials) for a period of 2,000 hours, when the maximum allowable difference in tensile strength values between exposed and non-exposed samples does not exceed 10 percent; and (b) exhibit a V-2 or better flammability rating when tested to UL 94 (Standards for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances).
2. Door overlaps onto jambs and headers.
3. Garage door jambs and headers covered with metal flashing.

**404.10 Detached Accessory Structures.** Detached *accessory structures* located less than 50 feet from a building containing *habitable* or *occupiable space* shall have exterior walls constructed in accordance with Section 404.3 through 404.3.2.

**404.10.1 Underfloor areas.** Where the detached structure is located and constructed so that the structure or any portion thereof projects over a descending *slope* surface greater than 10 percent, the area below the structure shall have underfloor areas enclosed to within 6 inches of the ground, with exterior wall construction in accordance with Section 404.3 or underfloor protection in accordance with Section 404.4 or with ⅛-inch metal corrosion-resistant screen with a hardened zone within 5 feet.

**Exception:** The enclosure shall not be required where the underside of exposed floors and exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour *fire-resistance-rated construction, heavy timber construction, noncombustible* materials on the exterior side, or *fire-retardant-treated wood* on the exterior side. The *fire-retardant-treated wood* shall be labeled for exterior use and meet the requirements of Section 2303.2 of the 2024 *International Building Code.*

# Chapter 5- Site and Area Requirements

## SECTION 501 GENERAL

**501.1 Scope.** The provisions of this chapter shall apply to parcels subject to this code.

**501.2 Reference.** As needed, the *code official* shall refer to the Home Ignition Zone (HIZ) Guide as developed by the Colorado State Forest Service.

Where conflicts occur between provisions of this code and the HIZ Guide, the provisions of this code shall govern. The provisions of this code, as applicable, shall take precedence over the provisions in the referenced standard.

## SECTION 502 CLASS 1 REQUIREMENTS

### 502.1 Structure Ignition Zone 1 (0-5 feet): Immediate Zone

**502.1.1 Objective.** This zone is designed to reduce or eliminate ember ignition and direct flame contact with the structure, decks, stairs, and attachments.

**502.1.2 Materials.** Use *noncombustible*, hard surface materials in this zone, such as rock, gravel, sand, concrete, bare earth or stone/concrete pavers.

**Exception:** Ignition-resistant plantings, per an approved list by the AHJ that is not less than that created by the Colorado State Forest Service, are allowed in the Immediate Zone.

**502.1.3 Plantings.** Remove all plantings including shrubs, slash, combustible mulch and other woody debris, with the exception of ignition-resistant vegetation.

**502.1.4 Trees.** There shall be no planting of new trees in the immediate zone. Mature trees of no less than 10-inch diameter at 4.5 feet above ground level may be maintained.

*Tree crowns* extending to within 10 feet of any structure shall be pruned to maintain a minimum clearance of 10 feet.

Prune tree branches to a height of 6-10 feet from the ground or a third of the total height of the tree, whichever is less.

### 502.2 Site Signage

**502.2.1 Marking of roads.** *Approved* signs or other *approved* notices shall be provided and maintained for access roads and driveways to identify such roads and prohibit the obstruction thereof.

**502.2.2 Marking of fire protection equipment.** Fire protection equipment and fire hydrants shall be clearly identified in a manner *approved* by the *code official* to prevent obstruction.

**502.2.3 Address markers.** Buildings shall have a permanently posted address, which shall be placed at each driveway entrance and be visible from both directions of travel along the road. In all cases, the address shall be posted at the beginning of construction and shall be maintained thereafter, and the address shall be visible and legible from the road on which the address is located in a manner *approved* by the *code official*.

### 502.3 Retaining Walls

**502.3.1 Retaining Walls.** Retaining walls shall be constructed with either *noncombustible* or ignition-resistant materials when any of the following conditions exist:

1. The retaining wall is within 8 feet of a structure regulated by this code or up to the property line when the property line is less than 8 feet away from the structure.
2. The retaining wall is integral to the support of a structure regulated by this code.
3. The retaining wall is integral to the egress from a structure regulated by this code to a public way, easement, or private road.

### 502.4 Fencing

**502.4.1 Fencing.** Fencing within 8 feet of a structure regulated by this code or up to the property line when the property line is less than 8 feet away from the structure shall be constructed with *noncombustible* or ignition-resistant materials.

**Exception:** Vinyl fencing. Vinyl fencing may be allowed.

## SECTION 503 CLASS 2 REQUIREMENTS

**503.1 General.** Class 2 site and area requirements shall be in accordance with Sections 503.2 through 503.3.2 and include all requirements of Class 1 in Sections 502.1 through 502.4.

### 503.2 Structure Ignition Zone 2 (5-30 feet) Intermediate Zone

**503.2.1 Objective.** This zone is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to structures.

**503.2.2 Dead Materials.** Within the *fuel modification* area, hazardous dead plant material must be removed from live vegetation.

**503.2.3 Fuels Accumulation.** Avoid large accumulations of surface fuels such as logs, branches, slash and combustible mulch.

**503.2.4 Trees.** *Tree crowns* extending to within 10 feet of any structure shall be pruned to maintain a minimum clearance of 10 feet.

Prune tree branches to a height of 6-10 feet from the ground or a third of the total height of the tree, whichever is less.

**503.2.4.1 Tree Spacing.** *Tree crowns* within this zone shall be spaced to prevent structure ignition and promote fuel discontinuity to limit fire spread.

**503.2.5 Shrubs.** Shrub groups within this zone shall be spaced to prevent structure ignition. Shrubs shall be at least 10 feet away from the edge of tree branches.

### 503.3 Structure Ignition Zone 3 (30-100 feet) Expanded Zone

**503.3.1 Objective.** This zone focuses on mitigation that keeps fire on the ground.

**503.3.2 Tree Spacing.** *Tree crowns* within this zone shall be spaced at a minimum of 6-10 feet.