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## Exhibit A

### AMENDMENTS COMMON TO ALL ADOPTED CODES

<b>International Private Sewage Disposal Code</b>	<b>Not adopted</b>
<b>International Property Maintenance Code</b>	<b>Not adopted</b>
<b>ICC Electrical Code</b>	<b>Not adopted</b>
<b>International Zoning Code</b>	<b>Not adopted</b>
<b>International Wildland-Urban Interface Code</b>	<b>Not adopted</b>
<b>International Existing Building Code</b>	<b>Only Chapters 4 Repairs, Chapter 13 Performance Compliance Method &amp; Chapter 14 Relocated or Moved Buildings are adopted, all other IEBC Chapters are not adopted</b>

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

#### **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

<b>Table 10.3.2</b>	
<b>ELECTRICAL PERMIT FEE SCHEDULE</b>	
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	
<b>Section A. RESIDENTIAL:</b> In unincorporated Douglas County a single Residential Building Permit Fee covers all building, electrical, mechanical, and plumbing work included on the approved plans.	
<b>Section B. ALL OTHER FEES</b> including <u>some residential installations that are not based on square footage</u> (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:	
<b><u>Valuation of Installation:</u></b> (based on cost to customer of labor, materials, and components):	
<b>FEE</b>	
1) Not more than \$2,000.....	<b>\$ 57</b>
2) \$2,001 and above.....	<b>\$ 5 per thousand OR FRACTION thereof PLUS \$ 57</b>
<b>Example:</b> 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 <i>PLUS</i> \$57 = \$102 The total fee is: <u>\$102</u>	
<b>C. Reinspection fee</b> for all of the above.....	<b>\$ 47</b>
<b>D. Add Fee for Extra inspections</b> .....	<b>\$ 50</b>
<b>E. Add Fee for Residential Constr. Meter</b> (for work under Sect. A) ...	<b>\$ 45</b>

**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**

<b>Project Valuation</b>	<b>Permit Fee</b>
\$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)

<b>Total Valuation</b>	<b>Building Permit Fee</b>
\$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..... (minimum charge of two hours)	\$47.00 per hour <sup>A</sup>
2. Re-inspection fees..... (minimum charge of one hour)	\$47.00 per hour <sup>A</sup>
3. Inspections for which no fee is specifically indicated..... (minimum charge of one-half hour)	\$47.00 per hour <sup>A</sup>
4. Additional plan review required by changes, additions or revisions to plans..... (minimum charge of one-half hour)	\$47.00 per hour <sup>A</sup>
5. For use of outside consultants for plan checking and inspections, or both.....	Actual costs <sup>B</sup>
6. Investigation fees..... (minimum charge of two hours)	\$47.00 per hour <sup>A</sup>

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**

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 APPEALS**

### **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 Appeals (BOA). The Building Official shall be an ex-officio member of, and shall act as secretary to said BOA, but shall have no vote on any matter before the BOA. The BOA shall operate as and perform the duties of the Board of Review, pursuant to Section 30-28-206, C.R.S. the BOA shall be appointed by the Douglas

County Board of County Commissioners and any member of the BOA may be removed for cause by the Douglas County Board of County Commissioners. The BOA shall consist of no less than five members nor more than seven 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 BOA. The BOA may adopt supplemental rules of procedure not inconsistent with Article 28, Title 30, C.R.S. or such general rules. The BOA 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 BOA, 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 BOA shall have no authority to waive requirements of this Code or provide product approvals.

**30.3 Qualifications**

The BOA 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 BOA 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 BOA.

**30.6 Fees**

The fee for a hearing before the Board of Appeals 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, requiring noise mitigation, shall comply with table 40.1.

**Exception:**

An acoustical engineer, registered with the State of Colorado, may certify that construction practices and/or materials of the structure will achieve an interior noise level of 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 minimum STC ratings listed in Table 40.1, shall be performed and reported in accordance with ASTM E966 (current version at time of testing), ‘Standard Guide for Field Measurements of Airborne Sound Insulation of Building Facades and Facade Elements’. Field measured outdoor to indoor transmission loss (OITL) ratings shall be no more than 5-points less than the minimum STC ratings listed in Table 40.1.

**Table 40.1  
Minimum Sound Transmission Class (STC)<sup>A</sup>**

<b>A-weighted DNL</b>	<b>Wall, Floor and Roof Assemblies</b>	<b>Window and Door Assemblies</b>
≥ 75	50	42
≥ 70 to 75	45	37
≥ 65 to 70	39	28

A. The STC of construction assemblies shall be determined by a certified sound testing laboratory.

**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 2021 INTERNATIONAL RESIDENTIAL CODE (IRC)**

Note: Refer to the section “Common to all adopted 2021 International Codes” for more information.

**Appendix AM Home Day Care Group R-3 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”

**Barrier Requirements for Swimming Pools, Hot Tubs and Spas Adopt as appendix**

Attached hereto, as Exhibit “F”

**R101.1 Title Insert**

Douglas County Building Division

**R104.2.1 Election to proceed under previous code Add new subsection**

Within the first 180 days following the adoption of this code, an applicant under subsection R104.2 may elect to, and if approved by the Building Official may, proceed under the set of codes previously adopted on November 12, 2019; provided, however, that said election must be made certain and in writing, and under no circumstances shall an applicant be permitted to proceed partially under one set of codes and partially under the other.

**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

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.

**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 Board 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	
<b>Ground Snow Load = Roof Snow Load</b>		<b>Reductions for Snow Loads are Not Allowed</b>

\*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)**

**R310.4.1 Minimum size**      **Add exception (2)**

**Exception 2.** In basements of existing R-3 (one- or two-family dwellings) occupancies, egress 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.

**R313.1 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.

**R313.2 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.

**R315.2.2 Alterations, repairs and additions** **Delete exception 2 and 3**

**R315.3 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.

**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**

**R905.7.4 Material standards.** **Delete in its entirety and substitute**

Wood shingles shall have a minimum class C rating, be of naturally durable wood and comply with the requirements of Table R905.7.4.



**R905.8.5 Material standards.**

**Delete in its entirety and substitute**

Wood shakes shall have a minimum class C rating and comply with the requirements of Table R905.8.5.

**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.

**R908.3.1.1 Roof recover not allowed**

**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 2018 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, CO<sub>2</sub>, 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 2021 INTERNATIONAL BUILDING CODE (IBC)**

Note: Refer to the section “Common to all adopted 2021 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 P– Solar Photovoltaic Power Systems**  
Attached hereto, as “Exhibit E”

**Adopt as a new appendix**

**Barrier Requirements for Swimming Pools, Hot Tubs and Spas**  
Attached hereto, as Exhibit “F”

**Adopt as appendix**

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

**Replace  
Insert**

**101.4.4 Property Maintenance**

**Delete in its entirety**

**104.2.2 Election to proceed under previous code** **Add new subsection**

Within the first 180 days following the adoption of this code, an applicant under subsection R104.2 may elect to, and if approved by the Building Official may, proceed under the set of codes previously adopted on November 12, 2019; provided, however, that said election must be made certain and in writing, and under no circumstances shall an applicant be permitted to proceed partially under one set of codes and partially under the other.

**105.2(2) Work exempt from permit (Building)**

**Delete item 2 and substitute**

2. Fences 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.

**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.

**105.3.1.1 Election to proceed under previous code**

**Add new subsection**

Within the first 180 days following the adoption of this code, an applicant under Subsection 105.3 may elect to, and if approved by the Building Official may, proceed under the set of codes previously adopted on November 12, 2019; provided, however, that said election must be made certain and in writing, and under no circumstances shall an applicant be permitted to proceed partially under one set of codes and partially under the other.

**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 Use and 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 Board 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 2023 National Electrical Code (or a subsequently adopted electrical code), and IBC Appendix P (added herein).

**AMENDMENTS TO THE 2021 INTERNATIONAL PLUMBING CODE (IPC)**

Note: Refer to the section “Common to all adopted 2021 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**

**115.4 Violation penalties** **Delete in its entirety**

**116.4 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.

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

**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.

**1302 On-site non-potable water reuse systems**

**Delete in its entirety and substitute**

All on-site non-potable water reuse systems must comply with Colorado Department of Public Health and Environment Regulation 86 and with Douglas County R-022-073 “Resolution to Approve a Pilot Program to Allow the Limited Use of Graywater in New Homes within the Boundaries of Canyons South Planned Development, as Amended”. All other on-site collection and/or reuse of non-potable water is prohibited.

**Chapter 14 Subsurface Graywater Soil Absorption Systems**

**Delete in its entirety**

**AMENDMENTS TO THE 2021 INTERNATIONAL MECHANICAL CODE (IMC)**

Note: Refer to the section “Common to all adopted 2021 International Codes” for more information.

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

**Replace**  
**Insert**

**115.4 Violation penalties**

**Delete in its entirety**

**116.4 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 2021 INTERNATIONAL FUEL GAS CODE (IFGC)**

Note: Refer to the section “Common to all adopted 2021 International Codes” for more information.

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

**Replace**  
**Insert**

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

**Replace**  
**Insert**

**113 Means of appeal**

**Delete in its entirety**

**114 Board of Appeals**

**Delete in its entirety**

**115.4 Violation penalties**

**Delete in its entirety**

<b>116.4 Failure to comply</b>	<b>Delete section and substitute</b>
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.	
<b>303.3(3) and (4) Prohibited locations</b>	<b>Delete in their entirety</b>
<b>404.12 Minimum burial depth</b>	<b>Delete and substitute</b>
Underground piping systems shall be installed at a minimum depth of eighteen (18) inches (457 mm) below grade.	
<b>404.12.1 Individual outdoor appliances</b>	<b>Delete in its entirety</b>
<b>406.4.1 Test pressure</b>	<b>Delete and substitute</b>
<b>406.4.1 Test pressure and duration</b>	
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, CO <sub>2</sub> , 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.	
<b>406.4.2 Test duration</b>	<b>Delete in its entirety</b>
<b>501.8 (8) Appliances not required to be vented</b>	<b>Delete in its entirety</b>
<b>603.1 General</b>	<b>Delete in its entirety and substitute</b>
Log lighters are prohibited.	
<b>621 Unvented room heaters</b>	<b>Delete section in its entirety and substitute</b>
Unvented room heaters and unvented fireplaces are prohibited within dwellings. (See clarification in the IRC amendments).	

**AMENDMENTS TO THE 2018 INTERNATIONAL ENERGY CONSERVATION CODE**  
**(IECC)**

Note: Refer to the section “Common to all adopted 2018 International Codes” for more information.

<b>R101.1 Title</b>	<b>Insert</b>
Douglas County Building Division	
<b>104 Fees</b>	<b>Delete section and all subsections to fees in their entirety</b>

<b>108.4 Failure to comply</b>	<b>Delete subsection in its entirety</b>
<b>109 Board of appeals</b>	<b>Delete section in its entirety</b>
<b>C103.6.3 Systems operation control</b>	<b>Delete subsection in its entirety</b>
<b>R202 Definitions</b>	<b>Delete in their entirety and substitute</b>

**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.

<b>R401.3 Certificate</b>	<b>Delete the first two sentences and substitute</b>
---------------------------	--

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.

<b>R402.4.1.2, Testing</b>	<b>Delete the first sentence and substitute</b>
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The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding five air changes per hour or 0.30 cubic feet per minute for multi-family units and not exceeding three air changes per hour or 0.24 cubic feet per minute for all other residential buildings and dwelling units.

<b>R402.4.4 Rooms containing fuel burning appliances</b>	<b>Delete in its entirety and substitute</b>
--	--

In Climate Zones 3-8, where open combustion air ducts provide combustion air to open combustion fuel-burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room that is isolated from inside the thermal envelope. Such rooms shall be insulated in accordance with the envelope requirements of Table R402.1.2, where the walls and ceilings shall meet a minimum of the basement wall R-value requirement. The door into the room shall be fully gasketed and any waterlines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to an R-value of not less than R-8.



**Exceptions:**

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the International Residential Code.

**AMENDMENTS TO THE 2023 NATIONAL ELECTRICAL CODE (NEC)**

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

**Article 215.2(A) 2 (a)** 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. When matters of joint interest are involved, the Building Official 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 750° C (1382° 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 Douglas County wildfire mitigation specialist.

**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 a Douglas County Wildfire Mitigation Specialist. 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 Wildfire Mitigation Specialist 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.

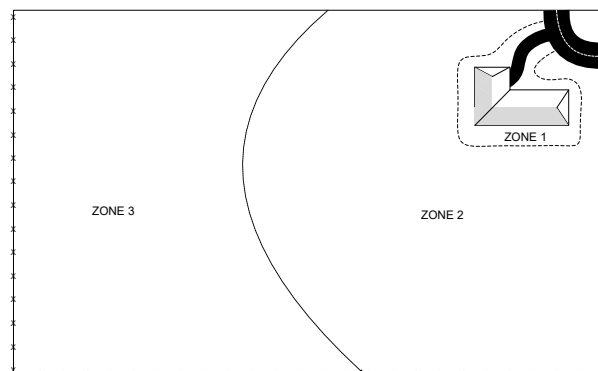
### 3-2.5 Maintenance of Defensible Space.

**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.

## **Chapter 4 Roads, Streets, and Ways**

**Delete Section 4-1 through 4-4.10 in their entirety.** All new roads, whether public or private, shall be designed and constructed in accordance with the most current edition of the Douglas County Roadway Design and Construction Standards manual as amended and adopted by the Board of County Commissioners.

**4-4.11 Driveways and shared driveways.** Driveways and shared driveways serving new structures shall be designed and installed in accordance with this section. Additions that increase the area of an existing structure by greater than 50% or result in an aggregate area greater than



5,000 square feet may be required by Douglas County to meet the following criteria to the maximum extent practicable.

- (a) All driveways serving a single lot or parcel shall provide a minimum unobstructed all-weather driving surface width of twelve (12) feet and a minimum unobstructed vertical and horizontal clearance of fifteen (15) feet. A shared driveway as defined in this standard shall provide a minimum unobstructed all-weather driving surface width of sixteen (16) feet.
- (b) No driveway shall be constructed with a curvature radius of less than thirty-six (36) feet measured at the centerline of the driveway.
- (c) Grades shall not be steeper than ten (10) percent, except that the Building Official shall be permitted to allow steeper grades where alternative mitigation measures have been submitted and approved by the Building Official.
- (d) Driveways shall be maintained and shall have an all-weather driving surface to support the heaviest fire apparatus likely to be driven upon it. The driveway shall be accessible anytime of the year, day, or night. For the purpose of this section, an all-weather driving surface shall be class six (6) road base or equivalent.
- (e) A vehicular turnaround shall be provided at all building or structure sites when the driveway that provides access to the building or structure exceeds one hundred fifty (150) feet in developed length and shall be within fifty (50) feet of the building or structure served.

#### **4-4.12 Gated Entrances to Private Driveways.**

- (a) The clear opening provided through the gate shall be 3 feet wider than the traveled way and provide a minimum unobstructed vertical clearance of 15 feet.
- (b) All gates shall be located at least 30 feet from the public right-of-way or private road. Swinging gates shall open inward, allowing a vehicle to stop at the gate without obstructing traffic on the public or private road.

Gated vehicular entrances not shown on the submitted site plan shall be subject to the following criteria:

1. Application for an individual permit for construction of the proposed gate, including construction plans and foundation or footing engineering if applicable.
2. Electrical permit if applicable.
3. Site plan submittal to Douglas County Planning and Zoning for review of easements, setbacks, or other applicable criteria.

**Delete Chapter 5 in its entirety.**

## Chapter 6 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.

**6-1 General.** This chapter describes the process by which provisions for emergency water supplies shall be evaluated, designed, constructed, and maintained.

**6-2 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.

### **6-3 Evaluation of Water Supply Needs.**

**6-3.1 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.

**6-3.2 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.

**6-4 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.

**6-5 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.

**6-6 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 7 Structural Design and Construction**

**7-1 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.

**7-1.1 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.

**7-2 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.

**7-2.1 Wood Shakes and Wood Shingles.** Wood shakes and wood shingles are prohibited within the boundaries of the Wildfire Hazard Overlay District.

**7-2.2 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.

**7-3 Vents.** Vents for attic and subfloor ventilation shall be screened with a corrosion-resistant, noncombustible wire mesh with the mesh not to exceed nominal ¼ inches in size.

**7-4 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.

**7-5 Chimneys and Flues.**

**7-5.1 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.

**7-5.2 Construction.** Chimney or flue outlets shall be constructed with 10-foot clearance from all vegetation and obstructions.

**7-6 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.

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

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

## **Chapter 8 Public Fire Prevention and Fire Safety Information and Education**

**8-1 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 9 Referenced Publications**

**9-1** The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document.

### **9-1.1 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 256, Standard Methods of Fire Tests of Roof Coverings, 2003 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

**9-1.2 International Code Council**

International Wildland-Urban Interface Code 2012 edition

**9-1.3 Colorado State Forest Service**

Standard for Creating and Maintaining the Home Ignition Zone - 2021

## Commentary on Defensible Space Zone Prescriptions

### Descriptions

#### Zone 1

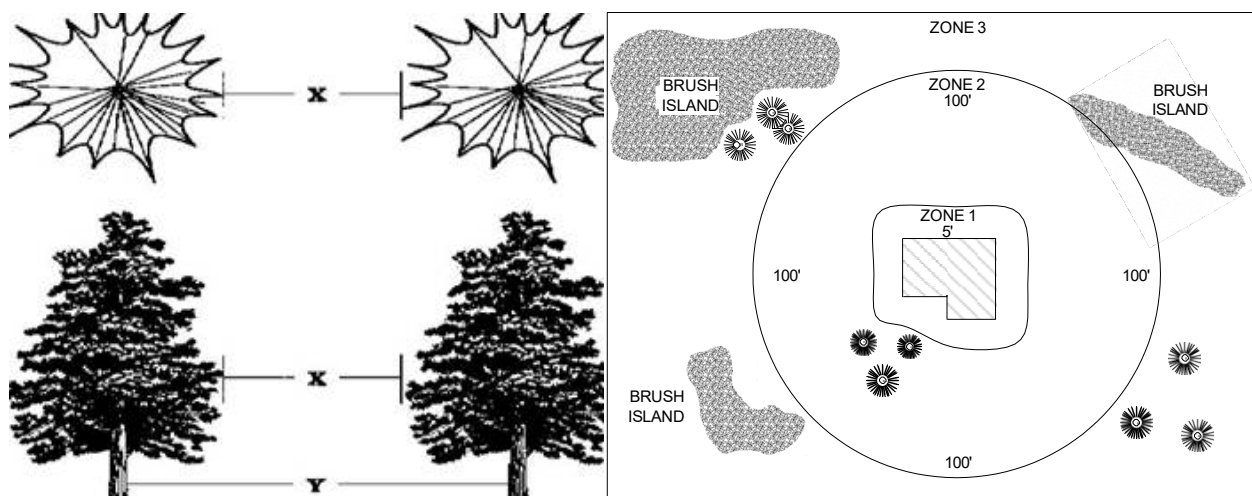
The size of Zone 1 is 5 feet, measured from the edges of the structure.

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

<b>% Slope</b>	<b>Tree Crown Spacing</b>	<b>Brush and Shrub Clump Spacing</b>
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**

<b>(In inches)</b>	<b>(In feet)</b>
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.

<b>% Slope</b>	<b>Defensible space size (uphill, downhill, sidehill)</b>
0 - 20 %	30' Feet
21 - 40%	50' Feet
> 40%	70' Feet



## **Exhibit C**

### **STANDARD FOR WATER SUPPLIES FOR RURAL FIRE FIGHTING**

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##### Section 1. Administration

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

##### Appendix A

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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 2012 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

### 2021 IBC Appendix Chapter P

#### Section P-1205 Solar Photovoltaic Power Systems

**P-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.

**P-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

**P-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.

**P-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.

**P-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.

**P-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.

**P-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.

**P-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.

**P-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.

**P-1205.3.1 Perimeter pathways.** There shall be a minimum 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).

**P-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.

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

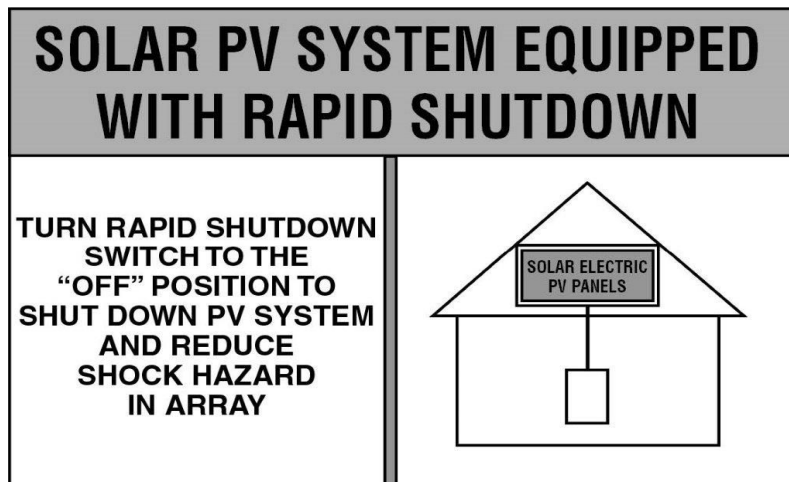
1. Where non-gravity-operated smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide shall be provided bordering all sides.
2. Where gravity-operated dropout smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide on not fewer than one side.
3. Smoke ventilation options 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.

**P-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.

**P-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.

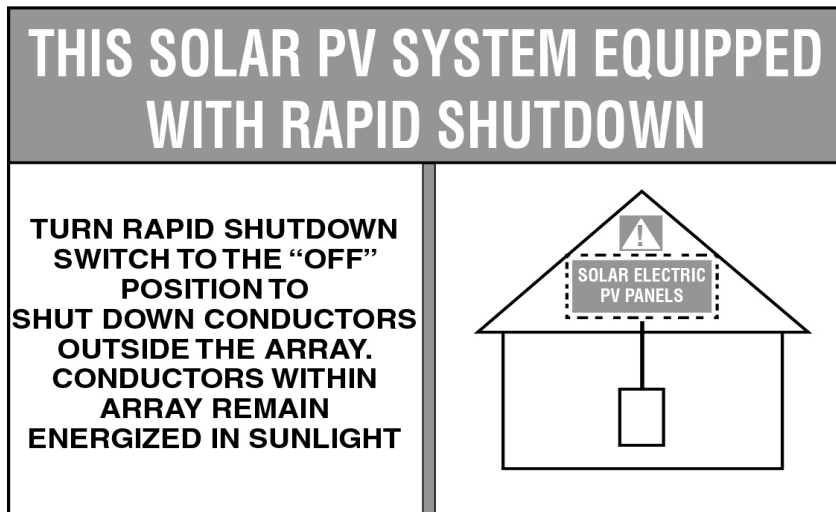


**FIGURE 1205.4.1(1)  
LABEL FOR SOLAR PV SYSTEMS THAT REDUCE  
SHOCK HAZARD WITHIN ARRAY AND SHUT  
DOWN CONDUCTORS LEAVING ARRAY**



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**

**P-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.

**P-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.

**P-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.

**P-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:

## RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

**P-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.

**P-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

### Reference 2021 International Swimming Pool and Spa Code

#### SECTION 305 BARRIER REQUIREMENTS

**305.1 General.** The provisions of this section shall apply to the design of barriers for restricting entry into areas having pools and spas. Where spas or hot tubs are equipped with a lockable safety cover complying with ASTM F1346 and swimming pools are equipped with a powered safety cover that complies with ASTM F1346, the area where those spas, hot tubs or pools are located shall not be required to comply with Sections 305.2 through 305.7.

**305.2 Outdoor swimming pools and spas.** Outdoor pools and spas and indoor swimming pools shall be surrounded by a barrier that complies with Sections 305.2.1 through 305.7.

**305.2.1 Barrier height and clearances.** Barrier heights and clearances shall be in accordance with all of the following:

1. The top of the barrier shall be not less than 48 inches (1219 mm) above grade where measured on the side of the barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of 3 feet (914 mm) measured horizontally from the outside of the required barrier.
2. The vertical clearance between grade and the bottom of the barrier shall not exceed 2 inches (51 mm) for grade surfaces that are not solid, such as grass or gravel, where measured on the side of the barrier that faces away from the pool or spa.
3. The vertical clearance between a surface below the barrier to a solid surface, such as concrete, and the bottom of the required barrier shall not exceed 4 inches (102 mm) where measured on the side of the required barrier that faces away from the pool or spa.
4. Where the top of the pool or spa structure is above grade. The barrier shall be installed on grade or shall be mounted on top of the pool or spa structure. When the barrier is mounted on the top of the pool or spa, the vertical clearance between the top of the pool or spa and the bottom of the barrier shall not exceed 4 inches (102 mm).

**305.2.2 Openings.** Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

**305.2.3 Solid barrier surfaces.** Solid barriers that do not have openings shall not contain indentations or protrusions that form handholds and footholds, except for normal construction tolerances and tooled masonry joints.

**305.2.4 Mesh fence as a barrier.** Mesh fences, other than chain link fences in accordance with Section 305.2.7, shall be installed in accordance with the manufacturer's instructions and shall comply with the following:

1. The bottom of the mesh fence shall be not more than 1 inch (25 mm) above the deck or installed surface or grade.
2. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not permit the fence to be lifted more than 4 inches (102 mm) from grade or decking.
3. The fence shall be designed and constructed so that it does not allow passage of a 4-inch (102 mm) sphere under any mesh panel. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall be not greater than 4 inches (102 mm) from grade or decking.
4. An attachment device shall attach each barrier section at a height not lower than 45 inches (1143 mm) above grade. Common attachment devices include, but are not limited to, devices that provide the security equal to or greater than that of a hook-and-eye-type latch incorporating a spring-actuated retaining lever such as a safety gate hook.
5. Where a hinged gate is used with a mesh fence, the gate shall comply with Section 305.3.
6. Patio deck sleeves such as vertical post receptacles that are placed inside the patio surface shall be of a nonconductive material.
7. Mesh fences shall not be installed on top of on ground residential pools.

**305.2.5 Closely spaced horizontal members.** Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the pool or spa side of the fence. Spacing between vertical members shall not exceed 1  $\frac{3}{4}$  inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1  $\frac{3}{4}$  inches (44 mm) in width.

**305.2.6 Widely spaced horizontal members.** Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, the interior width of the cutouts shall not exceed 1  $\frac{3}{4}$  inches (44 mm).

**305.2.7 Chain link dimensions.** The maximum opening formed by a chain link fence shall be not more than 1  $\frac{3}{4}$  inches (44 mm). Where the fence is provided with slats fastened at the top and bottom that reduce the openings, such openings shall be not greater than 1  $\frac{3}{4}$  inches (44 mm).

**305.2.8 Diagonal members.** Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be not greater than 1  $\frac{3}{4}$  inches (44 mm). The angle of diagonal members shall be not greater 45 degrees (0.79 rad) from vertical.

**305.2.9 Clear zone.** There shall be a clear zone of not less than 36 inches (914 mm) between the exterior of the barrier and any permanent structures or equipment such as pumps, filters and heaters that can be used to climb the barrier.

**305.2.10 Poolside barrier setbacks.** The pool or spa side of the required barrier shall be not less than 20 inches (508 mm) from the water's edge.

**305.3 Gates.** Access gates shall comply with the requirements of Sections 305.3.1 through 305.3.3 and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

**305.3.1 Utility or service gates.** Gates not intended for pedestrian use, such as utility or service gates, shall remain locked when not in use.

**305.3.2 Double or multiple gates.** Double gates or multiple gates shall have not fewer than one leaf secured in place and the adjacent leaf shall be secured with a self-latching device. The gate and barrier shall not have openings larger than ½ inch (12.7 mm) within 18 inches (457 mm) of the latch release mechanism. The self-latching device shall comply with the requirements of Section 305.3.3.

**305.3.3 Latches.** Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from grade, the release mechanism shall be located on the pool or spa side of the gate not less than 3 inches (76 mm) below the top of the gate, and the gate and barrier shall not have openings greater than ½ inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

**305.4 Structure wall as a barrier.** Where a wall of a dwelling or structure serves a part of the barrier and where doors or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor and doors shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be *listed and labeled* as a water hazard entrance alarm in accordance with UL 2017. In dwellings or structures not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located 54 inches (1372 mm) or more above the finished floor. In dwellings or structures required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) about the finished floor.
2. A safety cover that is listed and labeled in accordance with ASTM F1346 is installed for the pools and spas.
3. An approved means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protections that is not less than the protection afforded by Item 1 or 2.

**305.5 On ground residential pool structure as a barrier.** An on ground residential pool wall structure or a barrier mounted on top of an on ground residential pool wall structure shall serve as a barrier where all of the following conditions are present:

1. Where only the pool wall serves as the barrier, the bottom of the wall is on grade, the top of the wall is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, the wall complies with the requirements of Section 305.2 and the pool manufacturer allows the wall to serve as a barrier.

2. Where a barrier is mounted on top of the pool wall, the top of the barrier is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, and the wall and the barrier on top of the wall comply with the requirements of Section 305.2.
3. Ladders or steps used as means of access to the pool are capable of being secured, locked, or removed to prevent access except where the ladder or steps are surrounded by a barrier that meets the requirements of Section 305.
4. Openings created by the securing, locking or removal of ladders and steps do not allow the passage of a 4-inch (102 mm) diameter sphere.
5. Barriers that are mounted on top of on ground residential pool walls are installed in accordance with the pool manufacturer's instructions.

**305.6 Natural barriers.** In the case where the pool or spa area abuts the edge of a lake or other natural body of water, public access is not permitted or allowed along the shoreline, and required barriers extend to and beyond the water's edge not less than 18 inches (457 mm), a barrier is not required between the natural body of water shoreline and the pool or spa.

**305.7. Natural topography.** Natural topography that prevents direct access to the pool or spa area shall include but not be limited to mountains and natural rock formations. A natural barrier approved by the governing body shall be acceptable provided that the degree of protection is not less than the protection afforded by the requirement of Sections 305.2 through 305.5.

**Exhibit G – Existing Buildings  
Repairs, Performance Compliance Methods, Relocated or Moved Buildings**

**Reference 2021 International Existing Building Code Chapters 4, 13, 14  
(All other portions of the 2021 IEBC are intentionally not included)**

**CHAPTER 4 REPAIRS**

**SECTION G-401 GENERAL**

**G-401.1 Scope.** *Repairs* shall comply with the requirements of this chapter. *Repairs to historic buildings* need only comply with Chapter 12.

**G-401.1.1 Bleachers, grandstands and folding and telescopic seating.** *Repairs* to existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

**G-401.2 Compliance.** The work shall not make the building less complying than it was before the *repair* was undertaken.

**G-401.3 Flood hazard areas.** In flood hazard areas, *repairs* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

**SECTION G-402 BUILDING ELEMENTS AND MATERIALS**

**G-402.1 Glazing in hazardous locations.** Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the *International Building Code* or *International Residential Code* as applicable.

**Exception:** Glass block walls, louvered windows and jalousies repaired with like materials.

**SECTION G-403 FIRE PROTECTION**

**G-403.1 General.** *Repairs* shall be done in a manner that maintains the level of fire protection provided.

**SECTION G-404 MEANS OF EGRESS**

**G-404.1 General.** *Repairs* shall be done in a manner that maintains the level of protection provided for the means of egress.

**SECTION G-405 STRUCTURAL**

**G-405.1 General.** Structural *repairs* shall be in compliance with this section and Section 401.2.

**G-405.2 Repairs to damaged buildings.** *Repairs* to damaged buildings shall comply with this section.

**G-405.2.1 Repairs for less than substantial structural damage.** Unless otherwise required by this section, for damage less than *substantial structural damage*, the damaged elements shall be permitted to be restored to their pre-damage condition.

**G-405.2.1.1 Snow damage.** Structural components whose damage was caused by or related to snow load effects shall be repaired, replaced, or altered to satisfy the requirements of Section 1608 of the *International Building Code*.

**G-405.2.2 Disproportionate earthquake damage.** A building assigned to Seismic Design Category D, E or F that has sustained *disproportionate earthquake damage* shall be subject to the requirements for buildings with substantial structural damage to vertical elements of the lateral force-resisting system.

**G-405.2.3 Substantial structural damage to vertical elements of the lateral force-resisting system.** A building that has sustained *substantial structural damage* to the vertical elements of its lateral force-resisting system shall be evaluated in accordance with Section 405.2.3.1, and either repaired in accordance with Section 405.2.3.2 or repaired and retrofitted in accordance with Section 405.2.3.3, depending on the results of the evaluation.

**Exceptions:**

1. Buildings assigned to Seismic Design Category A, B or C whose *substantial structural damage* was not caused by earthquake need not be evaluated or retrofitted for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or retrofitted for load combinations that include earthquake effects.

**G-405.2.3.1 Evaluation.** The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of the *International Building Code* for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced seismic forces.

**G-405.2.3.2 Extent of repair for compliant buildings.** If the evaluation establishes that the building in its pre-damage condition complies with the provisions of Section 405.2.3.1, then the damaged elements shall be permitted to be restored to their pre-damage condition.

**G-405.2.3.3 Extent of repair for noncompliant buildings.** If the evaluation does not establish that the building in its pre-damage condition complies with the provisions of Section 405.2.3.1, then the building shall be retrofitted to comply with the provisions of this section. The wind loads for the *repair* and *retrofit* shall be those required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the *International Building Code*. The seismic loads for this *retrofit* design shall be those required by the building code in effect at the time of original construction, but not less than the reduced seismic forces.

**G-405.2.4 Substantial structural damage to gravity load-carrying components.** Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions for dead, live and snow loads in the *International Building Code*. Undamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the *rehabilitation* design.

**G-405.2.4.1 Lateral force-resisting elements.** Regardless of the level of damage to vertical elements of the lateral force-resisting system, if *substantial structural damage* to gravity load-carrying components was caused primarily by wind or seismic effects, then the building shall be evaluated in accordance with Section 405.2.3.1 and, if noncompliant, retrofitted in accordance with Section 405.2.3.3.



**Exceptions:**

1. Buildings assigned to Seismic Design Category A, B or C whose *substantial structural damage* was not caused by earthquake need not be evaluated or retrofitted for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or retrofitted for load combinations that include earthquake effects.

**G-405.2.5 Substantial structural damage to snow load-carrying components.** Where substantial structural damage to any snow load-carrying components is caused by or related to snow load effects, any components required to carry snow loads on roof framing of similar construction shall be repaired, replaced, or retrofitted to satisfy the requirements of Section 1608 of the *International Building Code*.

**SECTION G-406 ELECTRICAL**

**G-406.1 Material.** Existing electrical wiring and equipment undergoing *repair* shall be allowed to be repaired or replaced with like material.

**G-406.1.1 Receptacles.** Replacement of electrical receptacles shall comply with the applicable requirements of Section 406.4(D) of NFPA 70.

**G-406.1.2 Plug fuses.** Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over fusing or tampering per applicable requirements of Section 240.51(B) of NFPA 70.

**G-406.1.3 Non-grounding-type receptacles.** For replacement of non-grounding-type receptacles with grounding type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system or to any accessible point on the grounding electrode conductor in accordance with Section 250.130(C) of NFPA 70.

**G-406.1.4 Health care facilities.** Portions of electrical systems being repaired in Group I-2, ambulatory care *facilities* and outpatient clinics shall comply with NFPA 99 requirements for *repairs*.

**G-406.1.5 Grounding of appliances.** Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Section 250.140 of NFPA 70.

**SECTION G-407 MECHANICAL**

**G-407.1 General.** Existing mechanical systems undergoing *repair* shall not make the building less complying than it was before the damaged occurred.

**G-407.2 Mechanical draft systems for manually fired appliances and fireplaces.** A mechanical draft system shall be permitted to be used with manually fired appliances and fireplaces where such a system complies with all of the following requirements:

1. The mechanical draft device shall be listed and installed in accordance with the manufacturer's installation instructions.

2. A device shall be installed that produces visible and audible warning upon failure of the mechanical draft device or loss of electrical power at any time that the mechanical draft device is turned on. This device shall be equipped with a battery backup if it receives power from the building wiring.

3. A smoke detector shall be installed in the room with the appliance or fireplace. This device shall be equipped with a battery backup if it receives power from the building wiring.

## **SECTION G-408 PLUMBING**

**G-408.1 Materials.** Plumbing materials and supplies shall not be used for *repairs* that are prohibited in the *International Plumbing Code*.

**G-408.2 Water closet replacement.** The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.6 gallons (6 L) per flushing cycle.

**Exception:** Blowout-design water closets [3.5 gallons (13 L) per flushing cycle].

**G-408.3 Health care facilities.** Portions of medical gas systems being repaired in Group I-2, ambulatory care *facilities* and outpatient clinics shall comply with NFPA 99 requirements for *repairs*.

## **CHAPTER 13 PERFORMANCE COMPLIANCE METHODS**

### **SECTION G-1301 GENERAL**

**G-1301.1 Scope.** The provisions of this chapter shall apply to the *alteration, addition and change of occupancy* of *existing structures*, including historic structures, as referenced in Section 301.3.3. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting, *alteration, addition and change of occupancy* without requiring full compliance with Chapters 6 through 12, except where compliance with the prescriptive method of Chapter 5 or the work area method of other provisions of this code is specifically required in this chapter.

**G-1301.1.1 Compliance with other methods.** *Alterations, additions, and changes of occupancy* to *existing structures* shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.

**G-1301.2 Applicability.** *Existing buildings* in which there is work involving *additions, alterations or changes of occupancy* shall be made to conform to the requirements of this chapter or the provisions of Chapters 6 through 12. The provisions of Sections 1301.2.1 through 1301.2.6 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R and S. These provisions shall also apply to Group U occupancies where such occupancies are undergoing a *change of occupancy* or a partial change in occupancy with separations in accordance with Section 1301.2.2. These provisions shall not apply to buildings with occupancies in Group H, I-1, I-3, or I-4.

**G-1301.2.1 Change in occupancy.** Where an *existing building* is changed to a new occupancy classification and this section is applicable, the provisions of this section for the new occupancy shall be used to determine compliance with this code.

**G-1301.2.2 Partial change in occupancy.** Where a portion of the building is changed to a new occupancy classification and that portion is separated from the remainder of the building with

fire barrier or horizontal assemblies having a fire-resistance rating as required by Table 508.4 of the *International Building Code* or Section R302 of the *International Residential Code* for the separate occupancies, or with *approved* compliance alternatives, the portion changed shall be made to conform to the provisions of this section. Only the portion separated shall be required to be evaluated for compliance. Where a portion of the building is changed to a new occupancy classification and that portion is not separated from the remainder of the building with fire barriers or horizontal assemblies having a fire-resistance rating as required by Table 508.4 of the *International Building Code* or Section R302 of the *International Residential Code* for the separate occupancies, or with *approved* compliance alternatives, the provisions of this section which apply to each occupancy shall apply to the entire building. Where there are conflicting provisions, those requirements which secure the greater public safety shall apply to the entire building or structure.

**G-1301.2.3 Additions.** *Additions to existing buildings* shall comply with the requirements of the *International Building Code* or the *International Residential Code* for new construction. The combined height and area of the *existing building* and the new *addition* shall not exceed the height and area allowed by Chapter 5 of the *International Building Code*. Where a fire wall that complies with Section 706 of the *International Building Code* is provided between the *addition* and the *existing building*, the *addition* shall be considered a separate building.

**G-1301.2.4 Alterations.** An *existing building* or portion thereof shall not be altered in such a manner that results in the building being less safe or sanitary than such building is currently.

**Exception:** Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the *International Building Code*.

**G-1301.2.5 Escalators.** Where escalators are provided in below-grade transportation stations, existing and new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

**G-1301.2.6 Plumbing fixtures.** Plumbing fixtures shall be provided in accordance with Section 1009 for a change of occupancy and Section 808 for *alterations*. Plumbing fixtures for *additions* shall be in accordance with the *International Plumbing Code*.

**G-1301.3 Acceptance.** For *repairs, alterations, additions, and changes of occupancy to existing buildings* that are evaluated in accordance with this section, compliance with this section shall be accepted by the *code official*.

**G-1301.3.1 Hazards.** Where the *code official* determines that an *unsafe* condition exists as provided for in Section such *unsafe* condition shall be abated in accordance with Section 115.

**G-1301.3.3 Compliance with flood hazard provisions.**

In *flood hazard areas*, buildings that are evaluated in accordance with this section shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, if the work covered by this section constitutes *substantial improvement*.

**G-1301.4 Investigation and evaluation.** For proposed work covered by this chapter, the building owner shall cause the *existing building* to be investigated and evaluated in accordance with the provisions of Sections 1301.4 through 1301.9.

**G-1301.4.1 Structural analysis.** The owner shall have a structural analysis of the *existing building* made to determine adequacy of structural systems for the proposed *alteration, addition*

or *change of occupancy*. The analysis shall demonstrate that the building with the work completed is capable of resisting the loads specified in Chapter 16 of the *International Building Code*.

**G-1301.4.2 Submittal.** The results of the investigation and evaluation as required in Section 1301.4, along with proposed compliance alternatives, shall be submitted to the *code official*.

**G-1301.4.3 Determination of compliance.** The *code official* shall determine whether the *existing building*, with the proposed *addition, alteration or change of occupancy*, complies with the provisions of this section in accordance with the evaluation process in Sections 1301.5 through 1301.9.

**G-1301.5 Evaluation.** The evaluation shall be composed of three categories: fire safety, means of egress and general safety, as defined in Sections 1301.5.1 through 1301.5.3.

**G-1301.5.1 Fire safety.** Included within the fire safety category are the structural fire resistance, automatic fire detection, fire alarm, automatic sprinkler system and fire suppression system features of the *facility*.

**G-1301.5.2 Means of egress.** Included within the means of egress category are the configuration, characteristics, and support features for means of egress in the *facility*.

**G-1301.5.3 General safety.** Included within the general safety category are the fire safety parameters and the means of egress parameters.

**G-1301.6 Evaluation process.** The evaluation process specified herein shall be followed in its entirety to evaluate *existing buildings* in Groups A, B, E, F, M, R, S and U. For *existing buildings* in Group I-2, the evaluation process specified herein shall be followed and applied to each and every individual smoke compartment. Table 1301.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code or other codes indicate that compliance with those sections is required in order to gain credit in the evaluation herein outlined. In applying this section to a building with mixed occupancies, where the separation between the mixed occupancies does not qualify for any category indicated in Section 1301.6.16, the score for each occupancy shall be determined, and the lower score determined for each section of the evaluation process shall apply to the entire building or to each smoke compartment for Group I-2 occupancies. Where the separation between the mixed occupancies qualifies for any category indicated in Section 1301.6.16, the score for each occupancy shall apply to each portion or smoke compartment of the building based on the occupancy of the space.

**G-1301.6.1 Building height and number of stories.** The value for building height and number of stories shall be the lesser value determined by the formula in Section 1301.6.1.1. Section 504 of the *International Building Code* shall be used to determine the allowable height and number of stories of the building. Subtract the actual building height from the allowable height and divide by 121/2 feet (3810 mm). Enter the height value and its sign (positive or negative) in Table 1301.7 under Safety Parameter 1301.6.1, Building Height, for fire safety, means of egress and general safety. The maximum score for a building shall be 10.

**G-1301.6.1.1 Height formula.** The following formulas shall be used in computing the building height value.

$$\text{Height value, feet} = \frac{(AH) - (EBH)}{12.5} \times CF$$

**(Equation 13-1)**

$$\text{Height value, stories} = (AS - EBS) \times CF$$

**(Equation 13-2)**

where:

*AH* = Allowable height in feet (mm) from Section 504 of the *International Building Code*.

*EBH* = Existing building height in feet (mm).

*AS* = Allowable height in stories from Section 504 of the *International Building Code*.

*EBS* = Existing building height in stories.

*CF* = 1 if  $(AH) - (EBH)$  is positive.

*CF* = Construction-type factor shown in Table 1301.6.6(2) if  $(AH) - (EBH)$  is negative.

**Note:** Where mixed occupancies are separated and individually evaluated as indicated in Section 1301.6, the values *AH*, *AS*, *EBH* and *EBS* shall be based on the height of the occupancy being evaluated.

**G-1301.6.2 Building area.** The value for building area shall be determined by the formula in Section 1301.6.2.2. Section 506 of the *International Building Code* and the formula in Section 1301.6.2.1 shall be used to determine the allowable area of the building. Enter the area value and its sign (positive or negative) in Table 1301.7 under Safety Parameter 1301.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50 percent of the fire safety score as listed in Table 1301.8, Mandatory Safety Scores. Group I-2 occupancies shall be scored zero.

**G-1301.6.2.1 Allowable area formula.** The following formula shall be used in computing allowable area:

$$Aa = At + (NS \times If) \quad \text{(Equation 13-3)}$$

where:

*Aa* = Allowable building area per story (square feet).

*At* = Tabular allowable area factor (NS, S1, S13R, or SM value, as applicable) in accordance with Table 506.2 of the *International Building Code*.

*NS* = Tabular allowable area factor in accordance with Table 506.2 of the *International Building Code* for a non-sprinklered building (regardless of whether the building is sprinklered).

*If* = Area factor increase due to frontage as calculated in accordance with Section 506.3 of the *International Building Code*.

**G-1301.6.2.2 Area formula.** The following formulas shall be used in computing the area value. Equation 13-4 shall be used for a single occupancy buildings and Equation 13-5 shall be used for multiple occupancy buildings. Determine the area value for each occupancy floor area on a floor-by-floor basis. For multiple occupancy, buildings with the minimum area value of the set of values obtained for the particular occupancy shall be used as the area value for that occupancy.

For single occupancy buildings:

$$\text{Area value } i = (\text{Allowable area} \square \text{Actual area})/1200 \text{ square feet} \quad \text{(Equation 13-4)}$$

For multiple occupancy buildings:

$$\text{Area value } i = \frac{\text{Allowable area } i}{1200 \text{ square feet}} \left[ 1 - \left( \frac{\text{Actual area } i}{\text{Allowable area } i} + \dots + \frac{\text{Actual area } n}{\text{Allowable area } n} \right) \right]$$

(Equation 13-5)

where:

$i$  = Value for an individual separated occupancy on a floor.

$n$  = Number of separated occupancies on a floor.

**G-1301.6.3 Compartmentation.** Evaluate the compartments created by fire barriers or horizontal assemblies which comply with Sections 1301.6.3.2 and 1301.6.3.3 and which are exclusive of the wall elements considered under Sections 1301.6.4 and 1301.6.5. Conforming compartments shall be figured as the net area and do not include shafts, chases, stairways, walls, or columns. Using Table 1301.6.3, determine the appropriate compartmentation value (CV) and enter that value into Table 1301.7 under Safety Parameter 1301.6.3, Compartmentation, for fire safety, means of egress and general safety.

**TABLE 1301.6.3  
COMPARTMENTATION VALUES**

OCCUPANCY	CATEGORIES <sup>a</sup>				
	a	b	c	d	e
A-1, A-3	0	6	10	14	18
A-2	0	4	10	14	18
A-4, B, E, S-2	0	5	10	15	20
F, M, R, S-1	0	4	10	16	22
I-2	0	2	8	10	14

a. For compartment sizes between categories, the compartmentation value shall be obtained by linear interpolation.

**G-1301.6.3.1 Categories.** The categories for compartment separations are:

1. Category a—Compartment size of 15,000 square feet (1394 m<sup>2</sup>) or more.
2. Category b—Maximum compartment size of 10,000 square feet (929 m<sup>2</sup>).
3. Category c—Maximum compartment size of 7,500 square feet (697 m<sup>2</sup>).
4. Category d—Maximum compartment size of 5,000 square feet (464 m<sup>2</sup>).
5. Category e—Maximum compartment size of 2,500 square feet (232 m<sup>2</sup>).

**G-1301.6.3.2 Wall construction.** A wall used to create separate compartments shall be a fire barrier conforming to Section 707 of the *International Building Code* with a fire-resistance rating of not less than 2 hours. Where the building is not divided into more than one compartment, the compartment size shall be taken as the total floor area on all floors. Where there is more than one compartment within a story, each compartmented area on such story shall be provided with a horizontal exit conforming to Section 1026 of the *International Building Code*. The fire door serving as the horizontal exit between compartments shall be so installed, fitted and gasketed that such fire door will provide a substantial barrier to the passage of smoke.

**G-1301.6.3.3 Floor/ceiling construction.** A floor/ceiling assembly used to create compartments shall conform to Section 711 of the *International Building Code* and shall have a fire-resistance rating of not less than 2 hours.

**G-1301.6.4 Tenant and dwelling unit separations.** Evaluate the fire-resistance rating of floors and walls separating tenants, including dwelling units, and not evaluated under Sections 1301.6.3 and 1301.6.5. Group I-2 occupancies shall evaluate the rating of the separations between care recipient sleeping rooms. Under the categories and occupancies in Table 1301.6.4, determine the appropriate value and enter that value in Table 1301.7 under Safety Parameter 1301.6.4, Tenant and Dwelling Unit Separation, for fire safety, means of egress and general safety. The value shall be zero for single tenant buildings and buildings without dwelling units.

**TABLE 1301.6.4  
SEPARATION VALUES**

OCCUPANCY	CATEGORIES				
	a	b	c	d	e
A-1	0	0	0	0	1
A-2	-5	-3	0	1	3
R	-4	-2	0	2	4
A-3, A-4, B, E, F, M, S-1	-4	-3	0	2	4
I-2	0	1	2	3	4
S-2	-5	-2	0	2	4

**G-1301.6.4.1 Categories.** The categories for tenant and dwelling unit separations are:

1. Category a—No fire partitions; incomplete fire partitions; no doors; doors not self-closing or automatic-closing.
2. Category b—Fire partitions or floor assemblies with less than 1-hour fire-resistance ratings or not constructed in accordance with Section 708 or 711 of the *International Building Code*, respectively.
3. Category c—Fire partitions with 1-hour or greater fire-resistance ratings constructed in accordance with Section 708 of the *International Building Code* and floor assemblies with 1-hour but less than 2-hour fire-resistance ratings constructed in accordance with Section 711 of the *International Building Code* or with only one tenant within the floor area.
4. Category d—Fire barriers with 1-hour but less than 2-hour fire-resistance ratings constructed in accordance with Section 707 of the *International Building Code* and floor assemblies with 2-hour or greater fire-resistance ratings constructed in accordance with Section 711 of the *International Building Code*.
5. Category e—Fire barriers and floor assemblies with 2-hour or greater fire-resistance ratings and constructed in accordance with Sections 707 and 711 of the *International Building Code*, respectively.

**G-1301.6.5 Corridor walls.** Evaluate the fire-resistance rating and degree of completeness of walls which create corridors serving the floor and that are constructed in accordance with Section 1020 of the *International Building Code*. This evaluation shall not include the wall elements considered under Sections 1301.6.3 and 1301.6.4. Under the categories and groups in Table

1301.6.5, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.5, Corridor Walls, for fire safety, means of egress and general safety.

**TABLE 1301.6.5  
CORRIDOR WALL VALUES**

OCCUPANCY	CATEGORIES			
	a	b	c <sup>a</sup>	d <sup>a</sup>
A-1	-10	-4	0	2
A-2	-30	-12	0	2
A-3, F, M, R, S-1	-7	-3	0	2
A-4, B, E, S-2	-5	-2	0	5
I-2	-10	0	1	2

a. Corridors not providing at least one-half the exit access travel distance for all occupants on a floor shall use Category b.

**G-1301.6.5.1 Categories.** The categories for corridor walls are:

1. Category a—No fire partitions; incomplete fire partitions; no doors; or doors not self-closing.
2. Category b—Less than 1-hour fire-resistance rating or not constructed in accordance with Section 708.4 of the *International Building Code*.
3. Category c—1-hour to less than 2-hour fire resistance rating, with doors conforming to Section 716 of the *International Building Code* or corridors as permitted by Section 1020 of the *International Building Code* to be without a fire-resistance rating.
4. Category d—2-hour or greater fire-resistance rating, with doors conforming to Section 716 of the *International Building Code*.

**G-1301.6.6 Vertical openings.** Evaluate the fire-resistance rating of interior exit stairways or ramps, hoistways, escalator openings and other shaft enclosures within the building, and openings between two or more floors. Table 1301.6.6(1) contains the appropriate protection values. Multiply that value by the construction-type factor found in Table 1301.6.6(2). Enter the vertical opening value and its sign (positive or negative) in Table 1301.7 under Safety Parameter 1301.6.6, Vertical Openings, for fire safety, means of egress and general safety. If the structure is a one-story building or if all the unenclosed vertical openings within the building conform to the requirements of Section 712 of the *International Building Code*, enter a value of 2. The maximum positive value for this requirement (VO) shall be 2.

**TABLE 1301.6.6(1)  
VERTICAL OPENING PROTECTION VALUE**

PROTECTION	VALUE
None (unprotected opening)	-2 times number of floors connected
Less than 1 hour	-1 times number of floors connected
1 to less than 2 hours	1
2 hours or more	2



**TABLE 1301.6.6(2)  
CONSTRUCTION-TYPE FACTOR**

FACTOR	TYPE OF CONSTRUCTION								
	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
	1.2	1.5	2.2	3.5	2.5	3.5	2.3	3.3	7

**G-1301.6.6.1 Vertical opening formula.** The following formula shall be used in computing vertical opening value.

$$VO = PV \times CF \quad \text{(Equation 13-6)}$$

where:

*VO* = Vertical opening value. The calculated value shall not be greater than positive 2.0.

*PV* = Protection value from Table 1301.6.6(1).

*CF* = Construction-type factor from Table 1301.6.6(2).

**G-1301.6.7 HVAC systems.** Evaluate the ability of the HVAC system to resist the movement of smoke and fire beyond the point of origin. Under the categories in Section 1301.6.7.1, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.7, HVAC Systems, for fire safety, means of egress and general safety. *Facilities* in Group I-2 occupancies meeting Category a, b or c shall be considered to fail the evaluation.

**G-1301.6.7.1 Categories.** The categories for HVAC systems are:

1. Category a—Plenums not in accordance with Section 602 of the *International Mechanical Code*. -10 points.
2. Category b—Air movement in egress elements not in accordance with Section 1020.6 of the *International Building Code*. -5 points.
3. Category c—Both Categories a and b are applicable. -15 points.
4. Category d—Compliance of the HVAC system with Section 1020.6 of the *International Building Code* and Section 602 of the *International Mechanical Code*. 0 points.
5. Category e—Systems serving one story; or a central boiler/chiller system without ductwork connecting two or more stories or where systems have no ductwork. +5 points.

**G-1301.6.8 Automatic fire detection.** Evaluate the smoke detection capability based on the location and operation of automatic fire detectors in accordance with the *International Mechanical Code* and Section 907 of the *International Building Code*. Under the categories and occupancies in Table 1301.6.8, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.8, Automatic Fire Detection, for fire safety, means of egress and general safety. *Facilities* in Group I-2 occupancies meeting Category a, b or c shall be considered to fail the evaluation.

**TABLE 1301.6.8  
AUTOMATIC FIRE DETECTION VALUES**

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-10	-5	0	2	6	NA
A-2	-25	-5	0	5	9	NA
A-4, B, E, S-2	-4	-2	0	4	8	NA
I-2	NP	NP	NP	4	5	2

NA = Not Applicable.

NP = Not Permitted.

**G-1301.6.8.1 Categories.** The categories for automatic fire detection are:

1. Category a—None.
2. Category b—Existing smoke detectors in HVAC systems and maintained in accordance with the *International Fire Code*.
3. Category c—Smoke detectors in HVAC systems. The detectors are installed in accordance with the requirements for new buildings in the *International Mechanical Code*.
4. Category d—Smoke detectors throughout all floor areas other than individual sleeping units, tenant spaces and dwelling units.
5. Category e—Smoke detectors installed throughout the floor area.
6. Category f—Smoke detectors in corridors only.

**G-1301.6.9 Fire alarm systems.** Evaluate the capability of the fire alarm system in accordance with Section 907 of the *International Building Code*. Under the categories and occupancies in Table 1301.6.9, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.9, Fire Alarm System, for fire safety, means of egress and general safety.

**TABLE 1301.6.9  
FIRE ALARM SYSTEM VALUES**

OCCUPANCY	CATEGORIES			
	a	b <sup>a</sup>	c	d
A-1, A-2, A-3, A-4, B, E, R	-10	-5	0	5
F, M, S	0	5	10	15
I-2	-4	1	2	5

- a. For buildings equipped throughout with an automatic sprinkler system, add 2 points for activation by a sprinkler water-flow device.

**G-1301.6.9.1 Categories.** The categories for fire alarm systems are:

1. Category a—None.
2. Category b—Fire alarm system with manual fire alarm boxes in accordance with Section 907.4 of the *International Building Code* and alarm notification appliances in accordance with Section 907.5.2 of the *International Building Code*.
3. Category c—Fire alarm system in accordance with Section 907 of the *International Building Code*.

4. Category d—Category c plus a required emergency voice/alarm communications system and a fire command station that conforms to Section 911 of the *International Building Code* and contains the emergency voice/alarm communications system controls, fire department communication system controls, and any other controls specified in Section 911 of the *International Building Code* where those systems are provided.

**G-1301.6.10 Smoke control.** Evaluate the ability of a natural or mechanical venting, exhaust, or pressurization system to control the movement of smoke from a fire. Under the categories and occupancies in Table 1301.6.10, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.10, Smoke Control, for means of egress and general safety.

**TABLE 1301.6.10  
SMOKE CONTROL VALUES**

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-2, A-3	0	1	2	3	6	6
A-4, E	0	0	0	1	3	5
B, M, R	0	2 <sup>a</sup>	3 <sup>a</sup>	3 <sup>a</sup>	3 <sup>a</sup>	4 <sup>a</sup>
F, S	0	2 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	3 <sup>a</sup>	3 <sup>a</sup>
I-2	-4	0	0	0	3	0

a. This value shall be 0 if compliance with Category d or e in Section 1301.6.8.1 has not been obtained.

**G-1301.6.10.1 Categories.** The categories for smoke control are:

1. Category a—None.
2. Category b—The building is equipped throughout with an automatic sprinkler system. Openings are provided in exterior walls at the rate of 20 square feet (1.86 m<sup>2</sup>) per 50 linear feet (15 240 mm) of exterior wall in each story and distributed around the building perimeter at intervals not exceeding 50 feet (15 240 mm). Such openings shall be readily openable from the inside without a key or separate tool and shall be provided with ready access thereto. In lieu of operable openings, clearly and permanently marked tempered glass panels shall be used.
3. Category c—One enclosed exit stairway, with ready access thereto, from each occupied floor of the building. The stairway has operable exterior windows, and the building has openings in accordance with Category b.
4. Category d—One smokeproof enclosure and the building has openings in accordance with Category b.
5. Category e—The building is equipped throughout with an automatic sprinkler system. Each floor area is provided with a mechanical air-handling system designed to accomplish smoke containment. Return and exhaust air shall be moved directly to the outside without recirculation to other floor areas of the building under fire conditions. The system shall exhaust not less than six air changes per hour from the floor area. Supply air by mechanical means to the floor area is not required. Containment of smoke shall be considered as confining smoke to the floor area involved without migration to other floor areas. Any other tested and *approved* design that will adequately accomplish smoke containment is permitted.

6. Category f—Each stairway shall be one of the following: a smokeproof enclosure in accordance with Section 1023.12 of the *International Building Code*; pressurized in accordance with Section 909.20.5 of the *International Building Code*; or shall have operable exterior windows.

**G-1301.6.11 Means of egress capacity and number.** Evaluate the means of egress capacity and the number of exits available to the building occupants. In applying this section, the means of egress are required to conform to the following sections of the *International Building Code*: 1003.7, 1004, 1005, 1006, 1007, 1016.2, 1026.1, 1028.3, 1028.5, 1030.2, 1030.3, 1030.4 and 1031. The number of exits credited is the number that is available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the means of egress when conforming to Section 504. Under the categories and occupancies in Table 1301.6.11, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.11, Means of Egress Capacity, for means of egress and general safety.

**TABLE 1301.6.11  
MEANS OF EGRESS VALUES**

OCCUPANCY	CATEGORIES				
	a <sup>a</sup>	b	c	d	e
A-1, A-2, A-3, A-4, E, I-2	-10	0	2	8	10
M	-3	0	1	2	4
B, F, S	-1	0	0	0	0
R	-3	0	0	0	0

a. The values indicated are for buildings six stories or less in height. For buildings over six stories above grade plane, add an additional -10 points.

**G-1301.6.11.1 Categories.** The categories for means-of egress capacity and number of exits are:

1. Category a—Compliance with the minimum required means-of-egress capacity or number of exits is achieved through the use of a fire escape in accordance with Section 405.
2. Category b—Capacity of the means of egress complies with Section 1005 of the *International Building Code*, and the number of exits complies with the minimum number required by Section 1006 of the *International Building Code*.
3. Category c—Capacity of the means of egress is equal to or exceeds 125 percent of the required means-of-egress capacity, the means of egress complies with the minimum required width dimensions specified in the *International Building Code*, and the number of exits complies with the minimum number required by Section 1006 of the *International Building Code*.
4. Category d—The number of exits provided exceeds the number of exits required by Section 1006 of the *International Building Code*. Exits shall be located a distance apart from each other equal to not less than that specified in Section 1007 of the *International Building Code*.
5. Category e—The area being evaluated meets both Categories c and d.

**G-1301.6.12 Dead ends.** In spaces required to be served by more than one means of egress, evaluate the length of the exit access travel path in which the building occupants are confined to a single path of travel. Under the categories and occupancies in Table 1301.6.12, determine the

appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.12, Dead Ends, for means of egress and general safety.

**TABLE 1301.6.12  
DEAD-END VALUES**

OCCUPANCY	CATEGORIES <sup>a</sup>			
	a	b	c	d
A-1, A-3, A-4, B, F, M, R, S	-2	0	2	-4
A-2, E	-2	0	2	-4
I-2	-2	0	2	-6

a. For dead-end distances between categories, the dead-end value shall be obtained by linear interpolation.

**G-1301.6.12.1 Categories.** The categories for dead ends are:

1. Category a—Dead end of 35 feet (10,670 mm) in non-sprinklered buildings or 70 feet (21,340 mm) in sprinklered buildings.
2. Category b—Dead end of 20 feet (6096 mm); or 50 feet (15 240 mm) in Group B in accordance with Section 1020.5, Exception 2, of the *International Building Code*.
3. Category c—No dead ends; or ratio of length to width (l/w) is less than 2.5:1.
4. Category d—Dead ends exceeding Category a.

**G-1301.6.13 Maximum exit access travel distance to an exit.** Evaluate the length of exit access travel to an *approved* exit. Determine the appropriate points in accordance with the following equation and enter that value into Table 1301.7 under Safety Parameter 1301.6.13, Maximum Exit Access Travel Distance for means of egress and general safety. The maximum allowable exit access travel distance shall be determined in accordance with Section 1017.1 of the *International Building Code*.

$$\text{Points} = 20 \times \frac{\text{Maximum allowable travel distance} - \text{Maximum actual travel distance}}{\text{Maximum allowable travel distance}}$$

**(Equation 13-7)**

**G-1301.6.14 Elevator control.** Evaluate the passenger elevator equipment and controls that are available to the fire department to reach all occupied floors. Emergency recall and in-car operation of elevators shall be provided in accordance with the *International Fire Code*. Under the categories and occupancies in Table 1301.6.14, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.14, Elevator Control, for fire safety, means of egress and general safety. The values shall be zero for a single-story building.

**TABLE 1301.6.14  
ELEVATOR CONTROL VALUES**

ELEVATOR TRAVEL	CATEGORIES			
	a	b	c	d
Less than 25 feet of travel above or below the primary level of elevator access for emergency fire-fighting or rescue personnel	-2	0	0	+2
Travel of 25 feet or more above or below the primary level of elevator access for emergency fire-fighting or rescue personnel	-4	NP	0	+4

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

**G-1301.6.14.1 Categories.** The categories for elevator controls are:

1. Category a—No elevator.
2. Category b—Any elevator without Phase I emergency recall operation and Phase II emergency in-car operation.
3. Category c—All elevators with Phase I emergency recall operation and Phase II emergency in-car operation as required by the *International Fire Code*.
4. Category d—All meet Category c; or Category b where permitted to be without Phase I emergency recall operation and Phase II emergency in-car operation; and at least one elevator that complies with new construction requirements serves all occupied floors.

**G-1301.6.15 Means of egress emergency lighting.** Evaluate the presence of and reliability of means of egress emergency lighting. Under the categories and occupancies in Table 1301.6.15, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.15, Means of Egress Emergency Lighting, for means of egress and general safety.

**TABLE 1301.6.15  
MEANS OF EGRESS EMERGENCY LIGHTING VALUES**

NUMBER OF EXITS REQUIRED BY SECTION 1006 OF THE INTERNATIONAL BUILDING CODE	CATEGORIES		
	a	b	c
Two or more exits	NP	0	4
Minimum of one exit	0	1	1

NP = Not Permitted.

**G-1301.6.15.1 Categories.** The categories for means of egress emergency lighting are:

1. Category a—Means-of-egress lighting and exit signs not provided with emergency power in accordance with Section 2702 of the *International Building Code*.
2. Category b—Means of egress lighting and exit signs provided with emergency power in accordance with Section 2702 of the *International Building Code*.
3. Category c—Emergency power provided to means of egress lighting and exit signs, which provides protection in the event of power failure to the site or building.

**G-1301.6.16 Mixed occupancies.** Where a building has two or more occupancies that are not in the same occupancy classification, the separation between the mixed occupancies shall be evaluated in accordance with this section. Where there is no separation between the mixed occupancies or the separation between mixed occupancies does not qualify for any of the categories indicated in Section 1301.6.16.1, the building shall be evaluated as indicated in Section 1301.6, and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 1301.6.16, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter

**G-1301.6.16, Mixed Occupancies,** for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero. *Facilities* in Group I-2 occupancies meeting Category a shall be considered to fail the evaluation.

**TABLE 1301.6.16  
MIXED OCCUPANCY VALUES<sup>a</sup>**

OCCUPANCY	CATEGORIES		
	a	b	c
A-1, A-2, R	-10	0	10
A-3, A-4, B, E, F, M, S	-5	0	5
I-2	NP	0	5

NP = Not Permitted.

a. For fire-resistance ratings between categories, the value shall be obtained by linear interpolation.

**G-1301.6.16.1 Categories.** The categories for mixed occupancies are:

1. Category a—Occupancies separated by minimum 1-hour fire barriers or minimum 1-hour horizontal assemblies, or both.
2. Category b—Separations between occupancies in accordance with Section 508.4 of the *International Building Code*.
3. Category c—Separations between occupancies having a fire-resistance rating of not less than twice that required by Section 508.4 of the *International Building Code*.

**G-1301.6.17 Automatic sprinklers.** Evaluate the ability to suppress or control a fire based on the installation of an automatic sprinkler system in accordance with Section 903.3.1 of the *International Building Code*. “Required sprinklers” shall be based on the requirements of the *International Building Code*. Under the categories and occupancies in Table 1301.6.17, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2, and general safety. High-rise buildings defined in Chapter 2 of the *International Building Code* that undergo a *change of occupancy* to Group R shall be equipped throughout with an automatic sprinkler system in accordance with Section 403 of the *International Building Code* and Chapter 9 of the *International Building Code*. *Facilities* in Group I-2 occupancies meeting Category a, b, c, or f shall be considered to fail the evaluation.

**TABLE 1301.6.17  
SPRINKLER SYSTEM VALUES**

OCCUPANCY	CATEGORIES					
	a <sup>a</sup>	b <sup>a</sup>	c	d	e	f
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	NP

NP = Not Permitted.

a. These options cannot be taken if Category a in Section 1301.6.18 is used.

**G-1301.6.17.1 Categories.** The categories for automatic sprinkler system protection are:

1. Category a—An *approved* automatic sprinkler system is required throughout; an *approved* automatic sprinkler system is not provided.
2. Category b—An *approved* automatic sprinkler system is required in a portion of a building; an *approved* automatic sprinkler system is not provided; the sprinkler system design is not adequate for the hazard protected in accordance with Chapter 9 of the *International Building Code*.
3. Category c—An *approved* automatic sprinkler system is not required; none are provided.
4. Category d—An *approved* automatic sprinkler system is required in a portion of a building; an *approved* automatic sprinkler system is provided in a portion of a building in accordance with Chapter 9 of the *International Building Code*.
5. Category e—An *approved* automatic sprinkler system is required throughout; an *approved* automatic sprinkler system is provided throughout in accordance with Chapter 9 of the *International Building Code*.
6. Category f—An *approved* automatic sprinkler system is not required throughout; an *approved* automatic sprinkler system is provided throughout in accordance with Chapter 9 of the *International Building Code*.

**G-1301.6.18 Standpipes.** Evaluate the ability to initiate attack on a fire by making a supply of water readily available through the installation of standpipes in accordance with Section 905 of the *International Building Code*. “Required Standpipes” shall be based on the requirements of the *International Building Code*. Under the categories and occupancies in Table 1301.6.18, determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.18, Standpipes, for fire safety, means of egress and general safety.



**TABLE 1301.6.18  
STANDPIPE SYSTEM VALUES**

OCCUPANCY	CATEGORIES			
	a <sup>a</sup>	b	c	d
A-1, A-3, F, M, R, S-1	-6	0	4	6
A-2	-4	0	2	4
A-4, B, E, S-2	-12	0	6	12
I-2	-2	0	1	2

a. This option cannot be taken if Category a or Category b in Section 1301.6.17 is used.

**G-1301.6.18.1 Standpipe categories.** The categories for standpipe systems are:

1. Category a—Standpipes are required; standpipe is not provided, or the standpipe system design is not in compliance with Section 905.3 of the *International Building Code*.
2. Category b—Standpipes are not required; none are provided.
3. Category c—Standpipes are required; standpipes are provided in accordance with Section 905 of the *International Building Code*.
4. Category d—Standpipes are not required; standpipes are provided in accordance with Section 905 of the *International Building Code*.

**G-1301.6.19 Incidental uses.** Evaluate the protection of incidental uses in accordance with Section 509.4.2 of the *International Building Code*. Do not include those where this code requires automatic sprinkler systems throughout the building including covered and open mall buildings, high-rise buildings, public garages, and unlimited area buildings. Assign the lowest score from Table 1301.6.19 for the building or floor area being evaluated and enter that value into Table 1301.7 under Safety Parameter 1301.6.19, Incidental Uses, for fire safety, means of egress and general safety. If there are no specific occupancy areas in the building or floor area being evaluated, the value shall be zero.

**TABLE 1301.6.19  
INCIDENTAL USE AREA VALUES**

PROTECTION REQUIRED BY TABLE 509.1 OF THE <i>INTERNATIONAL BUILDING CODE</i>	PROTECTION PROVIDED						
	None	1 hour	AS	AS with CRS	1 hour and AS	2 hours	2 hours and AS
2 hours and AS	-4	-3	-2	-2	-1	-2	0
2 hours, or 1 hour and AS	-3	-2	-1	-1	0	0	0
1 hour and AS	-3	-2	-1	-1	0	-1	0
1 hour	-1	0	-1	-1	0	0	0
1 hour, or AS with CRS	-1	0	-1	-1	0	0	0
AS with CRS	-1	-1	-1	-1	0	-1	0
1 hour or AS	-1	0	0	0	0	0	0

AS = Automatic Sprinkler System.

CRS = Construction capable of resisting the passage of smoke (see Section 509.4.2 of the *International Building Code*).

**G-1301.6.20 Smoke compartmentation.** Evaluate the smoke compartments for compliance with Section 407.5 of the *International Building Code*. Under the categories and occupancies in Table 1301.6.20, determine the appropriate smoke compartmentation value (SCV) and enter that value into Table 1301.7 under Safety Parameter 1301.6.20, Smoke Compartmentation, for fire safety, means of egress and general safety. *Facilities* in Group I-2 occupancies meeting Category b or c shall be considered to fail the evaluation.

**TABLE 1301.6.20  
SMOKE COMPARTMENTATION VALUES**

OCCUPANCY	CATEGORIES <sup>a</sup>		
	a	b	c
A, B, E, F, M, R and S	0	0	0
I-2	0	-10	NP

NP = Not Permitted.

a. For areas between categories, the smoke compartmentation value shall be obtained by linear interpolation.

**G-1301.6.20.1 Categories.** Categories for smoke compartment size are:

1. Category a—Smoke compartment complies with Section 407.5 of the *International Building Code*.
2. Category b—Smoke compartment are provided but do not comply with Section 407.5 of the *International Building Code*.
3. Category c—Smoke compartments are not provided.

**G-1301.6.21 Care recipient ability, concentration, smoke compartment location and ratio to attendant.** In I-2 occupancies, the ability of care recipients, their concentration and ratio to attendants shall be evaluated and applied in accordance with this section. Evaluate each smoke

compartment using the categories in Sections 1301.6.21.1, 1301.6.21.2 and 1301.6.21.3 and enter the value in Table 1301.7. To determine the safety factor, multiply the three values together; if the product is less than 6, compliance has failed.

**G-1301.6.21.1 Care recipient ability for self-preservation.** Evaluate the ability of the care recipients for self-preservation in each smoke compartment in an emergency. Under the categories and occupancies in Table 1301.6.21.1, determine the appropriate value and enter that value in Table 1301.7 under Safety Parameter 1301.6.21.1, Care Recipient Ability for Self-preservation, for means of egress and general safety.

**TABLE 1301.6.21.1  
CARE RECIPIENT ABILITY VALUES**

OCCUPANCY	CATEGORIES		
	a	b	c
I-2	3	2	1

**G-1301.6.21.1.1 Categories.** The categories for care recipient ability for self-preservation are:

1. Category a—(mobile) Care recipients are capable of self-preservation without assistance.
2. Category b—(not mobile) Care recipients rely on assistance for evacuation or relocation.
3. Category c—(not movable) Care recipients cannot be evacuated or relocated.

**G-1301.6.21.2 Care recipient concentration.** Evaluate the concentration of care recipients in each smoke compartment under Section 1301.6.21.2. Under the categories and occupancies in Table 1301.6.21.2 determine the appropriate value and enter that value in Table 1301.7 under Safety Parameter 1301.6.21.2, Care Recipient Concentration, for means of egress and general safety.

**TABLE 1301.6.21.2  
CARE RECIPIENT CONCENTRATION VALUES**

OCCUPANCY	CATEGORIES		
	a	b	c
I-2	3	2	1

**G-1301.6.21.2.1 Categories:** The categories for care recipient concentration are:

1. Category a—smoke compartment has 1 to 10 care recipients.
2. Category b—smoke compartment has more than 10 to 40 care recipients.
3. Category c—smoke compartment has more than 40 care recipients.

**G-1301.6.21.3 Attendant-to-care recipients ratio.** Evaluate the attendant-to-care recipients ratio for each compartment under Section 1301.6.21.3. Under the categories and occupancies in Table 1301.6.21.3 determine the appropriate value and enter that value in Table 1301.7 under Safety Parameter 1301.6.21.3, Attendant-to-Care Recipients Ratio, for means of egress and general safety.

**TABLE 1301.6.21.3  
ATTENDANT-TO-CARE RECIPIENTS RATIO VALUES**

OCCUPANCY	CATEGORIES		
	a	b	c
I-2	3	2	1

**G-1301.6.21.3.1 Categories.** The categories for attendant-to-care recipient concentrations are:

1. Category a—attendant-to-care recipients concentration is 1:5 or no care recipients.
2. Category b—attendant-to-care recipients concentration is 1:6 to 1:10.
3. Category c—attendant-to-care recipients concentration is greater than 1:10.

**G-1301.7 Building score.** After determining the appropriate data from Section 1301.6, enter those data in Table 1301.7 and total the building score.

**G-1301.8 Safety scores.** The values in Table 1301.8 are the required mandatory safety scores for the evaluation process listed in Section 1301.6.

**TABLE 1301.8  
MANDATORY SAFETY SCORES<sup>a</sup>**

OCCUPANCY	FIRE SAFETY(MFS)	MEANS OF EGRESS (MME)	GENERAL SAFETY (MGS)
A-1	20	31	31
A-2	21	32	32
A-3	22	33	33
A-4, E	29	40	40
B	30	40	40
F	24	34	34
I-2	19	34	34
M	23	40	40
R	21	38	38
S-1	19	29	29
S-2	29	39	39

- a. MFS = Mandatory Fire Safety.  
MME = Mandatory Means of Egress.  
MGS = Mandatory General Safety.

**TABLE 1301.7 - SUMMARY SHEET – BUILDING CODE**

Existing occupancy:		Proposed occupancy:	
Year building was constructed:		Number of stories: _____ Height in feet:	
Type of construction:		Area per floor:	
Percentage of open perimeter increase: _____ %			
Completely suppressed:	Yes _____ No	Corridor wall rating:	
		Type:	
Compartmentation:	Yes _____ No	Required door closers:	Yes _____ No
Fire-resistance rating of vertical opening enclosures:			
Type of HVAC system: _____, serving number of floors:			
Automatic fire detection:	Yes _____ No	Type and location:	
Fire alarm system:	Yes _____ No	Type:	
Smoke control:	Yes _____ No	Type:	
Adequate exit routes:	Yes _____ No	Dead ends:	Yes _____ No
Maximum exit access travel distance:		Elevator controls:	Yes _____ No
Means of egress emergency lighting:	Yes _____ No	Mixed occupancies:	Yes _____ No
Standpipes:	Yes _____ No	Care recipients ability for self-preservation:	
Incidental use:	Yes _____ No	Care recipients concentration:	
Smoke compartmentation less than 22,500 sq. feet (2092 m <sup>2</sup> ):	Yes _____ No	Attendant-to-care recipients ratio:	
<b>SAFETY PARAMETERS</b>		<b>FIRE SAFETY (FS)</b>	
<b>SAFETY PARAMETERS</b>		<b>MEANS OF EGRESS (ME)</b>	
<b>SAFETY PARAMETERS</b>		<b>GENERAL SAFETY (GS)</b>	
1301.6.1 Building height			
1301.6.2 Building area			
1301.6.3 Compartmentation			
1301.6.4 Tenant and dwelling unit separations			
1301.6.5 Corridor walls			
1301.6.6 Vertical openings			
1301.6.7 HVAC systems			
1301.6.8 Automatic fire detection			
1301.6.9 Fire alarm system			
1301.6.10 Smoke control	* * * *		
1301.6.11 Means of egress	* * * *		
1301.6.12 Dead ends	* * * *		
1301.6.13 Maximum exit access travel distance	* * * *		
1301.6.14 Elevator control			
1301.6.15 Means of egress emergency lighting	* * * *		
1301.6.16 Mixed occupancies		* * * *	
1301.6.17 Automatic sprinklers		÷ 2 =	
1301.6.18 Standpipes			
1301.6.19 Incidental use			
1301.6.20 Smoke compartmentation			
1301.6.21.1 Care recipients ability for self-preservation <sup>a</sup>	* * * *		
1301.6.21.2 Care recipients concentration <sup>a</sup>	* * * *		
1301.6.21.3 Attendant-to-care recipients ratio <sup>a</sup>	* * * *		
<b>Building score–total value</b>			

\* \* \* \*No applicable value to be inserted.  
a. Only applicable to Group I-2 occupancies.

**G-1301.9 Evaluation of building safety.** The mandatory safety score in Table 1301.8 shall be subtracted from the building score in Table 1301.7 for each category in accordance with the evaluation formulas in Table 1301.9. Where the final score for any category equals zero or more, the building is in compliance with the requirements of this section for that category. Where the final score for any category is less than zero, the building is not in compliance with the requirements of this section.

**G-1301.9.1 Mixed occupancies.** For mixed occupancies, the following provisions shall apply:

1. Where the separation between mixed occupancies does not qualify for any category indicated in Section 1301.6.16, the mandatory safety scores for the occupancy with the lowest general safety score in Table 1301.8 shall be utilized (see Section 1301.6).
2. Where the separation between mixed occupancies qualifies for any category indicated in Section 1301.6.16, the mandatory safety scores for each occupancy shall be placed against the evaluation scores for the appropriate occupancy. An evaluation is not required for areas of the building with separated occupancies in accordance with Table 508.4 of the *International Building Code* in which there are no *alterations* or *change of occupancy*.

**TABLE 1301.9  
EVALUATION FORMULAS<sup>a</sup>**

FORMULA	TABLE 1301.7	TABLE 1301.8		SCORE	PASS	FAIL
FS – MFS ≥ 0	_____ (FS) –	_____ (MFS)	=	_____	_____	_____
ME – MME ≥ 0	_____ (ME) –	_____ (MME)	=	_____	_____	_____
GS – MGS ≥ 0	_____ (GS) –	_____ (MGS)	=	_____	_____	_____

- a. FS = Fire Safety.  
 ME = Means of Egress.  
 GS = General Safety.  
 MFS = Mandatory Fire Safety.  
 MME = Mandatory Means of Egress.  
 MGS = Mandatory General Safety.

## CHAPTER 14 RELOCATED OR MOVED BUILDINGS

### SECTION G-1401 GENERAL

**G-1401.1 Scope.** This chapter provides requirements for relocated or moved structures, including *relocatable buildings* as defined in Chapter 2.

**G-1401.1.1 Bleachers, grandstands and folding and telescopic seating.** Relocated or moved bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

**G-1401.2 Conformance.** The building shall be safe for human occupancy as determined by the *International Fire Code* and the *International Property Maintenance Code*. Any *repair*, *alteration* or *change of occupancy* undertaken within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field fabricated elements shall comply with the requirements of the *International Building Code* or the *International Residential Code*, as applicable.

### SECTION G-1402 REQUIREMENTS

**G-1402.1 Location on the lot.** The building shall be located on the lot in accordance with the requirements of the *International Building Code* or the *International Residential Code*, as applicable.

**G-1402.2 Foundation.** The foundation system of relocated buildings shall comply with the *International Building Code* or the *International Residential Code*, as applicable.

**G-1402.2.1 Connection to the foundation.** The connection of the relocated building to the foundation shall comply with the *International Building Code* or the *International Residential Code*, as applicable.

**G-1402.3 Wind loads.** Buildings shall comply with *International Building Code* or *International Residential Code* wind provisions, as applicable.

**Exceptions:**

1. Detached one- and two-family dwellings and Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

**G-1402.4 Seismic loads.** Buildings shall comply with *International Building Code* or *International Residential Code* seismic provisions at the new location, as applicable.

**Exceptions:**

1. Structures in Seismic Design Categories A and B and detached one- and two-family dwellings in Seismic Design Categories A, B and C where the seismic loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

**G-1402.5 Snow loads.** Structures shall comply with *International Building Code* or *International Residential Code* snow loads, as applicable, where snow loads at the new location are higher than those at the previous location. **Exception:** Structural elements whose stress is not increased by more than 5 percent.

**G-1402.6 Flood hazard areas.** If relocated or moved into a *flood hazard area*, structures shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

**G-1402.7 Required inspection and repairs.** The *code official* shall be authorized to inspect, or to require *approved* professionals to inspect at the expense of the owner, the various structural parts of a relocated building to verify that structural components and connections have not sustained structural damage. Any *repairs* required by the *code official* as a result of such inspection shall be made prior to the final approval.