



MANITOU SPRINGS CITY COUNCIL WORK SESSION AGENDA

City Council meetings are held as hybrid, Zoom (remote) or
in-person at Memorial Hall.

Memorial Hall

606 Manitou Avenue

Manitou Springs, CO 80829

Remote: www.manitouspringsgov.com; click on meeting
link under "Government; City Council" page

Position	Name	Term Expires
Mayor	Natalie Johnson	January 4, 2028
At-Large	Mayor Pro Tem Judith Chandler	January 4, 2028
At-Large	John Shada	January 4, 2028
At-Large	Julie Wolfe	January 4, 2028
Ward 1	Nate Nassif	January 8, 2030
Ward 2	Carey Storm	January 8, 2030
Ward 3	Gloria Latimer	January 8, 2030

February 10, 2026

5:00 PM

NO DECISIONS WILL BE MADE AT THIS WORK SESSION

A. CALL TO ORDER

B. ROLL CALL

C. DISCUSSION

1. Emergency Siren Expansion and Wildfire Mitigation Assessment Proposal
2. Proposed Ordinance for Adopting the 2021 International Fire Code and Colorado Wildfire Resiliency Code

D. RECEIVE COUNCIL CORRESPONDENCE

E. CITY ADMINISTRATOR REPORT

ADJOURN

The City of Manitou Springs does not discriminate on the basis of disability in the admission to, access to, or operations of programs, services or activities. Reasonable accommodation will be provided to ensure equal access to all. Individuals who would like to request auxiliary aids or services should contact the ADA Coordinator at (719) 685-5481 or jfryer@manitouspringsco.gov. You may also contact the City Clerk's Office at cityclerk@manitouspringsco.gov or (719) 685-2554. Please provide a minimum of 3-5 days advance notice.



Memorandum

Title: Emergency Siren Expansion and Wildfire Mitigation Assessment Proposal

From: Manitou Springs Fire Department

To: Mayor and City Council

CC: City Administrator Denise Howell

Allocated Time: 30 Minutes

February 10, 2026

Purpose:

To request City Council consideration and direction on two wildfire preparedness initiatives intended to improve community safety, early warning capability, and proactive mitigation planning.

Background:

Manitou Springs is at heightened wildfire risk due to steep terrain, dense vegetation, limited access, and the proximity of wildland fuels to homes, businesses, and critical infrastructure. Recent wildfire events in Colorado highlight the importance of effective public warning systems and proactive mitigation planning.

The City's existing three emergency sirens were funded through DOLA for flood warning purposes and are located downtown. These sirens do not provide full citywide coverage, limiting their effectiveness for wildfire evacuation and other large-scale emergencies.

Additionally, the City does not currently have a comprehensive wildfire mitigation assessment for the City of Manitou Springs in general. Conducting an assessment would allow the City to better prioritize mitigation efforts, support grant applications, fire pre-planned infrastructure standard operating procedure, and focus resources where they provide the greatest risk reduction.

Both requests support proactive wildfire preparedness and align with the City's Community Wildfire Protection Plan adopted by City Council June 3, 2025, to make residents, visitors, infrastructure, and natural resources more adaptive. The siren expansion improves real-time emergency notification, while the mitigation assessment provides a strategic, data-driven roadmap for reducing wildfire risk on City-owned lands. Additionally, we should establish a clear understanding and plan in the event of wildfire to help lessen hardship for city, county, and state utilities, including potential financial impacts, water suppression demands, electrical shutdowns, and other related considerations.



The Fire Department's strategic response to this is Preparedness, Mitigation, Response and Recovery. The City of Manitou Springs Fire Department is partnering with the Manitou Springs Community Foundation to assist by getting education materials and advertising the need for wildfire preparedness and what private property owners can do to assist.

The City of Manitou Springs will provide a Community Information Fair on a Saturday to be determined soon, which will consist of City departments assisting the public with sign-ups for Peak Alerts, Wildfire Assessments, Parking Permits, etc.

Fiscal Impact:

Expanding the City's emergency siren system is approximately \$250,000. The funding will come from the \$690,000 fire mitigation assigned account.

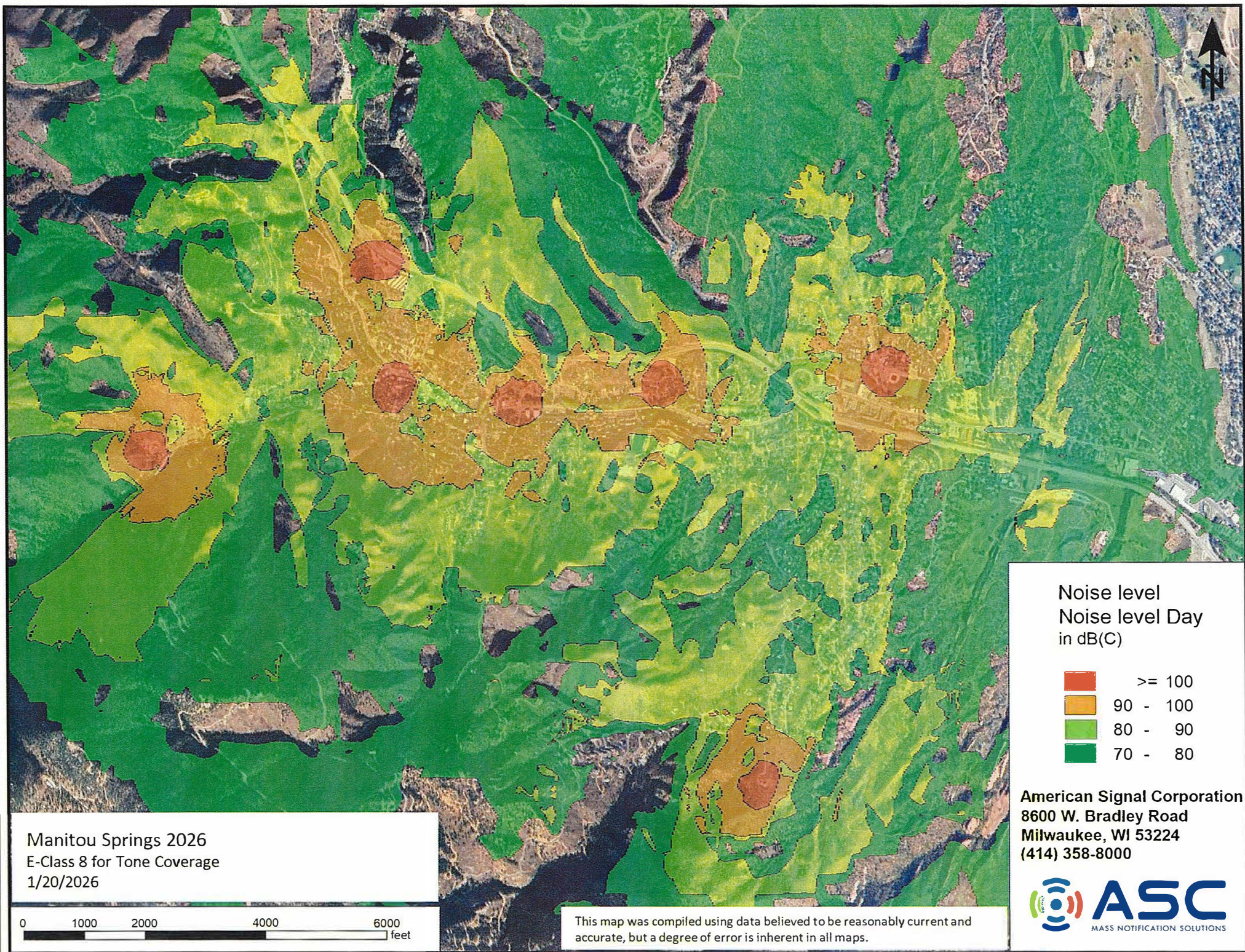
The cost of the proposed wildfire mitigation assessment of City of Manitou Springs is currently unknown. Steps are being taken to get rough estimates of what a consultant would cost.

Workload Impact:

Project management would be handled by the Fire Department.

Recommended Action:

There is no formal action to be taken. Staff is seeking feedback and direction on the proposed wildfire preparedness initiatives.



Community Wildfire Protection Plan Manitou Springs

**Developed By:
Root Forestry LLC.
In cooperation with
Manitou Springs
Fire Department
March 2025**



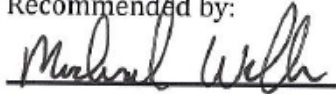
Acceptance

The Manitou Springs Community Wildfire Protection Plan (CWPP) was developed in accordance with the guidelines set forth by the Healthy Forests Restoration Act of 2003 and the Colorado State Forest Services' *Minimum Standards for CWPP's*.

This CWPP is a collaborative effort to guide our stewardship management activities, including wild-fire protection. The activities recommended in this plan are appropriate to meet our objectives and will benefit natural resources and reduce the risk from wildland fire. This plan is voluntary, and where possible, we intend to apply the recommended practices, thus improving our community and increasing public safety.

The Manitou Springs Community Wildfire Protection Plan has been reviewed and approved by the Members of the CWPP Committee.

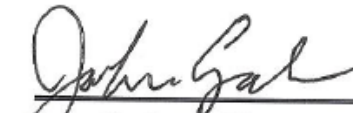
Recommended by:



Michael Willie, Chairman
Manitou Springs Fire Dept

6-3-2025

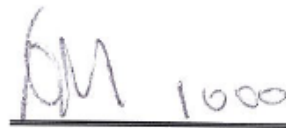
Date



John Graham, Mayor
City of Manitou Springs

6/3/2025

Date



Keith Buckmiller, Chief
Manitou Springs Fire Department

6/3/2025

Date



Michael Till, Supervisory Forester
Colorado State Forest Service

05-22-2025

Date



Denise Howell, City Administrator
City Of Manitou Springs

6/3/2025

Date

Preface



When the flames die and evacuees return home, wildfires are supposed to be over. The Waldo Canyon Fire never entered Manitou Springs yet post fire flooding devastated the city and cost millions of dollars in damage years after the fire was controlled.

Nor are “forest fires” supposed to burn urban communities. The town of Louisville is closer to downtown Denver than to the forest, yet the 2021 Marshall Fire devastated the town.

Wildfires far from a community can be devastating for years, and urban centers are not necessarily immune to wildfires. Those two events, and others like them, have influenced the updated Manitou Springs Community Wildfire Protection plan that follows.

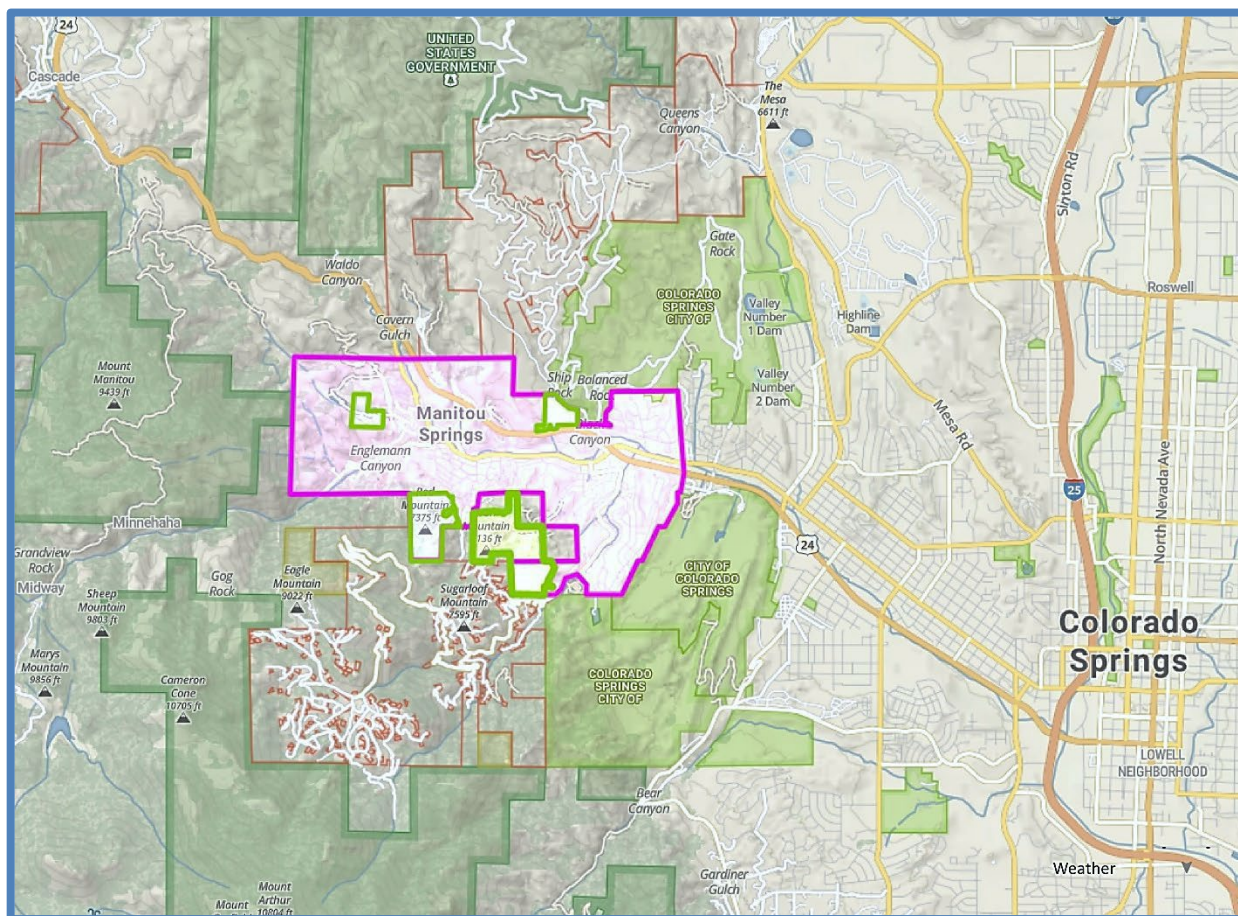
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COMMUNITY DESCRIPTION

LOCATION AND GENERAL DESCRIPTION

The City of Manitou Springs is located in the valley of Fountain Creek in western El Paso County. Since its founding in 1872, the city's economy has been based on tourism. Manitou is known for its mineral springs, unique charm and Victorian buildings. Tourists visit the many attractions in the city and patronize the shops and restaurants throughout the city. When wildfires burn and tourists stay away the city's economy suffers.



Manitou Springs location within the region.

Surrounding the city are large expanses of wildland fuels in various public and private ownerships. On the south is Crystal Park, a gated community with an active mitigation program. To the east is the City of Colorado Springs with a large area of wildland urban interface (WUI) and an active mitigation program.

Further west are the communities of Cascade, Chipeta Park and Green Mountain Falls. Collectively known as Ute Pass, this area ranks as one of the most at-risk regions in the state. Manitou Springs adjoins the Pike National Forest to the west and northwest. In addition to its recreational uses, the National Forest contains watersheds for both Manitou Springs and Colorado Springs.

Manitou shares its wildfire risk with surrounding communities. What other communities do, or do not do, affects Manitou Springs just as actions taken by Manitou affect other communities. Mitigation is the most effective when there are cooperative mitigation efforts in the region. At this writing there is no wildfire council or coordinating effort in the County.

Approximately 4,860 people reside in Manitou, mostly in homes upon narrow streets, built to accommodate buggies or model T Fords, which wind up and around the hills to serve the homes. Homes are close to one another, sometimes as close as three feet.

The uniqueness of Manitou also makes it vulnerable to wildfire. The wooden homes are vulnerable to windborne embers, and landscaping often makes homes more vulnerable. The narrow winding streets make evacuation or access by firefighters more difficult. Wildland fuel surrounds the city beyond the municipal boundaries.

GOALS OF THE CWPP

1. Protect the residents of Manitou Springs from wildfire by defensible space and structural hardening.
2. Identify short-term and on-going wildfire risks to the neighborhoods of Manitou Springs.
3. Create agreements with the USFS, CSFS, and Colorado Springs Utilities to mitigate lands that effect Manitou Springs Reservoir and watershed.
4. Implement Strategies to mitigate those risks.

OBJECTIVES OF THE CWPP

1. Implement strategies to mitigate those risks.
2. Educate the community to become fire adaptive and reduce wildfire risk.
3. Make sure the community has a heightened awareness of wildfire risk.
4. Continue to mitigate Manitou Springs Open Spaces to provide healthier and more fire adaptive area.

Lt. Mike Willie compiled the anticipated outcomes of the updated Manitou Springs Community Wildfire Protection Plan:

- “A community educated on wildfire risk and ways for neighborhoods and residents to become more fire adaptive.
- Reduced risk of wildfire to the community and firefighters of Manitou Springs.
- Reduced risk of wildfire to properties and businesses.
- Reduced risk of wildfire to Manitou reservoir and its watershed.
- Maintain a community that continues to flourish.”

CRITICAL INFRASTRUCTURE

Critical infrastructure as used in this plan means the infrastructure that makes the city inhabitable, such as water, sewer, electricity, streets and public safety services. All are vulnerable to fire to some degree.

Electricity is provided by Colorado Springs Utilities (CSU) through power lines that cross areas of wildland fuels. Utility lines can also create risks of ignitions if the lines spark and ignite fires. CSU devotes a great deal of expense and effort to maintaining safe lines. CSU also operates two hydroelectric plants, one in Manitou Springs, the other at the top of Engelmann Canyon and the Ruxton Creek drainage in Pike National Forest. CSU maintains a right-of-way for overhead powerlines from Ruxton Park, the location of the upper hydroelectric plant, through Engelmann Canyon and across Manitou Springs’ south side parallel to the Intemann Trail. Two underground large diameter raw water mains belonging to CSU also run the length of Manitou Springs from upper Ruxton Ave. through the downtown area.

Domestic water is provided by the city of Manitou Springs through a large network of reservoir, intake, storage tanks and pumping stations. In 2023, the 54 acres of city property surrounding the reservoir was mitigated. Pike National Forest and City of Colorado Springs, on their nearby watershed properties, are actively mitigating the surrounding forests for watershed protection. Much work has been completed, but full protection of the watersheds will take many years. Water infrastructure is particularly vulnerable to post wildfire flooding and debris flows.

Streets and highways are vulnerable to wildfire. If roads are impassible, firefighters are not able to access neighborhoods and residents are not able to evacuate or return home after evacuations. A lesson of the Waldo Canyon fire is that post-fire flooding can block streets, depress business and interrupt normal life long after the fire is over.

Manitou Springs has a mild, semi-arid climate. It experiences summers with temperatures rarely rising above 86 degrees Fahrenheit and dry winters with temperatures rarely dropping below 20 degrees Fahrenheit. Precipitation is variable throughout the city averaging 18 to 20 inches of precipitation per year. Homes on the higher hills tend to receive more precipitation than those in the valley. Snowfall averages between 52 and 58 inches of snow.¹

WILDFIRE HISTORY

Wildfire has always been a present in local forests. Analysis of fire scars on living and down wood shows that forests burned on average every 15 to 30 years. Many of these were prescribed burns by Native American tribes who used fire as a forest management tool.



Long after the Waldo Canyon Fire was controlled, massive flooding from the burn scar and associated debris flows inundated downtown Manitou Springs, damaging streets, buildings and the local economy.

¹ Matt Meister, Chief Meteorologist for Fox 21 Television. Personal Communication.

Open forests were vital for Native American survival since game was easier to hunt, enemies had more difficulty mounting surprise attacks, and travel through open forests was easier. Before their removal to reservations, tribes burned the forest every 15 to 30 years, and the pre-settlement forests were shaped by burning over thousands of years. Over that time, the forest animals, plants and indigenous people became adapted to open forests.

In fact, the first recorded wildfire, known as the Big Burn, was set by Native Americans circa 1853. The story of the burn is attributed to a Native American who was in the area when Arapaho or Cheyenne ignited the fire on Cheyenne Mountain to force Utes from hunting grounds. High winds spread the fire along the southern Rampart Range and up the canyon of Fountain Creek. The fire burned to Wilkerson Pass, although some references say it crossed South Park to the present area of Breckenridge. Although the story of the fire's origin is anecdotal, maps compiled for the Plum Creek Forest Reserve (an antecedent of the Pike National Forest) in 1899 document the burn scar.

Forest management by prescribed burning ended with the arrival of European settlers and removal of Native Americans to reservations. For settlers, with homes, farms and ranches, wildfire was a threat to be eliminated. By 1910, the mission of the US Forest Service was to extinguish any wildfire by ten o'clock the next morning.

After removal of Native Americans, fires continued, ignited as lightning strikes or by humans. In 1894, another fire started in the Big Burn scar and burned around the flank of Pikes Peak towards Manitou Springs. Not until 2007 did another fire directly threaten Manitou Springs. The Manitou Incline Fire burned 30 acres and required air support to suppress.

There were many fires between 1894 and the Incline Fire. The policy of extinguishing all fires appeared to be successful and most were extinguished with no lasting notice from the public. By the 1980's, fuel that would have been eliminated by frequent prescribed burning accumulated, and fires became larger and more difficult to control. Add to that more and more individuals building homes in the high-risk wildfire environment and the cause of our present troubles are obvious.

Around 90% of all reported wildfires are still extinguished with no damage or little notice, but massive fires are more frequent. The Waldo Canyon Fire in 2012 caused a brief evacuation of the city and burned more than 300 homes in Mountain Shadows in Colorado Springs.

As a response to the growing threat of wildfire, Community Wildfire Protection Plans (CWPP) were authorized by Congress in the Healthy Forests Restoration

Act of 2003 (HFRA). The Act encourages communities to develop comprehensive wildfire protection plans through a collaborative process.

A particularly important item in the legislation permits communities to establish a Wildland Urban Interface (WUI) boundary. The WUI boundary is the area surrounding a community where a wildland fire would pose a threat to the community. HFRA directs the Departments of Interior and Agriculture to prioritize local community priorities in fuels reduction treatments within the boundary.

The HFRA emphasizes the need for federal agencies to collaborate with communities in developing hazardous fuels reduction projects, and places priority on treatment areas within the WUI boundary, municipal watersheds, and other local values at risk. HFRA requires agreements between local government (El Paso County in this case), the local fire departments and the Colorado State Forest Service. The CWPP also must be developed in consultation with interested parties and the applicable federal agencies managing land surrounding at risk communities.

II. COMMUNITY ASSESSMENT

The lessons learned from the attempt to prevent wildfires is that preventing wildfires proved to be impossible. Fire is a natural part of ecosystems. If suppressing wildfires is impossible, the objective must be to re- turn forests and the communities within them to their fire-adapted state. In a fire-adapted forest, fire plays its role of rejuvenating the eco- system, but fuel loading and the forest structure reduces the risk of massive wildfires.

Achieving a fire-adaptive community is an approach that concentrates on plans and activities that reduce risk before a wildfire occurs. When wildfire burns near populated areas of a fire adapted community, it is low intensity and can be controlled without loss of property. Such a community does not rely on government agencies, through fire suppression efforts, to protect it after wildfire starts. In a fire-adapted community, the citizenry and its government have a combination or mixture of similar characteristics:

- The community exists within or adjacent to a fire-prone ecosystem and has a defined geographic boundary.
- Residents have the knowledge, skills and desire to properly prepare their homes before wildfire threats, prepare to evacuate and safely evacuate when necessary.
- Local fire suppression forces have adequate skills, equipment and capacity to manage wildfire.
- Residents and local fire agencies have met and understood the local fire suppression capability and related fire response expectations.
- Landowners are aware of hazardous fuels on their property and have taken action to mitigate the danger.
- Structures and landscaping are designed, constructed, retrofitted and maintained to an ignition-resistant standard.
- A CWPP is developed and implemented.
- The community has embraced the need for defensible space by reducing fuels and creating safety zones and maintaining both over the long term.
- The local government has effective land use planning and regulation, including building codes and local ordinances if applicable.

- Property owners understand their responsibilities before, during and after a wildfire.
- Public expectations are realistic and not based on the reliance of government to provide all answers. Individuals accept personal responsibility for their property.
- The public understands firefighters cannot provide protection for everyone affected during a wildfire; and understand it is dangerous for firefighters to attempt to protect a structure where owners have not taken appropriate measure to make it defensible.

A community with a desire to build a wildfire protection plan must recognize a significant difference between the terms “mitigation” and “fire adapted.”

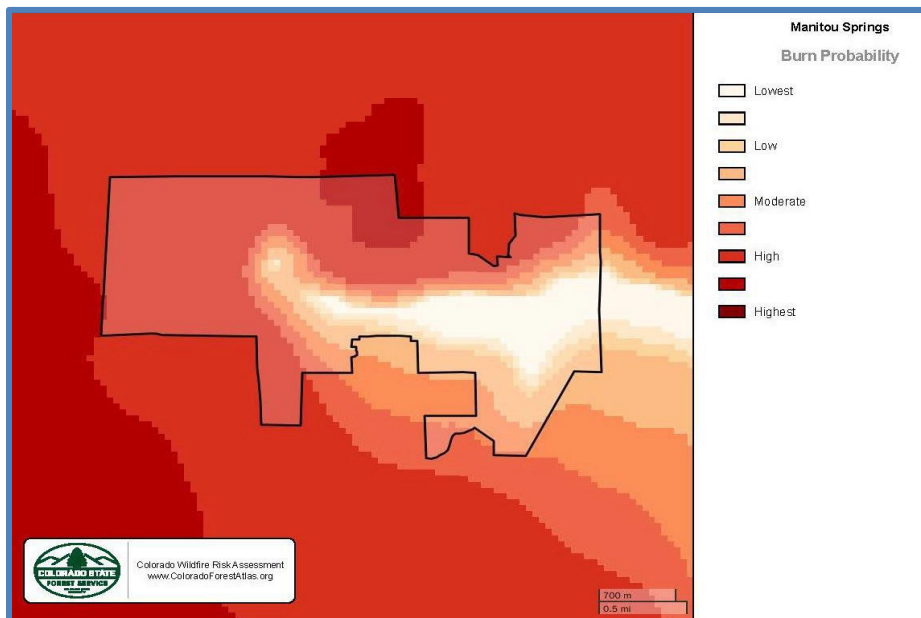
Mitigation efforts are smaller parts of the much wider mindset of being fire adapted. Actions such as fuels treatments, structural retrofitting, creating safety zones, establishing evacuation routes, cleaning gutters and trimming trees that directly contact houses are examples of mitigation actions. Becoming fire-adaptive involves creating a culture that maintains mitigation efforts and moves toward safe and effective response and resilient landscapes. Mitigation work can be viewed as a “checklist” of things to do. Being fire-adaptive is a commitment to a long-term, on-going effort moving toward a community that can live with fire.

Wildfire Risk

One can simply observe the significant risk of wildfire within and surrounding Manitou Springs, but observation does not quantify risk over a wide area. The Colorado Forest Atlas is a geographic information system developed by the Colorado State Forest Service. It provides a convenient means to quantify the degree of hazard. Using the Atlas allows one to see the risk across the entire landscape in a way that is not possible from direct observation.

The Forest Atlas provides an enormous amount of information pertaining to wildfire, and the maps and figures that follow are all from the Forest Atlas. The information from the atlas was confirmed by driving all the streets in the city and observing the conditions as they exist. Readers wishing to view the atlas can go to the website at: <https://coloradoforestatlas.org/apps>

The Forest Atlas rates various forms of risk based on wildland fuel, structure density and terrain. Ratings for the urbanized downtown area of the city usually show low risk owing to little wildland fuel. Readers should not misinterpret these ratings as no risk. Even in the downtown area structures are at risk to ignition from firebrands carried by winds from fires in the wildlands surrounding the city or burning structures within the city.

Burn Probability:

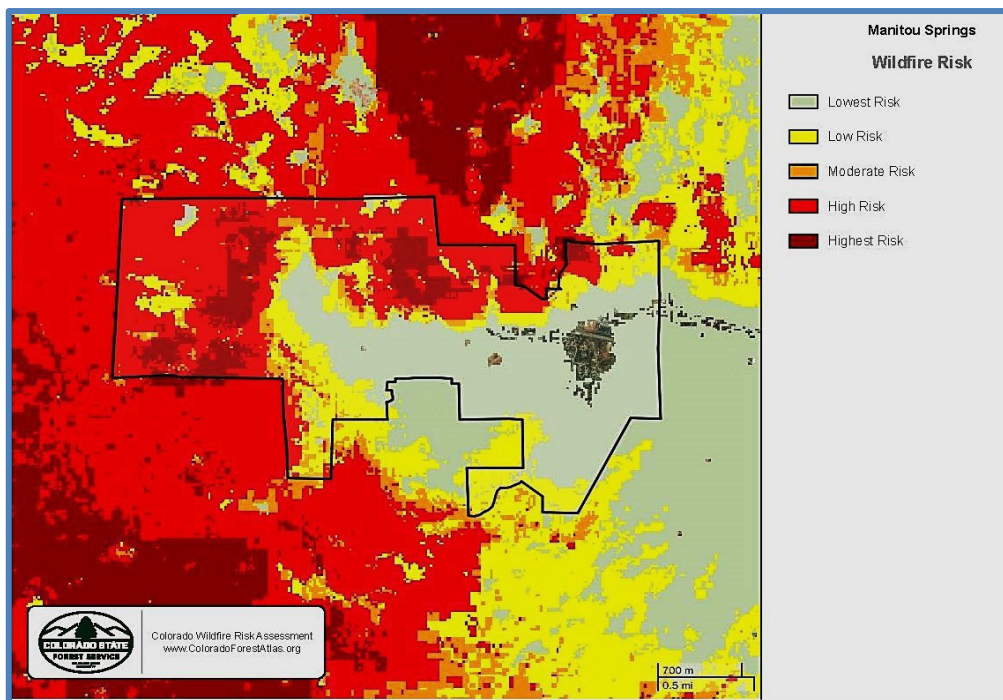
Burn probability represents the likelihood that a point will burn. The model assumes high or extreme fire weather conditions.

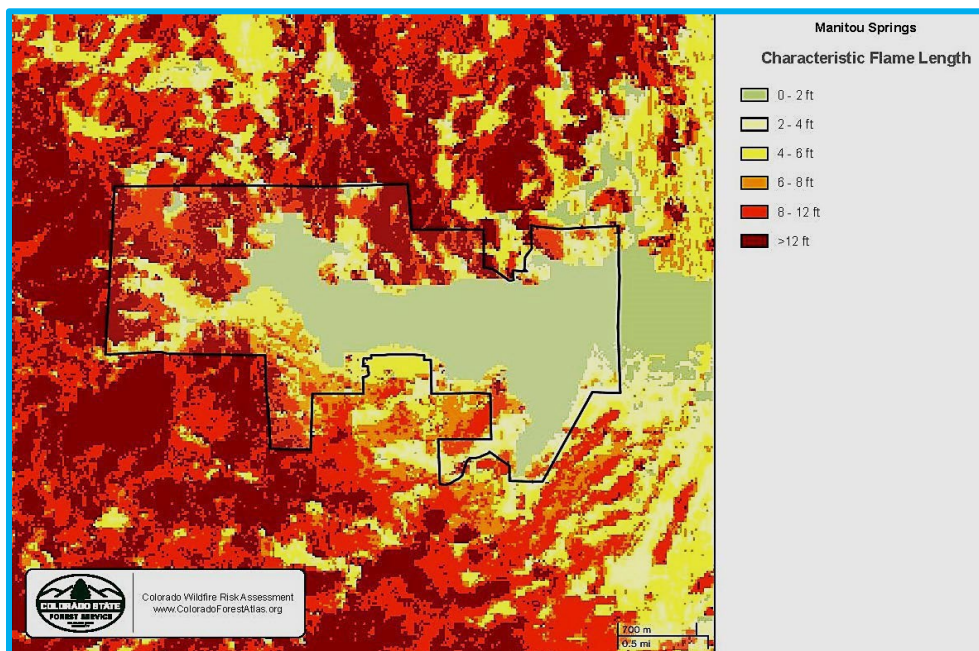
70 % of the city has a moderate to high burn probability.

Wildfire Risk to Assets:

Wildfire risk is a composite map of housing density, forest assets, riparian assets and watershed protection.

The map represents the risk of wildfire to assets and is not the risk of a wildfire ignition. About 48% of the city is at a moderate to high risk.



Flame Length:

Flame length is directly correlated with the amount of heat any flame generates. Flame lengths greater than four feet produce lethal amounts of heat and cannot be directly attacked by firefighters.

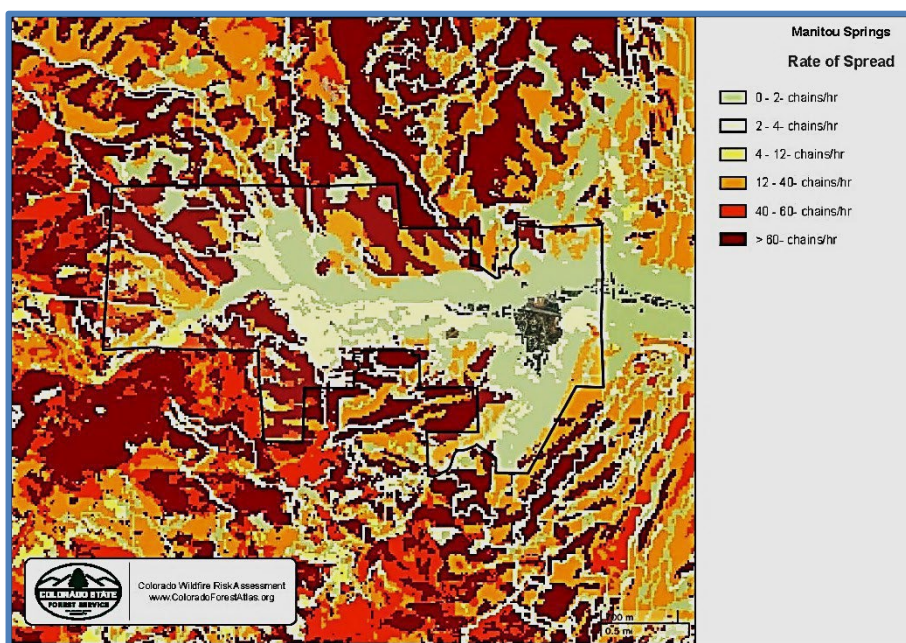
Flame lengths greater than four feet are expected in 45% of the city.

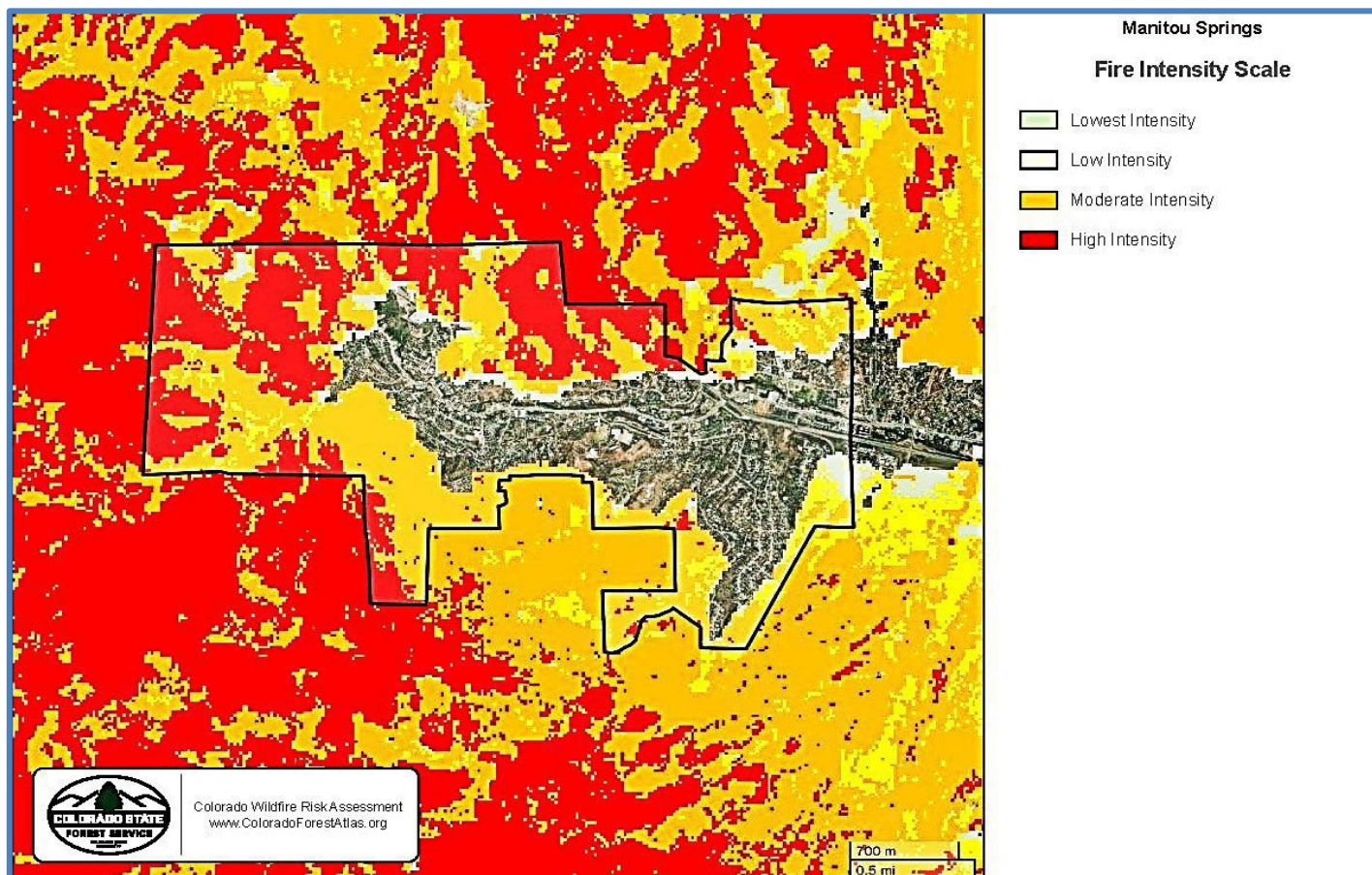
Rate of Wildfire Spread:

Rate of spread is how fast a wildfire moves across the landscape. Rate of Spread is commonly expressed in chains per hour. A chain is 66 feet.

The rate of spread of 12 chains per hour equals 792 feet per hour. An extreme rate of spread >60 chains per hour equals > 3,960 feet per hour or 0.75 miles per hour.

Spread rates greater than 12 chains per hour are predicted in 44% of the city.



Wildfire Intensity:

Wildfire Intensity is the most direct expression of wildfire behavior. The intensity levels used here are exponential increases. For example, a high intensity wildfire is ten times greater than a moderate intensity wildfire. Intensity descriptions from the Atlas are:

“Lowest Intensity: Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.

Low: Small flames, usually less than two feet long; small amount of very short-range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.

Moderate: Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.

High: Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.”

EMERGENCY EVACUATION

This CWPP does not contain an evacuation plan. In the event of a fire, the police or sheriff will determine the best evacuation routes and procedures based on expected fire behavior. Residents should follow the evacuation instructions given by the authorities. Many city streets are steep, narrow and have blind curves. Even when wildfire is threatening from a distance away and there is adequate time for an orderly evacuation, negotiating some of the streets could be difficult.

If a fire threatens the area, it is not necessary to wait for an evacuation order to leave.

If a fire should suddenly threaten a neighborhood, a rapid evacuation could be dangerous. Evacuations, even under the best of situations, are frightening events, and people do not always think clearly. Visibility may be reduced to near zero and fearful residents may not always behave in rational ways.

The fatalities in both the Waldo Canyon and Black Forest Fires were of residents who did not evacuate in time. If a fire is close to a neighborhood, the smartest thing a resident can do is to evacuate early before there is an evacuation order. The Fire Department conducts mock evacuations in neighborhoods. These are critical to help residents plan for a real emergency, and they help avoid some of the panic of an evacuation. If a fire threatens the area, it is not necessary to wait for an evacuation order to leave. If the danger does not materialize, it is easy to return.

In case of a fire or other emergency, the primary notification to evacuate will be issued by the El Paso County Sheriff by means of a reverse 911 call. Residents should follow directions provided in the recorded message. Other notifications may come from local TV and Radio stations. Reverse 911 calls are not automatically routed to cellular phones. To be certain of notifications, residents who rely on cellular phones should register their phones at:

<https://elpasoteller911.org/304/Peak-Alerts>

Smoke is also a serious concern, both from reduced visibility and as a health hazard. The U.S. Forest Service agency has a web page devoted to preparation and information for the health hazards of smoke at:

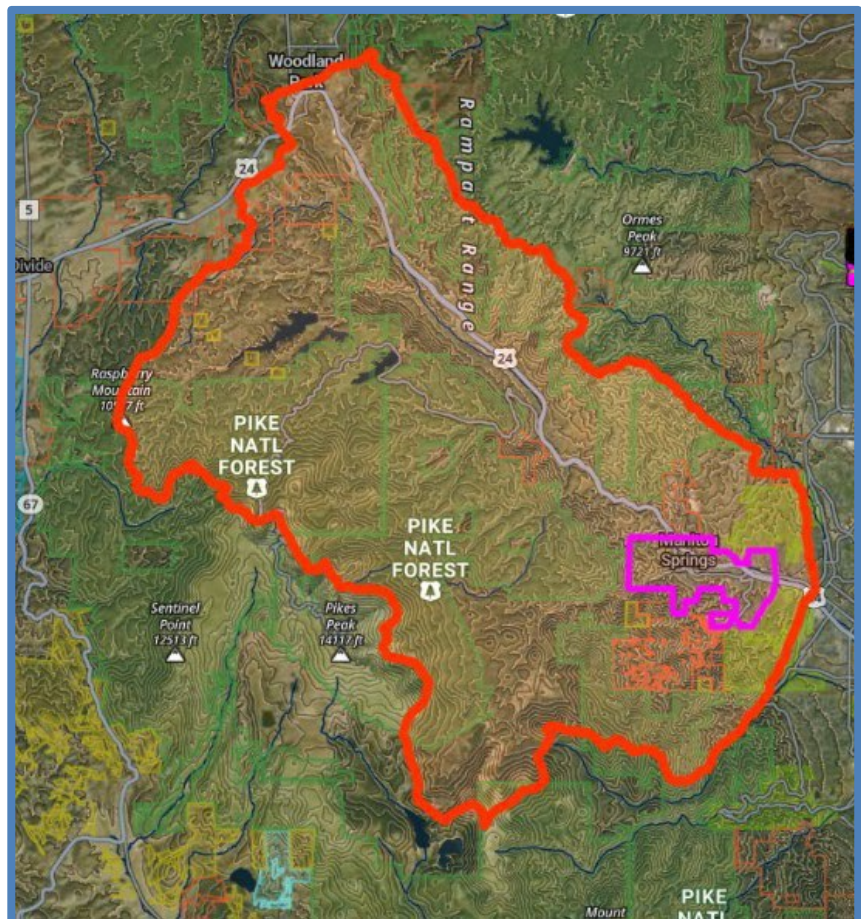
<https://wildfirerisk.org/reduce-risk/smoke-ready/>

WILDLAND URBAN INTERFACE BOUNDARY

The Healthy Forest Restoration Act allows communities to define the area outside the community where wildfire would threaten the community. This wildland urban interface (WUI) boundary is by default one-half mile surrounding the community. Communities are permitted to define their own WUI boundary based on local conditions. The WUI boundary established for Manitou Springs goes far beyond the default one-half mile for several reasons:

- Embers commonly ignite spot fires a mile ahead of the main fire, and under extreme conditions, spot fires have been observed five miles ahead of the main fire.
- Fires also lead to flooding. The WUI boundary was established in consideration of post fire flooding as a primary threat to the city. The boundary includes the watersheds of Sutherland, Ruxton and Fountain Creeks.

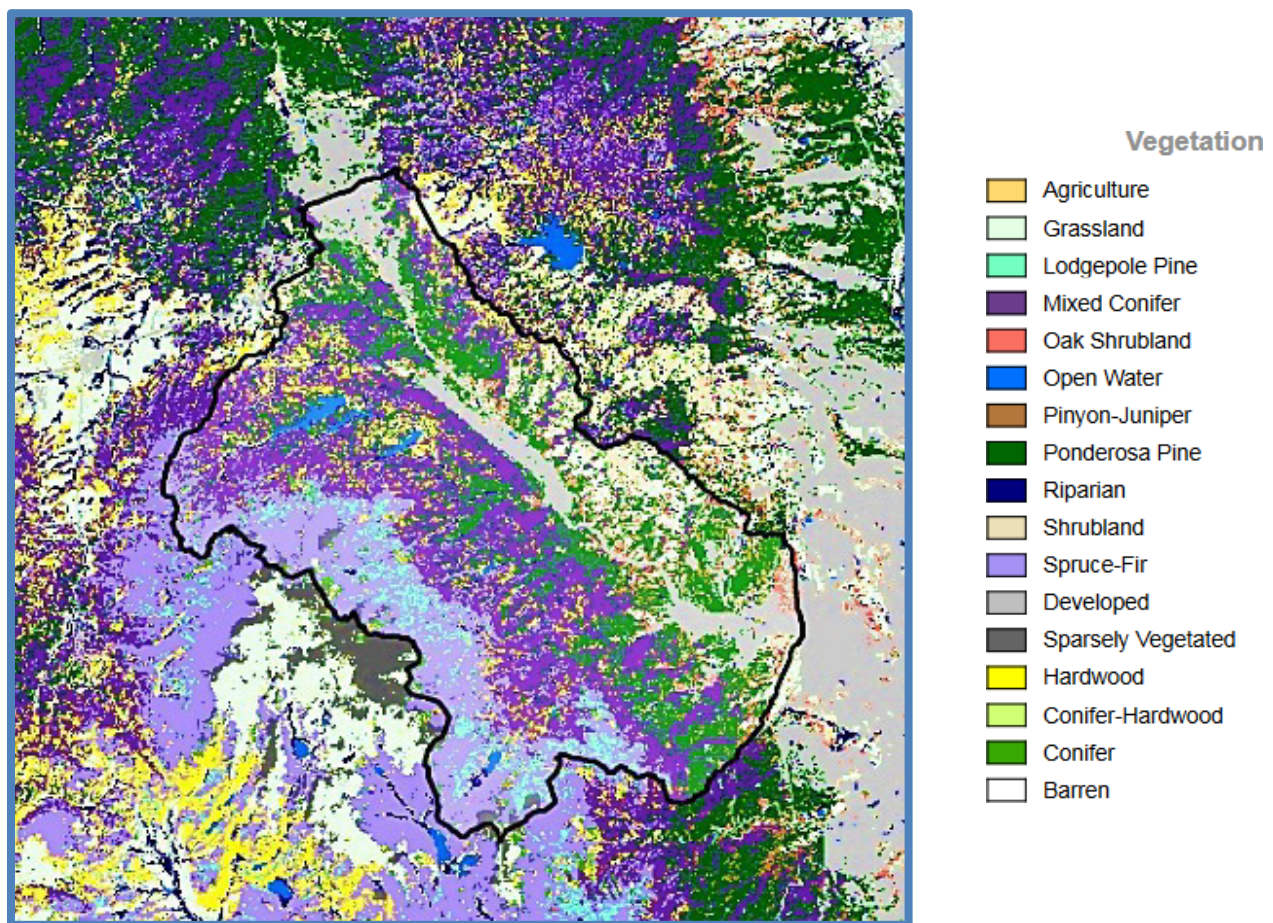
Given the large area covered, vegetation is dominated by a variety of forest types.



The Wildland Urban Interface Boundary is shown in red on the map above. The size of the boundary includes all the watersheds surrounding the city, shown in purple on the map.

The map below is the Forest Atlas Forest type map for the WUI Boundary. Generally, spruce and fir dominate in higher elevations while mixed conifer and ponderosa pine dominate the lower elevations.

Fire regimes are different between the forest types. The lower elevation mixed conifer and ponderosa pine have the typical frequent fire, low intensity burn regime that has been mentioned previously. These areas are those with the unnatural buildup of fuel resulting from wildfire suppression. Spruce and fir in higher elevations typically have an infrequent stand replacing fire regime. Fire return intervals may be 300 years in this forest type.



PREPAREDNESS TO RESPOND

The Manitou Springs Fire Department was created in 1879 as the William A. Bell Hose, Hook and Ladder Company. Initially, the fire department was all- volunteer.

On average, Manitou Springs Fire Department has 35-40 volunteer firefighters and six full-time firefighters and six full-time staff for the ambulance that operate out of one fire station located at 620 Manitou Ave. The Manitou Springs Fire Department has the following response apparatuses for Wildland responses:

- Engine 1010: Type 1 Short wheelbase engine for response on narrow streets and tight turns of Manitou streets.
 - Engine 1011: Type 1 short wheelbase engine.
 - Brush 1041: Type 6 for wildland firefighting.
 - 2 Honda dirt bikes for response on trails and remote areas.
 - UTV 1053: for off-road responses and rescues.
 - Ambulances 1080 and 1081.
-
- Two Type 1 Engines (Class A)
 - One Type 6 Wildland/Brush truck
 - One two seat UTV
 - Two Motorcycles
 - One SUV Utility

With only three firefighting apparatus and a staff based on volunteer response, it would be unreasonable to expect that the Manitou Springs Fire Department would be able to place a fire apparatus and firefighters in front of every house during a major fire event. To enhance response capabilities, The City and the Manitou Springs Fire Department have mutual aid agreements in place with local municipal, county, state and federal fire agencies. Mutual aid fire response is based on resource availability.

The Manitou Springs Fire Department is an *All-Hazard* agency. Members of the Manitou Springs Fire Department are each trained and certified by the Colorado Division of Fire Safety to Firefighter I and II levels with Hazardous Material Awareness and Operations. Additionally, firefighters are offered opportunities to obtain certification as Emergency Medical Technicians, High Angle Rescue Technicians and Wildland Firefighters.

All members of the Manitou Springs Fire Department receive basic wildland firefighting training. On average, twenty-five firefighters hold national wildfire credentials per the National Wildfire Coordinating Group. These individuals are monitored by the State of Colorado for competency and maintained in a database as potential national resources.

III. Risk of Ignition and Wildfire Occurrence

The overall risk to the community from wildland fire is high.

This section will discuss the factors considered that led to the overall rating. As the analysis in Chapter Two illustrated, the forest surrounding Manitou Springs have a high risk of wildfire. Manitou Springs' primary hazard is not fires burning in the distant wildland, but that firebrands from wildfires may ignite structures within the city leading to a Mountain Shadows type urban conflagration.

Manitou Springs' primary hazard is not fires burning in the distant wildland, but that firebrands may ignite structures within the city leading to an urban conflagration.

Reconstruction of fire history and forest dynamics in the neighboring upper South Platte landscape reveal (i) an average fire interval of about fifty years during the period 1300-1880, but no major fires between 1880 and 2002; (ii) a mix of non-lethal surface fire and lethal, stand-replacing fire in the historic burns (mixed severity fire regime); and (iii) a striking increase in forest density from 1900-2002.

The extent of the high-severity Hayman burn in 2002 was unprecedented in the last 700 years, in part because of the dense forest conditions that had developed during the twentieth century, and in part because of the extreme drought and fire weather conditions that existed in 2002. Similar drought conditions contributed to the Waldo Canyon fire a decade later.

CAUSES OF WILDFIRE IGNITIONS

Low fuel moisture and relative humidity are common in the area, as are periods of high winds. When dry and windy conditions coincide, the stage is set for large wildfires. The human population is increasing, and all recent large, destructive, fires have been caused by humans. Numerous fires are ignited each year by lightning. Except for portions of Florida, this area has some of the highest occurrences of lightning in the continental US.

Fires originating in or near communities are the most immediate concern, but fires starting well beyond the boundaries of the planning area can have profound effects upon the communities. Rapid rates of spread and long-distance spotting are the norms for fires in the vicinity. Areas classified as high to moderate fuel loading are the most worrisome.

FUEL HAZARDS

Fire Behavior at any time is dependent on three factors: weather, topography and fuels.

WEATHER

Weather influences fire behavior as both a long term and transient phenomenon. Long term weather trends such as extended drought increase the possibility of ignition and increase the rate of fire spread.

Large plants, trees and larger shrubs recover moisture content slowly after a prolonged drought and may remain drier than normal for several years after a drought ends. Grass and herbaceous fuels may recover moisture quickly after a short rain but also lose moisture quickly after short dry periods. Grass may be able to burn in only a few hours after rain.

The intensity and spread of a wildfire is affected by the weather conditions existing at the moment. For example, a large thunderstorm about 20 miles north of the Waldo Canyon Fire was responsible for pushing the fire downslope into the Mountain Shadows neighborhood. High temperatures, low humidity, and strong winds increase the probability of ignition, intensity and rate of spread. Wind direction at any given moment is the primary determinant for the direction of fire spread.

TOPOGRAPHY

Topography includes the steepness and the shape of the terrain. Hot gases rise in front of the fire along the slope face, pre-heating the vegetation above a fire. As slope increases the effect of the preheating and increased spread increases, and fires may move up slopes four times faster with flames twice as long than a fire on level ground.

Drainages act as chimneys that funnel heat and wind up the drainage. Homes in drainages, or at the tops of drainages, are particularly vulnerable to wildfires. The direction a slope faces, or its aspect, also influences fire behavior. South and west facing slopes tend to be drier and thus exhibit more intense fire behavior than moister east and north facing slopes.

FUELS

The two fuel types in a WUI are vegetative and structural. Vegetative fuels consist of living and dead trees, bushes, and grass. Typically, grasses ignite more easily and burn more quickly but with less intensity than trees. Fires can move quickly through grass and herbaceous vegetation, and these smaller fuels are often the kindling that moves fires to larger size fuels.

Many homes are lost because of the landscaping around the structure.

Any dead or living branches on the lower eight feet of trees or shrubs underneath trees are called ladder fuels. Ladder fuels help convert a ground fire to a crown fire (fire in the treetops) that move much faster and with more intensity.

In urban areas, homes and other structures are fuel. Non-vegetation fuels include houses, ancillary buildings, fences, and firewood piles. In fact, a burning structure can ignite a wildfire, and defensible space can prevent a burning structure from spreading fire to the surrounding vegetation or to a neighboring home.

Hazardous fuels around a home are not limited to natural vegetation. Landscaping is often a fire hazard. During wildfires, many homes are lost because of the landscaping around the structure. Juniper (Pfitzer) shrubs planted near foundations, landscape timbers, wood mulches and wood fences are frequent causes of home ignitions. Landscapes should be planned with the threat of wild-fire in mind.

The important point to remember here is that neither typography nor weather can be altered. Only fuels can be manipulated before a wildfire to reduce fire intensity or influence the fire spread.

IV. HOME CONSTRUCTION AND VULNERABILITY TO WILDFIRE

HOW STRUCTURES CATCH FIRE

There are three ways that a wildfire can transfer itself from natural vegetation, or burning homes, to other homes. They are through radiation, convection, and firebrands.

RADIATION

Wildfires can spread to a home by radiating heat in the same way a radiator heats rooms in the wintertime. Radiated heat can ignite combustible materials from a distance of 100 feet.

CONVECTION

Direct contact with flames or the wildfire's convective heat column—the hot air and gasses rising from the flames—may also ignite a home. This will most likely occur when trees or brush near a structure ignite, and the flames touch a flammable part of the structure.



The unburned trees in the background show that this home, burned in the Black Forest Fire, was not engulfed by flames. Rather windborne firebrands ignited the home.

FIREBRANDS

Many homes in Manitou Springs are particularly vulnerable to firebrands. Firebrands are burning materials that detach from a fire during strong convection drafts in the burning zone. In most cases, the flame front passes quickly, but a shower of embers, or firebrands, impinges on the structure for some time before and after the flame front passes. Firebrands are most often the cause of home loss. Firebrands can be carried long distances – more than a mile – by the winds associated with a wildfire.

A 2006 report by Traci Weaver emphasized the danger of home ignitions from embers.¹ Multiple wildfires raged across prairie and shrub land in North Central Texas from Dec. 27, 2005, to April 30, 2006. They killed 17 people, burned 1.6 million acres, and destroyed 440 homes. Many of the destroyed homes were made of brick, stone, and had metal roofs. Investigators pinpointed the main cause of home destruction to embers that fell on top of, or were blown under, wooden porches without screening. Other losses were linked to firebrands entering attic vents, eaves and soffits, or radiant heat of burning grass that ignited wood decks.

The 2002 Hayman Fire burned 138,000 acres and 132 homes in 20 days. After Hayman, the homes burned were thoroughly studied to determine the manner in which they were burned. USDA Forest Service scientists Jack Cohen and Rick Stratton reported on the causes of home destruction in the *Hayman Fire Case Study*.² Surprisingly, 662 homes within the parameter of the fire were not destroyed. Many of the homes that survived did so without intervention by fire-fighters. The study objective was to determine if there were common factors among these surviving homes that might be helpful in preventing loss of homes.

Torching or intense crown fires within 30 feet of a structure destroyed 70 homes. If a house was destroyed but the surrounding trees did not burn, they assumed that embers or firebrands ignited it. They concluded that 62 (47%) of the 132 homes destroyed in the Hayman Fire were ignited by surface fires or firebrands.

Cohen and Stratton found that home destruction was related more to a house and its site-specific surroundings than to the context of the larger Hayman Fire. If the vegetation around a house allowed high intensity fires to burn near them, they did not survive. If the vegetation permitted only low intensity fires, the structures had a good probability of surviving. Flammability of roofs, siding materials, and other house construction features raised or lowered the risk of flames igniting homes.

There are 2,329 Homes in a forested Wildland/Urban Interface in Manitou Springs. When business and outbuildings are added, the total number of structures is 2,663. Homes in Manitou Springs have various risks of being destroyed by a wildfire. The amount of risk depends on the vegetative fuels, topography, weather, and the construction and landscaping of the home itself. It is important to understand these conditions and factors to make appropriate decisions about vegetative fuels reductions.

¹ Weaver, Traci, (2006): Texas Fires Shed New Light on What it Meant to be Firesafe. Texas Forest Service.

² Graham, Russell T., (2003): Hayman Fire Case Study. USDA Rock Mountain Research Station, Report RMRS-CTR-114.

The construction materials, location and even the shape of a structure influence its vulnerability to wildfire.³ It is not the intent of this CWPP to suggest extensive alterations to homes that already exist in the community. Understanding how home construction affects the vulnerability of the structure to a wildfire helps residents plan defensible space projects to compensate for construction differences. When remodeling or home improvement projects are done, plans can be made to reduce the ignitability of the buildings.

Decks and roofs are the most vulnerable parts of a structure. If either burn, the home will be lost. They are most likely to catch windblown firebrands, and air currents are more likely to form eddies that trap heat and in the irregular surfaces found in roofs and decks.

Fire resistant roofs are extremely important. Roof material with a class A rating indicates the best resistance to fire. Many roofing materials are available to homeowners, but they vary in cost, weight and longevity. Homeowners should consult with a reputable building contractor to determine which roofing material will best suit their needs.

Most homes in Manitou Springs have Class A roofing that is resistant to ignitions. Even the most fire-resistant roofs require maintenance. The most important item is to keep the roof and gutters free of debris. Combustible debris such as leaves and pine needles may ignite from firebrands and start the home on fire even with a class A roof. Combustible litter is most likely to accumulate in areas where one shape meets another such as gables and dormer windows. These same areas are most likely to accumulate firebrands because of eddies in wind currents during a wildfire. Combustible debris should be removed anytime it accumulates.

However, home autopsies have shown that the small ridges in metal roofs are openings where fire brands may collect directly on the plywood sub roof. The holes underneath such ridges should be plugged with caulking or a similar material. Tile roofs have similar vulnerabilities if the openings under the tiles are not plugged with tiles commonly called bird blockers.

The eaves (the extension of the roof over the outside wall) are also vulnerable areas. Open eaves, with the roof joists exposed, are particularly vulnerable because the irregular surfaces can trap hot gases and fire brands. Enclosure of exposed eaves (called a soffit) helps prevent this. It is best to construct soffits so that the inner edge of the soffit meets the wall at a 90° angle. This reduces the amount of heated air and fire brands that might be trapped.

³ Slack, Peter, (2000): *Firewise Construction: Design and Materials*. Colorado State Forest Service.

Vents, in roofs and foundations, are also areas of vulnerability, but are necessary to ventilate attics and crawl spaces to prevent moisture accumulation. During a wildfire, heated gases and firebrands can enter attics or crawl spaces through vents. All vents should be screened with metal screening with openings of 1/8 inch or less. Soffit vents should be located as close to the edge of the eave as possible. Vegetation around foundation vents can create unintended vulnerability, particularly on the downhill side. Landscaping with noncombustible mulch within three to five feet of the foundation and underneath decks or porches is essential.

In addition to the roof, decks are extremely vulnerable to fire. The deck surface is exposed to fire brands and fire brands can collect underneath decks. Possibly the worst mistake any homeowner can make is to store any combustible material beneath a deck. Countless homes have been lost because of firewood, scrap lumber, even gasoline stored beneath a deck. Even motorized equipment, when left under a deck, with gas in the tank has caused home losses during fires.

The underside of decks should be enclosed with noncombustible material. If that is not possible, covering the area under a deck with stone, concrete or rock mulch will make the deck safer. When decks are rebuilt use fire resistant materials.



If a deck burns, the home will burn with it. Keep the underside of decks clear of any combustible material.

Deck furniture should be made of noncombustible materials. Metal rather than wood for example.

Fire resistance of windows and doors should be considered. If the window glass breaks, firebrands will enter the house. The most fire-resistant glass is low emissivity, tempered glass which withstands the heat of a fire for the longest period. Double pane windows last longer than single pane when exposed to the heat of a fire. Triple pane windows with low emissive glass offer the best protection, but at the highest price.

Window frames are also important. Metal frames offer the best protection. Vinyl frames usually do not burn but can melt when exposed to heat. Wooden frames will burn. Metal screening with on the outside of windows offers additional protection, but most windows are sold with nylon screening that will melt. Solid metal shutters offer the best protection, assuming the homeowner can close them before evacuating.

Wooden doors are obviously able to burn during a fire. The thicker the door the more resistant it will be. Metal doors are far superior, and glass in doors is subject to the same vulnerabilities as window glass. Well maintained weather stripping outside doors will help prevent fire brands from entering a home.

Further information about increasing the survivability of structures is found on the CSFS website at:

<http://csfs.colostate.edu/pages/pub-csfs2.html#wildfire>

REQUIREMENTS FOR NEW CONSTRUCTION:

The City of Manitou Springs adopted Natural hazards Standards that apply to new builds, expansions, subdividing, etc. It requires the Manitou Springs Fire Department to do a wildfire site assessment and standards for the resident to follow:

The Planning Director shall have the authority to modify the wildfire mitigation standards in this section based on Fire Department recommendation, or through the alternative compliance procedure for landscaping plans in section 18.72.070E.

- The standards in this subsection establish minimum regulations for reducing the risk of loss of life or property from wildfire by:
 - Establishing a natural or man-made area where vegetation capable of carrying a fire has been sufficiently treated, modified, or removed to slow the rate of spread and reduce the intensity of a fire.
 - Providing a safe fire suppression operation; and
 - Slowing or preventing a fire from traveling in either direction between a structure and vegetation.
- The wildfire hazard standards in this section shall apply to any of the following activities or scenarios.
 - An application for Major or Minor Development Plan.
 - An application for a Major or minor Subdivision; or
 - Any required building permit or property improvement permit for habitable or commercial structure, an addition of any size to a habitable or commercial, or garage.

- The applicant shall mitigate wildfire hazards to applicable structures through landscaping and maintenance to the maximum extent practicable by:
 - Maintaining a five (5)-foot perimeter zone that contains only non-organic mulch and non-vegetative landscaping materials around structures.
 - Providing and maintaining a ten (10)-foot primary defensible space area, where vegetation capable of carrying fire has been treated, modified, or removed to slow the rate of spread and reduce the intensity of a fire.
 - Providing and maintaining a secondary thirty (30)-foot defensible space area within the lot on all sides of the structures where:
 - A minimum separation of ten feet is provided between the edges of tree canopies, (or clusters of tree canopies), measured at maturity.
 - Vegetation and tree canopies maintain a minimum clearance of ten (10) feet from any building.
 - Branches within six (6) to ten (10) feet above ground are removed from trees taller than twenty (20)-feet in height.
 - Low-hanging branches at less than one-third ($\frac{1}{3}$) of the tree's height are removed from trees that are less than twenty (20) feet in height.
 - Potential fire hazards such as insect infested, diseased, and dead trees and limbs are removed.
 - Planting vegetation in clusters is encouraged, with spacing between clusters of ten (10)-feet, or one and one-half ($1\frac{1}{2}$)-times the height of vegetation, whichever is greater.
 - Vegetation shall be maintained, including keeping limbs trimmed, removing surface and ladder fuels, and removing vegetative debris from the ground.
 - Whenever the standards in section 18.10.070 conflict with landscaping standards elsewhere in this code, the standards in section 18.10.070 shall apply.

OPEN BURNING

Open burning is regulated within the Manitou Springs city limits. Open fires and open burning within the city limits must conform to the following regulations:

- A safety area of 10 feet from the open fire shall be free of flammable vegetation or mowed to a very low height.
- The open fire shall be no less than 15 feet from other combustion sources, including but not limited to residences, barns, sheds, wooden fences, and similar structures.
- All fireplaces and pits shall be fitted with an appropriately sized and fitted Spark/Ember Arrestor.

- The total fuel area may not be greater than 3 feet in diameter and shall have a flame height of less than 2 feet.
- A means of extinguishing the fire shall be available and ready to deploy. These means shall include at a minimum:
 - a portable fire extinguisher at least a 51b type A rating; or
 - a water hose with sprayer attachment; or
 - a 5-gallon bucket of water and shovel.
- All open fires shall be attended by a person at least 18 years of age who has a phone immediately available to call 911 and who is capable of using the means of extinguishing the fire.
- No refuse or yard debris may be burned.

In addition, authorities may impose fire restrictions when they feel that the threat of wildfire is so severe that burning must be restricted. Fire restrictions are Stage One or Stage Two depending on the burning conditions. What is allowed or prohibited under each type of restriction is often confusing to the public, and the various types of restrictions are:

Stage 1 FIRE Restrictions:

1. Open Burning Ban, defined as the prohibited use of any outside fire, including campfires and warming fires.
 - This current ban excludes fires in permanently constructed fire rings within the city's RV and Camping Parks; charcoal grills and smokers, and wood burning fireplaces, (chiminea) or fire pits with proper fitting screen covers and with a minimum of 15' separation from structures or other combustible material at private residences. None of these exclusions permit a total fuel area greater than 3 feet in diameter, and all must have a flame height of less than 2 feet.
2. Outdoor Smoking Ban, defined as the prohibited use of any tobacco product or similar material in cigarettes, cigars, or pipes outdoors. This excludes smoking in enclosed buildings or structures, and along Manitou Avenue. Discarding lighted cigarettes, cigar or pipe tobacco products is strictly prohibited.

These restrictions do not apply to gas-fueled grills used out-of-doors, or to fires within liquid-fueled or gas-fueled stoves. Additionally, compliant fireplaces and wood-burning stoves within private residences are not included.

Stage 2 Fire restrictions:

1. Open Burning Ban, defined as the prohibited use of any outside fire. This includes all campfires and warming fires, all solid fuel- burning fire- places (e.g., fire pits, fire tables, and chimineas) and cooking appliances (e.g., charcoal BBQ grills, pellet smokers and BBQ grills).
 - This ban excludes Liquid Propane (LP) fueled or gas fueled open flame cooking devices, (e.g. LP BBQ grills or camping stoves) with a 10' separation from combustible materials, (clearance not applicable to single-family homes). Additionally, this ban does not apply to compliant fireplaces and wood-burning stoves within private residences.
2. Outdoor Smoking Ban, defined as the prohibited use of any tobacco product or similar material in cigarettes, cigars, or pipes outdoors. This excludes smoking in enclosed buildings or structures, and along Manitou Avenue. Discarding lighted cigarettes, cigar or pipe tobacco products is strictly prohibited.
3. Prohibited Sale and Use of Fireworks and explosives, defined as sale of any and all types of fireworks, and use of any explosives not limited to fireworks, fuses or blasting caps and rockets.
4. Dangerous Equipment Use, defined as the use or operation of any equipment outdoors that emits sparks (e.g. grinder, chain saw) or open flame (e.g. welding or operating an acetylene or other torch) without a chemical pressurized fire extinguisher equal to or exceeding a rating of 2A 10BC readily available to the operator.

A Red Flag warning is issued by the National Weather Service when low humidity and strong winds combine to produce increased risk of fire danger. These conditions are independent of antecedent weather, fuel types and fuel moisture for the region.

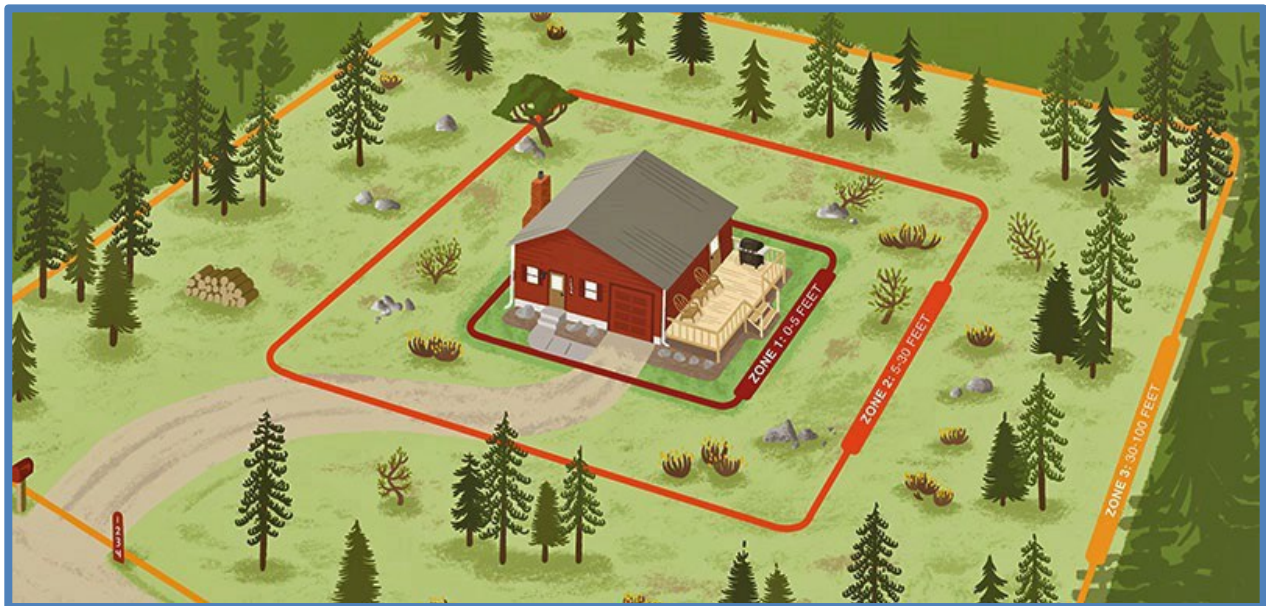
Whenever there is a Red Flag Warning in effect for Manitou Springs, Stage 2 fire restrictions are automatically enacted for the same period of time as the Red Flag Warning.

V. PRESCRIPTIONS FOR WILDFIRE HAZARD REDUCTION

A common misconception is that “forest fires” occur in forests. On December 30, 2022, high winds sparked two wildfires east of Boulder. In the fierce winds, the two fires soon merged into one. The town of Superior, the city of Louisville and portions of other towns were ordered evacuated. The towns and cities burned were closer to downtown Denver than to the forest, yet the wildfire burned more than 900 structures and caused two fatalities. Once the fire reached the urban areas home to home ignitions, landscaping and fences carried the fire through neighborhoods.

Manitou is vulnerable to an urban conflagration such as the Marshall Fire, and residents must understand the fuel mitigation is as necessary for yards as in distant forests.

THE HOME IGNITION ZONE:



The term “home ignition zone” (HIZ) is defined as a structure and the surrounding vegetation. A structure’s vulnerability to wildfire depends on the surrounding vegetation, especially landscaping, and the structure itself.

Homes in Manitou Springs are frequently so close together that the typical standard of 100 feet of defensible space would cover several lots.

Ideally all the homes in neighborhoods should reduce their ignition hazards as a cooperative endeavor, but reality is that not all neighbors will act together. Even if neighborhood cooperation is less than 100 percent, individual homeowners can protect themselves by reducing the fuels on their own properties.

Sociological studies of behavior in communities find that approximately 10% of residents embrace and adopt new ideas early and their work persuades other residents. About 80% of the community will adopt an idea once they observe the success of the early adopters. Sadly, about 10% of the community adopts the idea late or not at all.

PROTECTING HOMES IN THE HIZ

Fuel reduction in the HIZ is designed to protect structures from the heat of wildfires. Defensible space includes fuel reduction around structures to reduce the heat from burning vegetation and as described in the previous section, reducing flammability of the structures to protect them from wind born embers, radiation and convective heat.

**The Fire
Department can
advise
homeowners
with site specific
information.**

Defensible space is defined as an area around a structure where existing vegetation is modified to slow the rate and intensity of an advancing wildfire. This includes selective removal of trees around structures in two or three concentric management zones. Not all lots in Manitou Springs are large enough to have all three zones, but we will use the standard descriptions here. They can be adapted to smaller lots or to several lots in communities. The Manitou Springs Fire Department can advise homeowners with site specific recommendations.

On slopes, increase the width of each zone on the downhill side. Fuels are reduced according to prescriptions for each zone. In an urban community like Manitou, fuels are primarily landscape or native plants surrounding the home.

ZONE ONE

This is the closest zone to a structure and extends 1-5 feet from the outermost edge of a structure including any decks. The management goal is to reduce or eliminate most large trees or shrubs within this zone so that the convective heat will not ignite the structure. One or two trees may be left in zone one if the lowest branches are pruned so that they are eight feet above a fire-resistant roof. Treat such trees as part of the structure and create 15-30 feet of space outside the tree.

Pruning large trees around a structure is a complicated and often dangerous endeavor that should be left to a trained arborist.

Homeowners in Manitou Springs have varying appetites for landscaping. Not all dangerous fuels are native plants. Some of the worst come from garden centers, and poor landscaping choices can undo all the good of defensible space.

Regardless of the homeowner's desire for landscaping, the one critical landscape feature is a five-foot non-combustible barrier adjacent to the foundation and deck. Defensible space does not prevent fires. It reduces them to low intensity in the concentric zones, but the barrier prevents a low intensity fire from touching a structure. The barrier can be bare dirt or more elaborate depending on the homeowner's taste. Under no circumstances use wood, rubber, or other combustible mulch next to a foundation.

If the homeowner prefers, some plants are permissible in the barrier. Plant only a few herbaceous flowers and never plant woody shrubs, junipers, or tall ornamental grasses. Any plant that creates woody or dry vegetation near the walls should be avoided.

ZONE TWO

Zone two extends from 5 to 30 feet from the foundation. The width of zone two depends on the slope around the house. Recall from Chapter Two that slopes increase fire intensity. As slopes increase, increase the width of zone two on the downhill side of the house, and increase the spacing between tree crowns.

The main fuels reduction guideline for zone two is to thin the trees to an average spacing of 10-foot crown separation. Clumps of two or three trees may be retained in this zone if the space between the clump and the adjoining trees is at least 30 feet. All ladder fuels under trees should be removed. The branches of large trees should be pruned to a height of 8 feet above ground, but small trees should have at least two-thirds of the green needles remaining.

Landscaping suggestions in zone two are:

- Foresters derisively refer to junipers as “gasoline on a stick” because of their high flammability. Planting juniper (Pfitzner) bushes near a foundation is arguably the worst mistake a landowner can make. Junipers should be removed from landscape plantings.
- Plant in small clumps with space between clumps.
- Stone, gravel, or dirt paths help break up fuel continuity and improve defensible spaces.
- Mow grass in zones two and three to less than four inches as needed. Mow grasses late fall so that dry grass does not remain around the home over the winter.
- Landscape with Firewise plants. El Paso County Cooperative Extension publishes a list of fire wise plants that grow well in the county. The list is available at:

<https://elpaso.extension.colostate.edu/wp-content/uploads/sites/44/2022/09/Low-Water-Fire-Resistant-Plant-Materials-0712-2022-1.pdf>

- It is tempting to store firewood near the home for easy gathering on cold days. This habit should be avoided. Firewood should be stored at least 30 feet away and uphill from the home or any neighboring structures.

- Many homeowners desire wooden privacy or wood rail fences. In a wildfire, wood fences become wicks that bring flames in direct contact to a structure. Fortunately, it is not necessary to remove wood fences. Separating the fence from a structure with a five-foot metal gate will adequately mitigate the hazard. It is also wise to keep tall grass and other flammable vegetation at least five feet away from wooden fences.
- Carefully consider the landscaping in the vicinity of decks as well. Avoid planting flammable shrubs, such as junipers, anywhere near decks. Pot- ted plants or wooden planters on decks may also increase the hazard. Even furniture with cushions or wooden frames may ignite from fire- brands. The area of defensible space should be increased near decks, especially on the downhill side.

ZONE THREE

Zone three extends 30 to 100 feet from the foundation. Most homes in Manitou do not have a zone three. Trees here can be clumped in groups of two or three so long as there is at least 20 feet of space between clumps. Trees should also be pruned to eliminate ladder fuels. Firewise land- scaping is necessary in this zone as well.

Gambel Oak Management

Many homes in Manitou Springs have stands of Gamble or scrub oak in yards. Oak is popular with many homeowners as a privacy screen. When dead leaves remain on the branches after a late spring frost or in the fall it is a dangerous fire hazard. Guidelines for managing oak in urban lots are:⁴

⁴ Worley Keith. 2024. Extreme Gardening, Taming the Scrub Oak Monster. Unpublished

- Break large oak clumps into smaller clumps. The diameter of a clump should be less than two times the height of the oak.
- Remove oak ladder fuel beneath other trees and create ten feet of space between oak and the dripline of adjacent trees.
- Remove decadent clumps and dead stems when mitigating oak.
- Ideally oak should be removed within 30 feet of structures.
- Oak stems that form an angle to the ground of less than 30 degrees are prone to breakage in heavy snow and should be removed from the clump.
- Remove small stems from the understory of the oak. These are ladder fuels.
- Oak resprouts prolifically after cutting. New stem must be mowed at a minimum of every three years. Some homeowners find that frequent mowing of new sprouts with a weed eater to be an effective means of controlling sprouts. Many garden centers, big box stores or rental centers rent brush hog type mowers that will cut three-year-old oak sprouts.



Well mitigated oak has clumps separated and the understory cleaned out. A fire would likely pass under this clump and stay on the ground.

IV. MITIGATION PRESCRIPTIONS

One of Manitou Springs primary goals is to manage the city's open spaces and watershed properties as fire adapted forest.

SILVICULTURE AND WILDFIRE MITIGATION

Foresters manage trees not as individuals but in groups called stands. A stand of trees is defined as a group of trees that are similar with respect to age, species composition and other characteristics. Each stand is different from the ones nearby, and each landowner may have different objectives in addition to wildfire mitigation.

Thus, the information that follows is intended to be a general and highly simplified summary of the basic concepts of wildfire mitigation. It is only intended to give the reader an idea of how foresters approach the process of prescribing treatments for fire mitigation. When planning private fire hazard mitigation, an initial consultation with a forester is recommended.

Specific prescriptions for any forest stand are best developed when the existing conditions of the stand and the landowner's specific objectives are known.

Although foresters may use many characteristics of trees to categorize them, the most common and useful when discussing fire mitigation is the tree's tolerance to shade. Shade tolerance means the ability of a tree to germinate and grow in the shade of other trees. Species of trees vary in their tolerance to shade, but they can be grouped by those that require sunlight for germination and those that require shade.



The ponderosa sections in this photo illustrate how tree diameter is not a reliable indicator of age. The center section is 100 years old; section 2 is 99; section 3 is 101; section 4 is 90; section 5 is 85; section 6 is 130; section 7 is 81. (Sculpture by Bill Wallace. Photo by Bill Buckman, courtesy of the Black Forest Slash & Mulch Program)

SHADE INTOLERANT TREES

Shade intolerant trees are those that require full sunlight to sprout and grow to maturity. Shade intolerant trees are those that first colonize a site after a disturbance, such as wildfire, removes the existing trees. For this reason, ecologists call these pioneer species. Aspen, the most shade intolerant of local species, will send up new sprouts within days after a fire destroys the old trees. Shade intolerant trees common to this area include aspen and ponderosa pine.

It follows that if the trees in a particular area grow in following a disturbance, all the trees in a stand will be of roughly the same age. As the trees compete for sunlight, water and nutrients, the most vigorous becomes the dominant trees in the new stand. The dominant tree soon outgrows its siblings, yet the weak trees remain in the understory stunted and overtopped. Thus, in shade intolerant stands, small trees are not young trees but merely suppressed.

The following are some important species of shade intolerant trees with respect to fire mitigation:

PONDEROSA PINE

Of all the species of trees in the local area, ponderosa is the best adapted to survive a low intensity wildfire. First, the thick bark of the tree acts as insulation from the heat of the fire. Second, as the upper branches shade the lower branches, the low branches die, and in time, are broken off. Thus, there are fewer low hanging branches to act as ladder fuels. Fires that burn in the grass and litter under mature ponderosa rarely harm the tree.

ASPEN

As noted earlier, aspen is the most shade intolerant of local trees. Unlike the ponderosa, aspen bark is thin, and the tops of the trees are killed by even the coolest fire. The root system however is insulated from the fire's heat by the ground, and when the tree tops die, the roots respond by vigorously resprouting.

As a deciduous tree, aspen will not carry a fire in the tree crowns, thus fires drop to the ground in aspen stands. For this reason, aspen are desirable trees to retain in fuel breaks and defensible spaces. Furthermore, aspens are desirable wildlife trees, and many stands are becoming shaded out by conifers due to years of fire suppression.

Since wildfire mitigation practices almost always require thinning, many landowners assume that aspen should be thinned as well, but they should not. Thinning aspen is rarely recommended since the falling trees wound the remaining trees. The bark on aspen is so thin that any wound will expose the tree to many different fungal diseases that are eventually fatal. Fire mitigation in aspen should be limited to removal of dead trees if care is taken to avoid wounding live aspen, removing down dead wood, and removing conifer regeneration from the aspen understory.

SHADE TOLERANT TREES

Shade tolerant trees are those that will sprout from seed and grow in the shade of the existing forest canopy. Shade tolerant trees are usually found on the cooler moister north facing slopes of hillsides and in moist drainages. In fact, most shade tolerant trees require shading for the seedlings to survive. A seedling in direct sunlight will often be burned by the sun. As a result, stands of shade tolerant trees contain trees of many ages. The most common shade tolerant trees in the area are pinon, Rocky Mountain juniper, and Douglas-fir and Colorado blue spruce.

PINYON AND ROCKY MOUNTAIN JUNIPER

By far, the most common trees on Manitou Spring's open spaces are pinyon and Juniper. Both grow on the poor sites and are managed together. Despite their reputation as gasoline on a stick, junipers provide sources of food and shelter for wildlife and should not be eliminated. Pinyon also provides food and shelter for wildlife. The general prescription for mitigating these species is to create clumps separated by openings.

The common means of managing pinyon juniper stands is similar to management of Gambel oak. Break up the horizontal and vertical continuity of fuels. Clumps should be separated by a minimum of two and one-half times the height of the trees. To reduce ladder fuels, pinyon and juniper should be pruned no more than three feet from the ground.

SPRUCE

Colorado blue and Engelmann spruce are so similar that they may be considered together for discussion of fire mitigation. Colorado blue spruce is usually found at lower altitudes (below 9,000 ft) while Engelmann spruce is usually found above 9,000 feet. The ability of seedlings to survive in the shade of mature trees usually creates dense forests with a closed canopy above and thickets of ladder fuel below. The typical fire regime in spruce is an infrequent stand replacing crown fire.

Spruces tend to be shallow rooted and excessive thinning of the upper canopy can result in wind throw in the remaining trees. Typically fire mitigation prescriptions for spruce require creating openings of one tenth acre or larger with clumped trees between the openings. Removal of small trees in the understory of the clumped trees reduces ladder fuel.

DOUGLAS-FIR

Typically, Douglas-firs are found on cooler north facing slopes in lower elevations and mixed with spruce in higher elevations. It is in the lower elevation ponderosa pine forests where Douglas-fir has become the most serious concern for wildfire mitigation. After a century of fire suppression in lower elevation ponderosa pine stands the canopy has closed, shading the forest floor. As a result, Douglas-fir has invaded the understory of the ponderosa stands creating dense thickets of ladder fuels.

Douglas firs are firmly rooted trees and can be thinned much the same as ponderosa pine. In lower elevation ponderosa stands most Douglas firs should be eliminated, especially the ladder fuels. There is an important exception to this general rule where the ponderosa is infected with dwarf mistletoe. In such situations the landowner may choose to favor the Douglas-fir since they are immune to the ponderosa pine dwarf mistletoe. Special attention should be given to providing adequate separation between the crowns of larger trees and pruning the lower branches from the Douglas-fir to reduce ladder fuels.

Where Douglas-fir is intermixed with less wind firm spruce, they can be favored to maintain forest cover. It is still important to prune the trees to remove ladder fuels.

SLASH TREATMENTS

Slash treatments will always be needed to clean up the residue from any forest thinning treatments. Untreated slash will only increase the fire hazard, possibly undoing all the good of thinning. It can also attract undesirable insects to the area—primarily ips beetles and turpentine beetles. Slash treatment may be the most labor intensive, and thus expensive, part of any fuel mitigation project.

LOP AND SCATTER

This treatment consists of using saws or equipment to cut the slash into smaller pieces so that the height of the remaining slash is reduced, usually less than 12 inches high by 24 inches long.

Slash cut into smaller pieces is less visible and will break down in shorter periods. It may be the only practical treatment in areas where chippers are unavailable, prohibitively expensive, or in inaccessible locations. It is usually the lowest cost treatment since no special equipment, other than a chainsaw, is required. Lop and scatter is a useful means of disposal when pruning lower branches in isolated areas or when thinning small areas where less slash is generated.

The treated slash is left to decompose, and until it breaks down it may be unsightly. Over the course of several winters, snowpack pushes the slash down and it decomposes. Decomposition usually requires three to five years or longer if larger material was present. It also creates an extremely flammable fuel bed until it decomposes, which can be easily ignited, and burns with high intensities. It should not be used adjacent to high values, such as homes, or areas prone to regular fire occurrence.

Lopped and scattered slash can also lead to problems with ips or turpentine beetles. The beetles may lay eggs in green slash and the brood may emerge to attack living trees. This problem can be alleviated by doing any forest restoration treatments requiring this method in the fall and winter when the beetles are not active and by cutting slash into small pieces that dry out quickly.

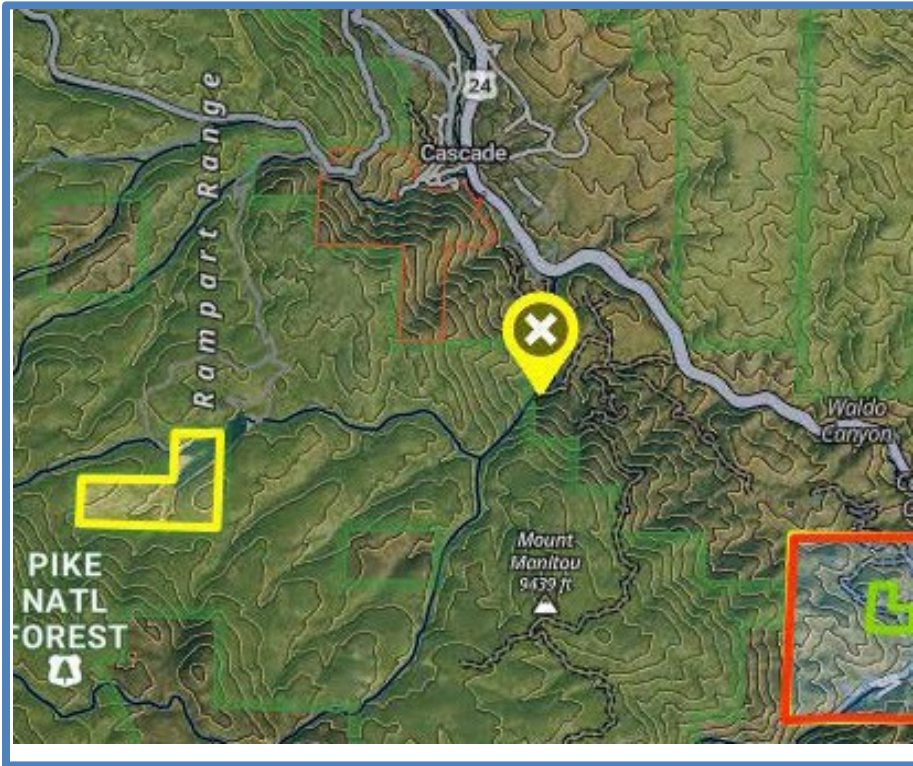
CHIPPING

It requires mechanized equipment to perform the chipping. The slash must be brought to the chipper, unless it is an expensive mobile chipping piece of equipment. Either way, it can quickly become a very expensive operation. Material can be chipped and left or removed for off-site disposal or as a product.

Chipping is a common method of slash disposal in the defensible zones around structures. Chips do not significantly contribute to the fire hazard around structures since they produce low intensity fire behavior. Large piles of chips should be avoided as they could smolder for a significant amount of time, however. Chips should be spread along the ground to a depth of less than four inches.

Chipping is an effective means of treating wood infested with bark beetles since the insects will not survive in the small bits of wood. Green slash that is promptly chipped will not harbor infestations of ips, turpentine, or other bark beetles. Chips also can pull nitrogen out of the soil, reducing the productivity of the ground.

MITIGATION PRESCRIPTIONS:



The reservoir property is the yellow polygon on the map on the left.

The water intake is at the yellow way point.

The steep canyon of French Creek between the dam and the intake is a high hazard and steep terrain makes for difficult mitigation.

MANITOU RESERVOIR:

The 50.4-acre property surrounding the reservoir was mitigated by the Coalition for the Upper South Platte in 2023. The Manitou Springs reservoir property is one parcel in a larger watershed that includes Colorado Springs Utilities, Ute Pass and much of the Pike National Forest. All the parties to watershed and forest management should work as a cooperative unit to mitigate wildfire risks over the entire watershed.



Restored forests on the Manitou Springs watershed property. Restoration followed a clumpy-group pattern that characterized local forests before fire suppression altered the forest structure.

Now the objective is to maintain the restored forest in a fire adapted condition. The information in the maintenance section at the end of this chapter provides a yearly maintenance regime for the next decade.

FRENCH CREEK WATER INTAKE

The intake for Manitou's municipal water supply is located below the reservoir on French Creek. It may be the city's most at risk asset since a wild- fire upstream from the intake will cause flows of ash, soil and debris to flow into the intake and the municipal water supply.

The intake is located on the Pike National Forest and mitigation prescriptions and methods will be determined by the Pikes Peak Ranger District through the Forest Plan. As with the National Forest surrounding the reservoir, forest restoration is part of a cooperative regional effort.



The municipal water intake on French Creek. The greatest hazard here is not the dense vegetation near the intake, but that the forest along the French Creek valley will burn subjecting the intake to post fire debris flow and flooding.

OPEN SPACES:

Open Spaces are one of Manitou's most prized assets. They are sources of recreation and provide undeveloped spaces between denser areas of homes. Residents prize their open spaces, and Manitou Springs places a high priority on their maintenance and stewardship.



The open spaces abut houses within the city and therefore, fuel mitigation is a high priority. Like most forests surrounding the city, wildfire risk is high due to fire exclusion.

Objectives for the open spaces are: 1) Maintain healthy wildfire adapted forest on the parcels. 2) protect vital infrastructure within the parcels, for example the water infrastructure. 3) use the areas as demonstrations of proper forest management and fuel reduction. Stewardship of lands by the city that the city is an active partner and a good steward of their properties. The city wishes to lead by example.

The open spaces in Manitou Springs included in this project are, Iron Mountain approx. 93 acres, Mesa Water tower approx. 27 acres, and the base of Red Mountain approximately. 20 acres. All these areas are on the edge of the city and visible by the residents of Manitou Springs. One of the goals of the project is to engage residents to see the mitigation work with hope they become interested in mitigation. Aesthetics and public acceptance of the projects are critical.

Mesa Water Tower



This 27-acre property is on the west edge of town and has one of the city's water towers on it and the city's lone water treatment plant just west of the parcel. Given the steep terrain and high fuel loadings, intense wildfires would be likely. Interruption of water would make the city nearly uninhabitable. Mitigation would make the water tower more resistant to wildfire and keep a major city infrastructure asset safer from the threat of wildfire and post-fire problems.

The area is steep but there is access to the water tower and to the treatment plant. The access road to the treatment plant is rough, but accessible to a low clearance vehicle. Dense shrubs line the road along the way to the treatment plant. Surprisingly Siberian elm is a large component of the shrub fuels. There is no fuel model for this situation, but the elm resembles a Gambel oak fuel model.

If a wildfire were burning in the area, it would be unsafe to try to protect the structures since firefighters could be suddenly trapped if access were cut off. Dense fuels adjoin the road and access to protect the treatment plant would be impossible during a wildfire.

Many acres of the open space can be masticated with a skid steer. This would be by far the most economical method of work. Steep parts could be done by hand crews and a tracked chipper although hand work is always more expensive than machine work.

Some areas can be hand cut, with the slash lopped and scattered. The slash is unsightly until it decays in three to five years. Due to the unsightliness of the slash, try to use this method as little as possible. Mitigation should concentrate on breaking up the continuity of fuel by making openings in the continuous fuels. Remove as much Siberian elm as possible in the mitigation process. Siberian elm is a nonnative plant and has surely seeded in from trees planted around the city. Many plant authorities go so far as to call it an invasive species.

Black Canyon Open Space

The 30-acre Black Canyon Open Space on the northeast side of the city is an undeveloped parcel that does not directly abut homes. Cedar Heights is about one-half mile from the northern boundary of the property although it does not directly adjoin it. Homes in that community could be at risk from firebrands should the property ever burn. Black Canyon also adjoins the Garden of the Gods, a park that the City of Colorado Springs considers a high priority and is in the process of mitigating. There is an opportunity to work cooperatively with Colorado Springs and Cedar Heights to jointly mitigate the hazards on a larger landscape level.

During a walk through the property, several long abandoned homeless camps were observed. It did not appear that there were any recent camps in the area.



Overall, wildfire hazards are high on the steep slopes adjoining the two canyons, but moderate along the ridgetops. Fuels are a mix of pinon pine, Rocky Mountain juniper and Gambel oak in openings between the trees. There are also a few ponderosa pines although they make up only a small portion of the trees. Pinyon, juniper and Gamble oak dominate the site. On the north facing slope above Black Canyon Road the trees are dense with smaller patches of oak in the openings. On the ridgetop the trees become more open. Openings between the trees are wider and filled with Gamble oak.

The prescription is to create openings and gaps in the continuous fuels to slow the rate of spread and intensity of wildfires moving through the property. Small masticating heads mounted on skid steers would be the ideal means of work along the ridge and where slopes are moderate with fewer rocks. Even though fires may burn up the slope, mitigation along the ridge will slow and reduce the intensity of fires burning up the ridge.

The steeper slopes where the terrain is rocky present a problem. This slope has a high wildfire hazard, but the combination of steep, rocky terrain makes any work more difficult. Hand cutting and use of a tracked chipper may be the only practical and cost effective, albeit expensive, way of working the slope, and some rocky areas may still be inaccessible. Work in the areas that are accessible to the chipper. Some other areas can be mitigated using hand crews and lop and scatter for slash disposal. Lop and scatter should be used only in small areas.

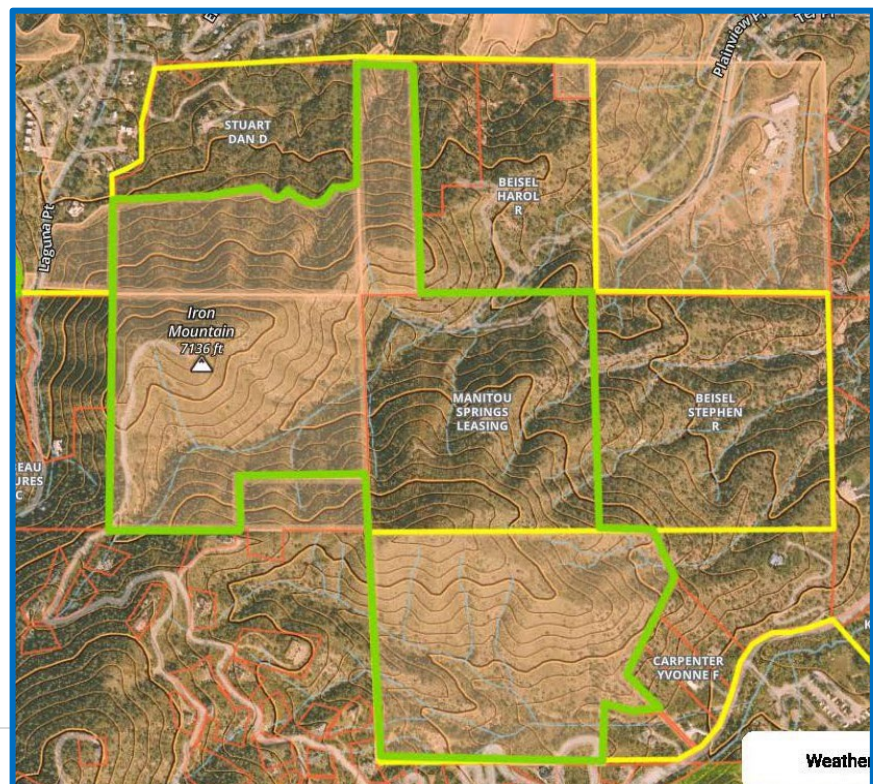
One difficulty in this open space is access. With no developed roads or trails it is difficult to access the site. There are some social trails that appear to be well used. The current social trail, running along the ridge from the northwest corner to Highway 24 appears to be an old, abandoned, road. The road is faint in some places. With only minor improvements, it would be accessible for tracked chippers or skid steer mounted masticator. However, a pickup truck could not traverse the old road without a great deal of improvement.

Judging from aerial photographs, this trail meets Black Canyon Road on private property near the old quarry, and it traverses private property before reaching the Manitou open space. Permission to access the property with equipment would be required to use this route.

Iron Mountain Open space

Iron Mountain Open Space is on the southeast side of Manitou Springs, the area is approximately 92 acres. The Intemann Trail (Ring the Peak Trail) traverses the open space. In many places the trail is an abandoned road that would provide access for small, motorized equipment or a pickup truck.

The area is bordered by the neighboring community of Crystal Park on the south, and some homes directly adjoin the open space. Parts of the open space are more easily accessible through private properties in Crystal Park, if



agreements for access can be negotiated with the landowners.

As Crystal Park is a Firewise Site with mitigation programs of its own, the possibility of cooperation between the communities seems worth pursuing.

Slopes are steep, sometimes 45 degrees, and cut by deep drainages with stands of ponderosa pine and Douglas-fir, usually on north facing slopes. The north facing slope of Iron Mountain is forested with ponderosa and Douglas- fir and Gambel oak. On south and west facing slopes, vegetation is usually scattered clumps pinyon and Rocky Mountain juniper with mountain mahogany and some oak between tree clumps. Some of the slopes could be mechanically masticated with skid steers, but others are too steep. As with other open spaces, track chippers and hand crews could work most of the slopes.

Although high intensity fires are likely in the timber fingers, the surrounding mountain mahogany would support moderate intensity fires. The most effective mitigation would be to treat the shrubs above the draws on more accessible ridgetops by creating openings and breaking up the continuity of the fuel.

In the draws, terrain is too steep to permit motorized equipment, and any work would need to be done by hand. Larger trees tend to be in clumps with space in the canopy around the clumps. The greatest hazard is lower limbs, regeneration or shrubs in the understory that would act as ladder fuel. Wholesale forest thinning would not accomplish much and be prohibitively expensive. The prescription for timber stands in these areas would be to do the pruning of lower branches, minor thinning regeneration and brush ladder fuels, and lop and scatter slash.

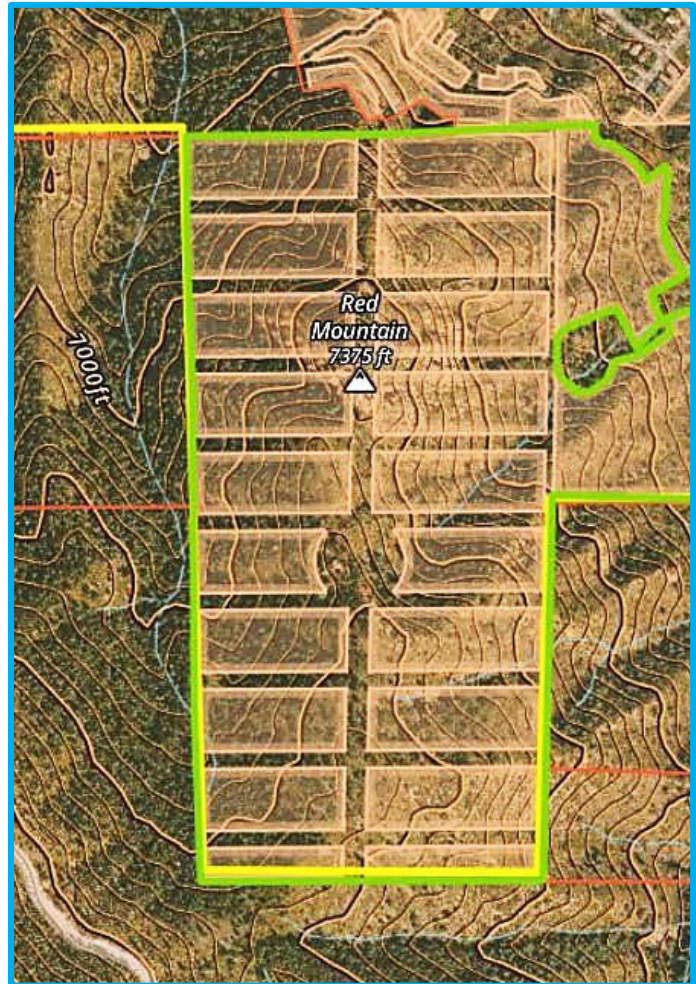
To avoid generating large quantities of unsightly slash, work can be done in smaller areas, probably by volunteers over longer periods, and in isolated clumps of piñon and juniper on the slope above the drainages. The timber is not so continuous as to present a severe fire hazard.

Red Mountain

There are several parcels together that add up to about 20 acres, this acreage is also on the south side of Manitou Springs and is adjacent to the Iron Mountain Parcels that are part of the plan. This area is right on the edge of residential area and has the popular Intemann trail on it, that also access's the popular Red Mountain Trail. This area is also thick with Gamble oak, mountain mahogany, and some pine trees. The area would benefit from reducing fuel in the area and break up the continuity of vegetation in the area. This area would also be a mix of mastication, hand work with lop and scatter and chip- ping capabilities.

All these areas mitigated would make the city more wildland fire resilient, meet goals that were set in the CWPP, build partnerships for further mitigation in the future, and raise awareness of the benefits of mitigation. As a result, residents might take a more serious look into mitigating their properties. There has been mitigation done in a city open space and mitigation done at the City's Reservoir but using that work as a public engagement opportunity should be explored.

Mitigation of open spaces is also an opportunity for the city to lead by example. The city's work will be an example of proper forest stewardship that will inspire residents to mitigate their own properties.



MAINTENANCE

Survivable space, fuel break thinning, or any type of forest management does not end when the initial project is finished. Continual maintenance is an essential part of any forest management program. Even in well managed forests trees will die, storms and wind will damage trees, and new trees will germinate.

Trees should be inspected every spring for any sign of damage from winter or spring snow or wind. Prune any broken branches if they are not too high in the tree, and trees bent by heavy winter snow should be removed. Check for any signs of insect activity or disease.

Late October is the best time to inspect trees for attack by mountain pine beetles. Beetles have finished attacking trees at this time, and there is adequate time to cut and treat the tree before the adult beetles fly the next July.

At five years check the canopy closure, especially in zones one and two. Remove any trees necessary to maintain openings in the canopy. Do any additional pruning or removal of trees and shrubs to eliminate ladder fuels.

After ten years, dense thickets of young trees (regeneration) may have become established, and these will need to be thinned. Not all regeneration should be cut since trees of various ages are important for forest diversity. Young trees in openings with adequate room to grow should remain. Regeneration that is likely to become ladder fuel or crowded by other trees should be cut. Depending on their objectives, landowners may want to consider removing some of the larger trees to make room for the younger ones.

VII. Implementation and Monitoring

PRIVATE PROPERTY

Mitigation on private parcels within the city is the responsibility of the home-owner. The city does not enforce mitigation on privately owned properties. Although the city does not regulate, it can persuade.

The Fire Department provides homeowner assessments and aids private property mitigation through the chipping program. As more homeowners do work, more homeowners join the effort.

Many homeowners who understand the need to mitigate their properties are discouraged because they feel it is useless unless all property owners do the same. Recalling the material describing how communities respond to ideas, it is the early adopters who begin persuading neighbors to act. These are the people most likely to reach out for home inspection or advice, and they are more likely to become neighborhood spark plugs. It is important to respond and encourage early adopters. The success of neighborhood mitigation begins with them.

Successful forest restoration or mitigation efforts too often go unnoticed. The city's public information staff (PIO) should be a team member for all mitigation projects public or private. The public information staff has excellent knowledge of social media, flyers, print and broadcast media. The PIO staff should know of every mitigation event and successful project.

Community outreach should never understate the wildfire hazard. It is a real threat. However, too often the message residents receive is that the situation is hopeless, and destruction is inevitable. Everyone remembers the destruction of Mountain Shadows during the Waldo Canyon Fire, but who remembers that Cedar Heights, a properly mitigated community, survived the fire? Examples of successful mitigation are more persuasive than the death and destruction approach usually used by firefighters.

Ultimately effective mitigation requires a community effort. Using local media such as the newspaper or neighborhood chat rooms to publicize successful mitigation projects tells homeowners that there is indeed work going on and they are not alone.

Another impediment for homeowners is lack of knowledge. How does one begin to mitigate a property? Again, the Fire Department is the principal source of information.

Mitigation is strenuous. Many residents do not have the physical strength to prune branches, wield chainsaws or do the work that mitigation requires. When communities are organized, neighbors help neighbors, mitigation becomes a community bonding activity.

OPEN SPACE IMPLEMENTATION

Mitigation in city owned open spaces requires budgeting funds to do the work. As of this writing, mastication rates range between \$2,500 and \$3,200 per acre depending on the difficulty of the work. The daily cost of a hand crew runs from \$1,500 to \$2,500 per day.

The process requires support from the Fire Chief, city leadership, Public Works, Planning department, and City Council. With support from city officials, start developing partnerships to get as much mitigation done as possible. The City Leadership and Council will also be able to allocate funds to get these projects done.

Funds appropriated by the City can be used as matching funds for cost share grants. Typically grants require a 50% match, but the figure varies with the program. Most grant programs favor funding projects with a large regional impact—"landscape level effect", is the term. A landscape level effect is usually reached by partnering with other entities to combine individual projects into regional projects.

The city already has had some experience with this concept. The mitigation of the reservoir was done with just such a grant. Manitou Springs partnered with the Coalition for the Upper South Platte (CUSP) to combine that project with others in the region. The larger project became "landscape level" and was funded. CUSP functioned as the fiscal agent that distributed the funds to individual projects.

Partnerships with Crystal Park HOA, City of Colorado Springs, and Colorado Springs Utilities and other fire districts build relationships for regional impacts and funding. Individual projects do not need to directly adjoin. The Black Canyon Open Space adjoins property that City of Colorado Springs is mitigating. Crystal Park, adjoining the Iron Mountain open space, is also an active neighbor.

Working together to fund projects creates a spirit of regional cooperation and gives projects a better chance of funding. Larger projects also bring economies of scale that lower costs for all the participants. Colorado Springs Utilities has powerlines and infrastructure to protect. Partnering with them for possible funding, ideas and knowledge of what may work best for mitigating the area.

City of Manitou Springs Planning, Public Works, Parks and Rec, the city's public information officer would also need to be involved in making this plan work. The Planning Department marks the property lines and easements. A Public Works and Parks and Rec partnership will be cost saving. In some cases, they could provide equipment for chipping, manpower, heavy equipment.

Project timeline would be:

2025: Black Canyon Open space mitigated and used as centerpiece to show-case mitigation.

2026: Iron Mountain and Red Mountain Mitigation done

2027: Water Tower mitigation done.

Once work is completed for each facet of the project it is important to meet with the partners and review the project. Like an after-action review of a wildfire, determining if the goals were met. Note what parts of the project went well and why. Review what could have gone better to improve future projects.

The public takes a great interest in the open spaces and their protection. Hikers and visitors often believe that any sort of vegetative alteration is an unnecessary alteration of the natural environment. It is imperative to reach out to the public so that they understand the changes in natural ecosystems since fire suppression and to explain the process of forest restoration.

Outreach will ensure the project is not going unseen, and residents can learn from the mitigation efforts. A key element of success is to encourage residents to mitigate their own properties. The city becomes a community spark plug showcasing mitigation on their open spaces.

After every piece of the project being completed, it will be showcased to the public via news articles, social media, The city will sponsor tours explaining what mitigation was done, and why, how it helps the residents, the city itself and how it restores the forest and improves wildlife habitat

MONITORING

Monitoring is an important part of follow-up to the implementation of projects. HFRA instructs participants to establish, where interest is expressed by the communities, a collaborative multiparty monitoring process. This process should address reporting of accomplishments, need for maintenance of treated areas, tracking of burned areas and the positive and negative ecological and social effects of the projects.

Monitoring in the Manitou Springs Community Wildfire Protection Plan calls for an annual field review by the partners (participants) of accomplishments and need for maintenance. Based on this review, it calls for the necessary adjustments in next year's plan, as appropriate. Thirdly, it calls for a determination of interest and meeting by the partners for monitoring the ecological and social effects of projects. These tasks are identified on the table on the next page.

Implementation Plan

The following pages contain projects the City of Manitou Springs, its partners and all private owners should undertake to manage wildfire risks. These are all high priority projects to be completed within the next five years. Partners may include:

City of Colorado Springs Crystal Park

Cascade

Green Mountain Falls Chipeta Park

Colorado Springs Utilities (CSU)

Colorado Springs Fire Department (CSFD) El Paso County- (EPCO)

El Paso County Sheriff's Office- EPCO-SO (includes Office of Emergency Mgmt.) El Paso County Public Works

Colorado Dept. of Transportation- (CDOT) Colorado State Forest Service- (CSFS)

USDA Forest Service, Pike National Forest- (USFS) Abutting Subdivisions to include open spaces and lots. Private ownerships and businesses.

Critical Infrastructure	Action	Partnerships
Water System	Begin fuel mitigation in the Valley of French Creek above the city water intake	
	Install five feet wide noncombustible border around all water facilities and structures	
	Implement defensible space and HIZ fuel treatments around all structures	
	Maintain access to fire hydrants with 10' of clearance of all fuels. Ensure engine accessibility at roadsides	
	Each spring, inspect forests on the Manitou Springs Reservoir property for needed maintenance of mitigation project	
	Mitigate all fuels within 200 feet of all buildings and structures	
CSU- Electrical	Maintain line clearances.	
Critical Ingress/Egress Routes	Begin Public Education programs to teach property owners the importance of maintaining vegetation along roads to firewise standards.	

	Conduct mock evacuation exercises in high hazard neighborhoods	
All Structures (High Priority)	Structural hardening against embers is required for all structures in Manitou Springs	
	Implement Home Ignition Zones around all structures	
Annual and ongoing events	Promote Firewise landscaping principals	
	Annual cleanup projects around businesses and residences	
	Continue slash chipping or other comparable slash removal program	
	Peak Alerts Signup to receive emergency notifications	
	Access and Functional Needs Registry for those with special needs (homebound, handicapped, infirm, etc.). NOT currently available	
	Educational programs	
Critical Forest Fuel Treatments	All properties are treated to mitigate ladder fuels and implement forest restoration with the goal of fire adaption	
	Schedule Treatments for Open Space mitigation per Open Space Implementation Schedule	
	Manage fuel loading on vacant lots that abut residential areas utilizing grant funds	
CWPP Administration	Develop a yearly work plan outlining priorities and potential costs for Wildfire mitigation activities	
	Educational programs	
	Apply for grants or other funds to assist with fuel treatments both inside and outside of the community. This may include distribution and administration of funds	
Pre and Post-fire Planning		
All Roads	Analyze all culvert crossings and roadside ditches for ability to withstand post-fire mud flows. Pre-plan for silt/ash cleanup	

Utilities Crossing Major Storm Channels	Plan for emergency repairs. Harden all crossing points if road crossings are upgraded to handle 100+ year events	
All Neighborhoods	Identify areas most prone to post-fire mud and debris flows. Recommend to owners in these areas acquire FEMA Flood Insurance	

Appendix A

Further Information

Websites:

Natural Resources Grants Database: <https://csfs.colostate.edu/natural-resources-grants-database/>

Colorado State Forest Service:
<http://www.csfs.colostate.edu/>

Colorado State University Extension:
<https://extension.colostate.edu>

Pike National Forest:
<http://www.fs.usda.gov/psicc>

Bureau of Land Management, Royal Gorge Field Office:
<https://www.blm.gov/office/royal-gorge-field-office>

Natural Resources Conservation Service :
<http://www.co.nrcs.usda.gov/>

Publications:

Best Management Practices to Protect Water Quality:

https://csfs.colostate.edu/wp-content/uploads/2024/01/BMP_WaterQuality_2023_Web_CMP.pdf

Wildfire Mitigation CO Dept. of Revenue Tax Subtraction:

https://tax.colorado.gov/sites/tax/files/documents/ITT_Wildfire_Mitigation_Measures_Feb_2024.pdf

Fuel Break Guidelines for Forested Communities: https://static.colostate.edu/client-files/csfs/pdfs/fuelbreak_guidelines.pdf

Protecting Your Home from Wildfire: Creating Wildfire Defensible Zones:

<https://csfs.colostate.edu/wildfire-mitigation/protect-your-home-property-from-wildfire/>

Low Flammability Landscape Plants:

https://csfs.colostate.edu/wp-content/uploads/2023/05/CSFS_CSU-Ext_Fact-Sheets_LFLP_FINAL_web.pdf

Low Water Use and Fire-resistant Native Plant Materials for El Paso County:

<https://elpaso.extension.colostate.edu/wp-content/uploads/sites/44/2022/09/Low-Water-Fire-Resistant-Plant-Materials-0712-2022-1.pdf>

Firewise Principles:

<https://csfs.colostate.edu/wp-content/uploads/2016/09/MVFS-HIZ-Presentation.pdf>

Grass Seed Mixtures to Reduce Wildfire Hazard:

<http://csfs.colostate.edu/pdfs/06306.pdf>

Colorado Property & Insurance Wildfire Preparedness Guide:

https://csfs.colostate.edu/wp-content/uploads/2023/05/Wildfire_22x8.5_2021.pdf

Forest Home Fire Safety:

<https://csfs.colostate.edu/wp-content/uploads/2024/01/Forest-Home-Fire-Safety-Fact-Sheet-6.304.pdf>

Forest Health and Management

Gambel Oak Management:

<https://csfs.colostate.edu/wp-content/uploads/2024/01/Gambel-Oak-Management-Fact-Sheet-6.311.pdf>

Forest Insect and Disease Information***Mistletoes in Colorado Conifers:***

<https://csfs.colostate.edu/wp-content/uploads/2024/01/Mistletoes-in-CO-Conifers-Fact-Sheet-2.925.pdf>

Bark Beetles are Your Trees at Risk?:

<https://static.colostate.edu/client-files/csfs/pdfs/Bark-Beetles-Brochure.pdf>

Mountain Pine Beetle:

<https://csfs.colostate.edu/wp-content/uploads/2024/01/Mountain-Pine>

Ips Beetles:

<https://csfs.colostate.edu/forest-management/common-forest-insects-diseases/ips-beetle/>

Piñon Ips Bark Beetle:

https://csfs.colostate.edu/wp-content/uploads/2020/06/2020_Piñon_Ips_CSFS_Quick_Guide_Web.pdf

Western Spruce Budworm:

https://csfs.colostate.edu/wp-content/uploads/2014/02/Western_Spruce_Budworm_QG_10May2016.pdf

Emerald Ash Borer:

https://csfs.colostate.edu/wp-content/uploads/2016/04/FINAL_EAB_QuickGuide_Revision_25APRIL2016.pdf

Protecting Trees During Construction:

<https://csfs.colostate.edu/wp-content/uploads/2024/01/Protecting-Trees-During-Construction-Fact-Sheet-7.420.pdf>

Appendix B

Glossary of Forestry Terms

Abiotic Factors: The non-living components of the environment, such as air, rocks, soil, water, peat, and plant litter.

Afforestation: The establishment of trees on an area that has lacked forest cover for a very long time or has never been forested.

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: typically used in reference to the crowns of trees.

Cambium: A single layer of cells between the woody part of the tree and the bark. Division of these cells result in diameter growth of the tree through formation of wood cells (xylem) and inner bark (phloem).

Canopy: The forest cover of branches and foliage formed by tree crowns.

Chain: A measuring tape, often nylon, 50 meters or 75 meters in length, used to measure distances. This term is derived from an old unit of measurement (80 Chains = 1 mile).

Chimney: A topographical feature such as a narrow drainage on a hillside or the upper end of a box canyon that could channel wind, smoke or flames up the slope; acting as a fireplace chimney would draw smoke and heat upward.

Class A Roof: Effective against severe fire test exposures, as classified by the Universal Building Code (UBC). Under such exposures, roof coverings of this class are not readily flammable, afford a fairly high degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

Class B Roof: Effective against moderate fire test exposures, as classified by the Universal Building Code (UBC). Under such exposures, roof coverings of this class are not readily flammable, afford a moderate degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

Class C Roof: Effective against light fire test exposure, as classified by the Universal Building Code (UBC). Under such exposures, roof coverings of this class are not readily flammable, afford a measurable degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

Clearcut: An area of forest land from which all merchantable trees have recently been harvested.

Climax Forest: A forest community that represents the final stage of natural forest succession for its locality, i.e. for its environment.

Coarse Woody Debris (CWD): Sound and rotting logs and stumps that provide habitat for plants, animals, and insects, and a source of nutrients for soil development.

Colorado Champion Tree: The largest known tree of its species in the state. Trees are ranked by a point system based on three measurements: trunk circumference in inches at 4.5 feet above the ground, tree height in feet, and the average crown spread in feet.

Commercial Thinning: A silviculture treatment that "thins" out an overstocked stand by removing trees that are large enough to be sold as poles or fence posts. It is carried out to improve the health and growth rate of the remaining crop trees.

Competing Vegetation: Vegetation that seeks and uses the limited common resources (space, light, water, and nutrients) of a forest site needed by preferred trees for survival and growth.

Conifer: Cone-bearing trees having needles or scale-like leaves, usually evergreen, and producing wood known commercially as "softwoods."

Conservation: Management of the human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. It includes preservation, maintenance, sustainable utilization, restoration, and enhancement of the environment.

Crown Fire / Crowning: A form of extreme wildland fire behavior consisting of fire that advances from top to top of trees or shrubs independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.

Deciduous: Perennial plants that are normally leafless for some time during the year.

Defensible Space: An area within the perimeter of a parcel, development, neighborhood, or community where basic wildland fire protection practices and measures are implemented, providing the key point of defense from an approaching wildfire or defense against encroaching wildfires or escaping structure fires. The perimeter as used herein is the area encompassing the parcel or parcels proposed for construction and/or development, excluding the physical structure itself. The area is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names and building identification, and fuel modification measures. In simplest terms, it is adequate space between structures and flammable vegetation which allows firefighters a safe working area from which they can attack an oncoming wildfire. Defensible Space is the best element of fire protection for individual property owners.

Defoliator: An agent that damages trees by destroying leaves or needles.

Dripline: The outermost leaves on a tree define its dripline and the ground within the dripline is known as the drip zone; also defined as the area defined by the outermost circumference of a tree canopy.

Deforestation: The removal of a forest stand where the land is put to a non-forest use.

Eave Opening: A vent located in an eave or soffit which allows airflow into the attic and/or walls of a structure.

Ecosystem: A functional unit consisting of all the living organisms (plants, animals, microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size a log, pond, field, forest, or the earth's biosphere but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation; for example, forest ecosystem, old-growth ecosystem, or range ecosystem.

Escape route: A preplanned and understood route firefighters take to retreat from an unsafe or fire threatened area and move to a safety zone or other low-risk area.

Extreme Fire Behavior: A level of fire behavior that ordinarily precludes firefighting methods involving direct attack on the fire. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

Felling: The cutting down of trees.

Firebrands: Flaming or glowing fuels lofted into the air during intense burning by strong upward convection currents. Also referred to as airborne embers.

Fire break: A natural or constructed fuel-free barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Fire front / Flame front: The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified, the fire front is assumed to be the leading edge of the fire perimeter.

Fire Dependent: Requiring one or more fires of varying frequency, timing, severity, and size in order to achieve optimal conditions for population survival or growth.

Fire Hazard Mitigation: Various methods by which existing fire hazards can be reduced in a certain area, such as fuel breaks, non-combustible roofing, spark arresters, etc.

Fire Management: The activities concerned with the protection of people, property, and forest areas from wildfire and the use prescribed burning for the attainment of forest management and other land use objectives, all conducted in a manner that considers environmental, social, and economic criteria.

Fire Suppression: All activities concerned with controlling and extinguishing a fire following its detection.

Firewise: A National Fire Protection Association's (NFPA) program encouraging local solutions for wildfire safety by involving homeowners, community leaders, planners, developers, firefighters, and others in the effort to protect people and property from wildfire risks.

Forest Fire: Any wildfire or prescribed burn that is burning in forest, grass, alpine, or tundra vegetation types.

Forest Type: A group of forested areas or stands of similar composition (species, age, height, and stocking) which differentiates it from other such groups.

Fuel: Any living or dead material that will burn.

Fuel break: An existing barrier or change in fuel type (to one that is less flammable than that surrounding it) or a wide strip of land on which the native vegetation has been modified or cleared, that acts as a buffer to fire spread so that fires burning into them can be more readily controlled. Often selected or constructed to protect a high value area from fire.

Fuel Management: The act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire in support of land management objectives.

Fuel reduction zone: An area similar to a fuel break but not necessarily linear, in which fuels have been reduced or modified to reduce the likelihood of ignition and/or to reduce fire intensity thereby lessening potential damage and resistance to control.

Germination: The development of a seedling from a seed.

Home Ignition Zone (HIZ): An area including the home and its immediate surroundings within which burning fuels could potentially ignite the structure; usually considered to be an area extending out roughly 100 feet from the home. The HIZ is often used to describe the area in which fuel modifications measures should be taken to protect the home.

Ladder Fuels: Fuels that provide vertical continuity between the surface fuels and crown fuels in a forest stand, thus contributing to crown fires.

Lines of Effort: Tasks or sets of actions that are linked or coordinated with other task sets to accomplish a larger mission or reach a desired end state. Lines of effort allow leaders and decision makers to direct a variety of separate actions toward a unified result.

Maximum Density: The maximum allowable stand density above which stands must be spaced to a target density of well-spaced, acceptable stems to achieve free-growing status.

National Fire Protection Association (NFPA): A private, nonprofit organization dedicated to reducing fire hazards and improving fire service.

Phloem: A layer of tree tissue just inside the bark that conducts food from the leaves to the stem and roots.

Pitch Tubes: A tubular mass of resin that forms on bark surface at bark-beetle entrance holes.

Prescribed Burning: Controlled application of fire to wildland fuels, in either their natural or modified state, under certain conditions of weather, fuel moisture, soil moisture, etc. as to allow the fire to be confined to a predetermined area and at the same time to produce results to meet planned land management objective.

Ready, Set, Go (RSG): A program, managed by the [International Association of Fire Chiefs \(IAFC\)](#), seeking to develop and improve the dialogue between fire departments and residents. The program helps fire departments teach individuals who live in high-risk wildfire areas how to best prepare themselves and their properties against fire threats.

Regeneration: The act of renewing tree cover by establishing young trees, naturally or artificially note regeneration usually maintains the same forest type and is done promptly after the previous stand or forest was removed.

Saddle: A depression, dip or pass in a ridgeline; significant in wildland firefighting because winds may be funneled through a saddle, causing an increase in wind speed.

Safety zone: An area essentially cleared of flammable materials, used by firefighters to escape unsafe or threatening fire conditions. Safety zones are greatly enlarged areas in which firefighters can distance themselves from threatening fire behavior without having to take extraordinary measures to shield themselves from fire/heat.

Sapwood: The light-colored wood that appears on the outer portion of a cross-section of a tree.

Serotinous: Pertaining to fruit or cones that remain on a tree without opening for one or more years, note in some species cones open and seeds are shed when heat is provided by fires or hot and dry conditions.

Shaded fuel break: A fuel break built in a timbered area where the trees within the break are thinned and limbed up to reduce crown fire potential, yet retain enough crown canopy to provide shade, thereby making a less favorable microclimate for surface fires.

Silviculture: The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands. Silviculture entails the manipulation of forest and woodland vegetation in stands and on landscapes to meet the diverse needs and values of landowners and society on a sustainable basis.

Snag: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Stand: A continuous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit.

Spot Fire / Spotting: Fires ignited beyond control lines or outside the perimeter of a fire by firebrands landing on/among flammable material. Spot fires/spotting are a form of extreme fire behavior typically resulting from high wind conditions.

Structure protection: A defensive strategy in wildland firefighting in which firefighters are assigned to evaluate, prepare and, when possible, defend structures/homes that may be threatened by a wildfire.

Structure triage: Evaluating and sorting structures/homes into categories based on their relative likelihood of surviving a wildland fire threat (*defensibility*). Triage decisions are based multiple factors and conditions occurring during an actual fire - weather, fire behavior, home ignition potential, defensible space, presence of escape routes, and availability of firefighting resources, among others - with the goal of doing the most good with the resources available.

Succession (or Ecological Succession): The replacement of one plant and/or animal species over time by another in progressive development toward climax vegetation.

Surface fuels: Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low-lying live vegetation.

Survivable space: A term typically used to describe the area around a structure/home indicating that fuels in the area have been reduced to the point that there is little or no serious fire threat to the structure; the structure has a high probability of surviving a wildland fire without anyone on scene providing active protection.

Thinning: A cutting made in an immature crop or stand primarily to accelerate diameter increment, but also, by suitable selection, to improve the average form of the tree that remain.

Torching: The burning of the foliage of a single tree or a small group of trees, from the bottom up. Sometimes, also called candling. Torching is an extreme form of fire behavior, similar to but less extreme than crowning in that crowning affects larger numbers, even entire stands of trees.

USDAFS: United States Department of Agriculture - Forest Service, what is commonly known as just "The Forest Service"

Windbreak: A strip of trees or shrubs maintained mainly to alter wind flow and microclimates in the sheltered zone, usually farm buildings.

Wildland-Urban Interface or Wildland-Urban Intermix (WUI): The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Although *Interface* is the more general, more commonly used term; it technically refers specifically to the area where development and wildlands meet. *Intermix* indicates the presence of wildland vegetation/fuels intermingled throughout the developed area.

Appendix C:

INSECT AND DISEASE INFORMATION

Literally thousands of insects and diseases are present in the forests surrounding Manitou Springs or any other forested area. Fortunately, like the common cold, most do no serious or lasting damage. But when in poor health, trees, like humans, are more prone to infection from other causes; the concept of preventive medicine applies to forests, as well as to humans. Maintaining forests in good health will prevent problems in the future. For the most part, forest insect and disease issues are typical for the region.

Every summer, insect and disease specialists from the USDA Forest Service and Colorado State Forest Service (CSFS) survey Colorado's forests from the air to monitor insect and disease outbreaks. These flights are an excellent means of finding new areas of insect and disease activity and monitoring trends in existing outbreaks. Maps of the previous year's findings are published in January and can be found on the CSFS website at <http://csfs.colostate.edu/pages/comm-on-insects.html>.

This link also contains more detailed information on the insect and disease issues presented here.

The unnaturally dense forest conditions that cause the potential for hazardous fire also create the potential for cyclical insect and disease outbreaks. Trees weakened by overcrowding and severe competition for water and sunlight are susceptible to invasion by insects and disease. When planning wildfire hazard mitigation projects, it is important to address current insect or disease issues and prevent those that are likely to become a problem. The following is information on some of the common forest insect and disease problems that have been identified in the region.



Well maintained forests have a multitude of benefits. They are resistant to catastrophic fires, insect and disease, sustain wildlife populations and pleasant places to be.

DWARF MISTLETOE

Dwarf mistletoe is a parasitic plant that robs moisture and nutrients from the host tree. Over many years, it causes the tree to decline in vigor and eventually may cause death. More commonly, the tree declines to the point where bark beetles attack and kill it.

Three common species of dwarf mistletoe are found in the region, each named after its principal host – ponderosa pine, lodgepole pine and Douglas-fir. Locally, ponderosa and lodge- pole varieties grow on any pine species, but Douglas-fir dwarf mistletoe is exclusive to Douglas-fir trees. Spruce, true firs and deciduous trees are immune to all three species of dwarf mistletoe.

The most obvious symptom of dwarf mistletoe infection is the dense, distorted growth of the branches, called witch's brooms because they appear to be twisted or tied in knots. The shoots of ponderosa dwarf mistletoe are visible on the branch as thick fingerlike growths extending out of the branch or trunk.

Mistletoe shoots are only reproductive structures with no photosynthetic function. Removing the shoots from a branch does not control dwarf mistletoe, except to temporarily halt seed production. Structures called sinkers, (analogous to roots in plants) embedded in the wood cause the damage, and the mistletoe plant continues to absorb the host tree's water and nutrients. Shoots that are removed grow back in two or three years.



A ponderosa pine with advanced dwarf mistletoe infection. Note the heavy contorted “witches’ brooms” in the lower branches. After long periods of infection, the needles become sparse and

During the growing season, dwarf mistletoe shoots develop berries containing seeds. In August, the berries fill with water and explode, shooting the seed as far as 40 feet. Most seeds strike branches of the host tree and do not travel the full 40 feet, so the expansion of dwarf mistletoe pockets averages two feet per year.

When the seed strikes a branch, it germinates, and the sinkers penetrate the bark into the tree's conductive tissues. The growing mistletoe begins to steal the tree's food and water. The first visible symptom of infection is swelling in the branch at the site of the growing mistletoe plant, but nubs of the emerging shoots won't be visible for three years and a shoot won't bear its first seeds until seven years after. As seeds spread, all susceptible trees in the vicinity may become infected; it is extremely rare to find an isolated infected tree in the forest.

The tendency of mistletoe to infect all trees in a stand makes eradication difficult. No effective chemical treatment exists for mistletoe, and the only way to kill the parasite is to kill the host. In stands where only the susceptible species of tree exists, total eradication of the mistletoe would require a clearcut, which is unacceptable to most landowners.

Fortunately, mistletoe kills trees slowly, so it is not necessary to eradicate the parasite. The disease can be controlled by a program of thinning to increase tree vigor. Pruning the more heavily infected branches also helps, even if not all the mistletoe is eliminated. The final step in the process is to replant with non-susceptible species so that new trees will grow before the mistletoe kills the remaining trees.

The spread of mistletoe can be halted by a minimum 40-foot buffer zone between infected and non-infected trees. In this situation, cut 20 feet into non-infected trees to remove any mistletoe that is not yet visible; cut the remaining 20 feet into the infected stand. Non-infected trees outside the buffer should be checked each spring for mistletoe and any infected branches should be immediately pruned before seeds develop.

In forest stands with mixed tree species, it may be possible to eliminate all mistletoes by retaining only non-susceptible trees if they are in good health.

Dwarf mistletoe treatment is a complicated process that depends on the site conditions and the landowner's tolerance for cutting trees. In most cases, a combination of treatment methods will best suit the landowner's objectives. Consultation with a qualified forester is recommended to develop an effective and acceptable treatment plan.

MOUNTAIN PINE BEETLE

Mountain pine beetles are at endemic levels in the Black Forest. Most beetle activity is in stands with heavy infections of dwarf mistletoe that are weak and vulnerable to beetle attack. Beetles are also active in the burn scar where the fire weakened but did not kill the trees outright. Elsewhere in the forest, beetles kill isolated trees here and there.

Adult beetles fly and attack new trees from midsummer through the first frost. Females seek a large, weak tree in which to mate and lay eggs. Vigorous trees generate enough pitch to prevent the female from burrowing through the bark, and this attempt by the tree to prevent entry creates the pitch tubes symptomatic of beetle attack. Pitch tubes are **not** a particularly reliable indicator of a successful attack. If pitch tubes are seen, check for reddish boring dust (fine sawdust) at the base of the tree and in the bark crevices. Boring dust is a more reliable indicator of successful attack.

Once a female penetrates the bark, she hollows out a circular mating chamber between the bark and the wood, releasing a pheromone (scent) to attract a mate. The pheromone also attracts additional females to the tree and the tree is attacked in mass. After mating, the female burrows up the trunk between the bark and wood laying eggs. She inoculates the tree with spores of blue stain fungus, which provides food for the larvae. The fungus clogs the tissues that conduct water throughout the tree, leading to death within a few weeks.

Eggs hatch within a few days. The developing larvae feed horizontally from the maternal gallery over winter. The vertical maternal gallery and horizontal larval galleries are characteristic of the mountain pine beetle. The feeding larvae spread the blue stain fungus horizontally through the tree, and it becomes visible in the wood around February. The presence of blue stain is absolute confirmation that beetles have successfully entered the tree. Woodpeckers feed on the larvae through the fall and winter. The holes made by woodpeckers are a visual clue to an infested tree. Untrained observers often are confused by the holes woodpeckers make



Boring dust on a ponderosa pine after bark beetle attack. The reddish-brown sawdust at the base of the tree and in the bark crevasses is a strong indication of successful beetle attack. *Colorado State Forest Service photo by David Leatherman*

when they feed on beetle larvae and sapsuckers feed on the sap. Woodpecker feeding is characterized by random holes about one-half inch in diameter that make it appear as though the tree was peppered with a shotgun. Sapsuckers, on the other hand, make a small hole about one-eighth inch in diameter, and the holes are in straight lines or a grid pattern. Sapsuckers do not indicate the presence of beetles in the tree.

Although the tree is dead within a few weeks of successful attack, needles remain green until the following spring. Within the space of a few weeks, in late May or early June the tree will turn straw yellow and then reddish-brown. Once beetles invade a tree, nothing can be done to save it; the tree must be cut and disposed of in a way that will kill the beetles. No insecticide is available to kill beetles under the bark; thus, some sort of mechanical treatment is necessary. Any wood greater than four inches in diameter may harbor beetles and must be treated.

The following are treatment options for beetle-infested trees:

- The sawmill on the property is an effective treatment for any bark beetle (MPB or Douglas- fir beetle). Larval beetles are between the bark and the wood. When the trees are squared in the mill, the slabs dry and the beetles perish.
- Move all wood to a landfill or bury it under at least eight inches of dirt.
- Completely debark any wood that is larger than four inches in diameter.
- Chip or masticate the tree. Many tree services have chippers capable of chipping large diameter trees. The beetles are killed when the wood is chipped.
- Cover wood with at least six-mill clear plastic. This method, known as solar treatment, warms the wood to temperatures lethal to the larvae, and increases moisture, encouraging mold growth in the logs, which kills the beetles. Treat the wood properly for successful control. Cut into firewood lengths and stack no more than two logs high. Be sure there are no exposed stubs or sharp edges that might tear the plastic. Trench around the pile and, if possible, wet down the pile to encourage mold growth.



Mountain pine beetle galleries under the bark of a ponderosa pine. The maternal beetle burrowed straight up the tree creating the central gallery. Larve feed horizontally creating the smaller side galleries A larvae is in the upper right and a pupa is in the lower left. Note the blue stain in the wood.

Cover the pile with plastic, push the edges of the plastic into the trenches, and seal the edges with dirt. Check periodically to be sure the plastic has not torn. If torn, it can be repaired with duct tape.

It is best to check for infested trees in October of each year – remember that infested trees, although dead, are still green at this time. Pitch tubes and boring dust will be the most obvious clues. If infested trees are located early, there is adequate time to treat them.

While no insecticide effectively treats infested trees, spraying with insecticides such as carbaryl or permethrin prevents attack. Preventive sprays will not kill beetles under the bark. Spray trees between May 1st and July 1st each year for maximum effectiveness. It is not practical to spray every tree on a large tract of land, so choosing which trees to spray depends on the landowner's budget and the value of individual trees to the landowner. It is advisable to solicit bids from several different spray companies, as prices can vary widely. It also is wise to request and check references.

Preventative spraying should be done only if there is a serious threat from infested trees within a mile or less of the property. Preventative sprays kill predators of aphids. These predators keep aphids at low levels and trees can easily tolerate their feeding. Frequent preventative spraying allows aphid populations to increase to concentrations where they may do serious injury or kill a tree outright.

Thinning forests for increased health and vigor by far is the best preventive measure for mountain pine beetles. Because trees require several years to respond to thinning, it is best done before beetles reach epidemic levels. Follow thinning guidelines for wildfire mitigation to reduce susceptibility to MPB.

[IPS \(ENGRAVER\) BEETLES](#)

There are several species of these small bark beetles that may infest ponderosa pine piñon pine or spruce. Piñon ips is active along the Highway 115 corridor south of Colorado Springs. The other species are always present in the forest but are not currently at epidemic levels. Ips beetles usually attack trees less than four inches in diameter and, in such circumstances, may be useful in thinning dense stands of young trees. Thus, it usually is not considered as threatening mountain pine beetle. Ips will attack larger trees if they are severely weakened by disease (most often dwarf mistletoe), or are damaged by construction, lightning strikes or in horse corrals where soil compaction injures the roots. Like the mountain pine beetle, ips burrow beneath the bark and inoculate the tree with bluestain fungus, and they often follow mountain pine beetles into larger trees.

The differences between mountain pine beetle and ips are significant to anyone implementing a forest management program. Ips become active in spring when the weather exceeds 50 degrees F, developing from egg to adult within eight weeks, and they continue to attack trees until the first frost. For this reason, preventive spraying should be done with permethrine or carbaryl in April and repeated in July. When spraying preventively for ips, it is important to spray the branches, as well as the trunk.



ponderosa pine slash indicates it has been invaded by ips beetles. Adult beetles will emerge in eight weeks if the slash is not properly treated. The reddish-brown boring dust on this branch indicates that it is infested with ips beetles.

Ips attack causes no pitch tubes to form on live trees, so the only visual clue is boring dust or woodpecker holes in the trunk. Smaller trees quickly turn reddish-brown, but when they attack larger trees, ips often infest only the upper portion of the tree. The first symptom is browning of the top, but subsequent generations emerge and continue down the tree.

Ips will infest green slash and downed logs from forest management projects. If slash is not promptly treated, ips will emerge to attack living trees; treat slash within four to six weeks after cutting. If weather conditions permit, thinning trees in winter when ips are dormant will prevent problems with beetles in slash. However, slash cut after March 1 may still be green enough to attract ips when the weather warms.

Chipping slash will kill ips beetles. Lopping and scattering slash into lengths less than 24 inches promotes rapid drying and prevents infestation. Untreated slash left over the winter will produce live broods the following April. Due to their short lifecycle, solar treatment of ips-infested logs is ineffective. Bucking larger diameter logs and promptly splitting them into firewood accelerates the drying process and usually is effective in preventing ips infestations.

Many high value trees have been lost as a result of the common, and ultimately costly, practice of stacking firewood against green trees. Ips beetles will burrow out of infested firewood directly into standing trees.

DOUGLAS-FIR BEETLE

During the forest inventory, no Douglas-fir beetle infested trees were observed on the property, but the potential of attack is present. Some similarities exist between Douglas-fir beetle and MPB, but there are important differences that require different treatment strategies for infested trees.

Both species burrow under the bark to lay eggs and both carry blue stain fungus that kills the tree within a few weeks of infestation. Each beetle prefers dense stands with large diameter, low vigor trees; thus, thinning Douglas-fir for wildfire mitigation also reduces susceptibility to beetles.

Adult Douglas-fir beetles emerge in mid-June, and a few adults may overwinter in trees and emerge as early as April. There are no insecticides available for treatment of beetle infested trees. Infested trees should be treated prior to April of each year to prevent emergence of overwintering adults. Other effective treatments are whole tree chipping, debarking of all wood greater than four inches in diameter, transportation to a safe site or landfill, and burying under eight inches of dirt. Solar treatments should begin in the fall, preferably early fall.

Preventative spraying is an option for high value trees. Permethrin or carbaryl are effective as Douglas-fir beetle preventatives, but, because of the earlier emergence of overwintering adults, spraying should be done in April. Preventative sprays are not an effective treatment for infested wood.

Unlike MPB-infested trees, Douglas-fir trees do not form pitch tubes when attacked, so there may not be an obvious visual indication of infestation. Some Douglas-fir bleed sap when attacked, resulting in rivulets of sap on the trunk; however, this does not occur in all infested trees. Trees should be checked carefully for boring dust in early October. Later in the year, woodpecker holes may provide a visual clue that trees are infested.

Trees partially defoliated by western spruce budworm (see the following section) are particularly susceptible to attack by Douglas-fir beetles. Injury, overcrowding or any conditions that adversely affect the vigor of the tree will make it more susceptible. Managing the forest for open, vigorous stands of Douglas-fir is the best prevention.



Pitch streamers on the bark of a beetle-infested Douglas-fir. Not all infested trees will exhibit pitch. Trees should be checked for boring dust in the early fall.

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Memorandum

Title: Proposed Ordinance for Adopting the 2021 International Fire Code and Colorado Wildfire Resiliency Code

From: Keith Buckmiller, Fire Chief

To: Mayor and City Council

CC: City Administrator Denise Howell

Allocated Time: 30 Minutes

February 10, 2026

Purpose:

To provide an overview of the major updates contained in the 2021 International Fire Code (IFC) compared to the previously adopted 2015 IFC, in support of the City's consideration of adopting the 2021 IFC and the Colorado Wildfire Resiliency Code.

Background:

The El Paso County Fire Marshals Committee has worked over the past year to move all jurisdictions within El Paso County to a common Fire Code (IFC 2021). In addition, the State of Colorado now requires all local jurisdictions with authority to adopt building or fire codes to adopt the Colorado Wildfire Resiliency Code (CWRC) by April 1, 2026, with full compliance required no later than July 1, 2026.

Upgrading from the 2015 IFC to the 2021 IFC is important because the 2021 edition addresses emerging hazards, modern technology, and fire protection challenges that the 2015 code simply did not cover. Key reasons are outlined below:

- Addresses new technology and hazards such as expanded requirements for 3D printing and energy storage systems (ESS) not covered in the 2015 IFC.
- Strengthens fire protection requirements for high risk uses, including upholstered furniture, mattresses, distilled spirits storage, and large parking garages.
- Improves emergency responder communication through updated in-building radio system performance requirements (UL 2524).
- Enhances construction fire safety with mandatory site safety plans, site safety directors, and improved construction phase protections.
- Updates occupancy and egress requirements, including new provisions for puzzle/escape rooms and special amusement areas.
- Clarifies firestopping, penetrations, and structural protections with improvements added across the 2012-2021 code cycle.
- Supports Colorado's statewide wildfire resilience requirements, including the mandated adoption of the CWRC by April, 1, 2026 and full compliance by July 1,



2026.

Fiscal Impact:

Moving from 2015 IFC to 2021 IFC Codes:

Increased upfront construction costs due to more stringent fire-resistant materials, sprinkler requirements, and updated safety provisions required by the 2021 IFC and CWRC.

Potential long-term cost savings through lower insurance rates as a result of improved construction fire safety and reduced wildfire risk.

Adopting the Colorado Wildfire Resiliency Code (CWRC):

Implementation of the CWRC will require new oversight, rulemaking, code interpretation, and enforcement responsibilities. Additionally, according to DFPC, if the CWRC is not approved, the City could be at risk of losing state funding and grant opportunities.

The City of Manitou Springs should expect additional staff time for:

- Plan review for WUI compliance
- Field inspections
- Public education and code adoption coordination
- Appeals and modification requests
- Potential Ongoing annual costs staffing, operations, enforcement, public education

Inspection and enforcement support from the Division of Fire Prevention and Control (DFPC), as permitted under Colorado law.

- DFPC provides state level support, but this assistance still signifies increased state expenditure and potential local state coordination costs.

Workload Impact:

Adopting the 2021 IFC

The workload is limited due to all jurisdictions being on the same version of the code and all Fire Marshals have participated in the revisions and adoption and are therefore familiar with the 2021 code.



Adopting the Colorado Wildfire Resiliency Code (CWRC):

- **More Plan Reviews:** Increased review of WUI construction and exterior alterations.
- **More Field Inspections:** Additional inspections for structure-hardening and defensible space requirements.
- **Training Needs:** Staff must learn new WUI standards and materials requirements.
- **Higher Administrative Burden:** Public education, appeals, documentation, and adoption processes.
- **State Coordination:** Local agencies must coordinate with DFPC for enforcement support.
- **Ongoing Staffing Impacts:** Increased operational workload consistent with new statewide code duties.

Recommended Action:

Staff is seeking Council feedback and direction prior to scheduling the first reading of the ordinance to formally adopt the 2021 IFC and the Colorado Wildfire Resiliency Code.



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Code Board

2025

Colorado Wildfire Resiliency Code

01 June 2025



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CWRC Version 1.0

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Attributions

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Chapter 1 - Scope and Administration

PART 1 GENERAL PROVISIONS

SECTION 101 SCOPE AND GENERAL REQUIREMENTS

101.1 Title. These regulations shall be known as the Colorado Wildfire Resiliency Code as adopted by [NAME OF JURISDICTION], hereinafter referred to as “this code.”

101.2 Scope. The provisions of this code shall apply to the construction, alteration, movement, repair, maintenance and use of any building, structure or premises that contain *occupiable* and/or *habitable space*, or change in use resulting in an occupiable and/or habitable space, unless excepted, within the *wildland-urban interface* areas of Colorado, as designated in this code.

Buildings or conditions in existence at the time of the adoption of this code are allowed to have their use or occupancy continued, if such condition, use or occupancy was legal at the time of the adoption of this code, provided that such continued use does not constitute a distinct danger to life or property.

Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new buildings or structures.

101.2.1 Appendices. Provisions in the appendices shall not apply unless specifically adopted.

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

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

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

The unrestricted use of property in *wildland-urban interface* areas is a potential threat to life and property from fire and resulting erosion. Safeguards to prevent the occurrence of fires and to



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provide adequate fire protection facilities to control the spread of fire in *wildland-urban interface* areas shall be in accordance with this code.

This code shall supplement the jurisdiction's building and fire codes, if such codes have been adopted, to provide for special regulations to mitigate the fire- and life-safety hazards of the *wildland-urban interface* areas.

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

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

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

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

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

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

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

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



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and the immediate zone within 5 feet of the structure shall be made to comply with Section 503.1.

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

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

SECTION 102—APPLICABILITY

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

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

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

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

102.4.1 Conflicts. Where conflicts occur between provisions of this code and the referenced codes and standards, the provisions of this code shall govern.

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

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

102.6 Matters not provided for. Requirements that are essential for the public safety of an existing or proposed activity, building or structure, or for the safety of the occupants thereof,



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which are not specifically provided for by this code, shall be determined by the *code official* consistent with the necessity to establish the minimum requirements to safeguard the public health, safety and general welfare.

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

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

102.9 Historic structures. A variance is authorized to be issued for the repair or rehabilitation of a historic structure or construction of a contributing structure upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and the variance is the minimum necessary to preserve the historic character and design of the structure, within the spirit of this code.

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

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

102.9.1 Historic preservation exemption. The authority having jurisdiction may establish a historic preservation exemption or exemptions in their jurisdiction that consists of the spirit and intent of this code.

102.10 Work exempt from permit under this code. Exemptions from code requirements shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of the jurisdiction. Compliance with this code shall not be required for the following:

1. Interior alterations of existing structures.
2. Additions that do not increase the footprint of a structure by more than 500 square feet.
3. The reconstruction, replacement, alteration, or repair of the exterior walls of an existing building, when less than 25 percent of the surface area of all exterior walls is affected.
4. The reconstruction, replacement, alteration, or repair of the exterior *roof covering* of an existing building, when less than 25 percent of the surface area of the exterior *roof covering* or an attachment thereto is affected.



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

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 103—CODE COMPLIANCE AGENCY

103.1 Creation of agency. The [INSERT NAME OF DEPARTMENT] is hereby created and the official in charge thereof shall be known as the *code official*. The function of the agency shall be the implementation, administration and enforcement of the provisions of this code.

103.2 Appointment. The *code official* shall be appointed by the chief appointing authority of the jurisdiction.

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

SECTION 104—DUTIES AND POWERS OF THE CODE OFFICIAL

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

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

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



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

104.2.1.1 Costs. A technical opinion and report shall be provided without charge to the jurisdiction.

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

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

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

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

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

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

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



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

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

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

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

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

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

104.2.2.6.2 Other reports. Reports not complying with Section 104.2.2.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. The report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

104.2.2.7 Peer review. The *code official* is authorized to require submittal of a peer review report in conjunction with a request to use an alternative material, design or

method of construction, prepared by a peer reviewer that is *approved* by the *code official*.

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

104.3 Applications and permits. The *code official* is authorized to receive applications, review construction documents and issue permits for construction regulated by this code, issue permits for operations regulated by this code, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

SECTION 105—TEMPORARY USES, EQUIPMENT AND SYSTEMS

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

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



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

105.4 Termination of approval. The *code official* is authorized to terminate such permit for temporary uses, equipment and systems and to order the same to be discontinued.

SECTION 106—FEES

106.1 General. An AHJ has the authority to establish fees.

SECTION 107—STOP WORK ORDER

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

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

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

107.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to fines established by the authority having jurisdiction.

Chapter 2 - Definitions

SECTION 201 GENERAL

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

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

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in other International Codes, such terms shall have the meanings ascribed to them as in those codes.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have their ordinarily accepted meanings such as the context implies.

SECTION 202 DEFINITIONS

ACCESSORY STRUCTURE. A building or structure used to shelter or support any material, equipment, chattel or occupancy other than a habitable building.

AGRICULTURAL BUILDING. A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

APPROVED. Acceptable to the *code official*.

BUILDING. Any structure intended for supporting or sheltering any occupancy.

CLASS A TESTS. Class A Tests are applicable to *roof coverings* that are expected to be effective against severe fire exposure, afford a high degree of fire protection to the *roof deck*, do not slip from position, and are not expected to present a flying brand hazard.

CODE OFFICIAL. The official designated by the jurisdiction to interpret and enforce this code, or the *code official's* authorized representative.

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.



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EMBELLISHMENTS. Elements incorporated in design and construction for ornamental or decorative purpose that are not integral to the structure or structural support.

FIRE INTENSITY CLASSIFICATION. The level of fire intensity identified for areas where significant fuel hazards and associated dangerous fire behavior may exist, based upon vegetative fuels, topography, weather conditions, and flame length value.

FIRE-RESISTANCE-RATED CONSTRUCTION. The use of materials and systems in the design and construction of a building or structure to safeguard against the spread of fire within a building or structure and the spread of fire to or from buildings or structures to the *wildland-urban interface* area.

FIRE-RETARDANT-TREATED WOOD. Fire-retardant-treated wood is any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84 or UL 723, a listed *flame spread index* of 25 or less. The ASTM E84 or UL723 test shall be continued for an additional 20-minute period and the flame front shall not progress more than 10.5 feet beyond the centerline of the burners at any time during the test.

FLAME SPREAD INDEX. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E84.

FUEL MODIFICATION. A method of modifying fuel load by reducing the amount of nonfire-resistive vegetation or altering the type of vegetation to reduce the fuel load.

HABITABLE SPACE. A space in a building for living, sleeping, eating or cooking.

HEAVY TIMBER CONSTRUCTION. As described in Section 602.4 of the 2024 *International Building Code*.

HOME IGNITION ZONE. Home Ignition Zone is the home and the area around the home (or structure). The HIZ takes into account both the potential of the structure to ignite and the quality of *defensible space* surrounding it.

IGNITION-RESISTANT BUILDING MATERIAL. A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildfire exposure of burning embers and small flames.



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IGNITION-RESISTANT VEGETATION. Plants that are less likely to readily ignite from a flame or other ignition source and produce fewer embers. While they can still be damaged by fire, their foliage and stems don't significantly contribute to the intensity of the fire.

LOG WALL CONSTRUCTION. A type of construction in which exterior walls are constructed of solid wood members and where the smallest horizontal dimension of each solid wood member is not less than 6 inches. Log wall construction shall follow requirements of ICC 400.

MULTILAYERED GLAZED PANELS. Window or door assemblies that consist of two or more independently glazed panels installed parallel to each other, having a sealed air gap in between, within a frame designed to fill completely the window or door opening in which the assembly is intended to be installed.

NONCOMBUSTIBLE. As applied to building construction material means a material that, in the form in which it is used, is either one of the following:

1. Material of which no part will ignite and burn when subjected to fire.
2. Any material conforming to ASTM E136 shall be considered noncombustible within the meaning of this section.
3. For the purposes of this code, fire-rated gypsum board tested in accordance with ASTM C1396 with no less than a 1-hour fire-resistance-rating with fire exposure from the outside only is considered a noncombustible material.

OCCUPIABLE SPACE. A room or enclosed space designed for human occupancy in which individuals congregate for amusement, education or similar purposes or in which occupants are engaged at labor.

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a *roof covering* and *roof deck* or a single component serving as both the *roof covering* and the *roof deck*. A *roof assembly* can include an underlayment, thermal barrier, ignition barrier, insulation or a vapor retarder.

ROOF COVERING. The covering applied to the *roof deck* for weather resistance, fire classification or appearance.

ROOF DECK. The flat or sloped surface not including its supporting members or vertical supports.

SLOPE. The variation of terrain from the horizontal; the number of feet rise or fall per 100 feet measured horizontally, expressed as a percentage.

STRUCTURE. That which is built or constructed.

STRUCTURE IGNITION ZONE. Structure Ignition Zone is the structure and the area around the structure (or home). The SIZ takes into account both the potential of the structure to ignite and the quality of *defensible space* surrounding it.

TREE CROWN. The primary and secondary branches growing out from the main stem, together with twigs and foliage.

WILDLAND-URBAN INTERFACE. That geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.

Chapter 3 - Wildfire Hazard Identification

SECTION 301 GENERAL

301.1 Scope. The provisions of this chapter provide methodology to establish and record wildfire hazard based on the findings of fact to be regulated by this code.

301.2 Objective. The objective of this chapter is to provide simple baseline criteria for determining *wildland-urban interface* areas based on the wildfire hazard.

SECTION 302 WILDLAND-URBAN INTERFACE AREA DESIGNATIONS

302.1 Declaration. The AHJ shall declare the *wildland-urban interface* areas within the jurisdiction as defined by this code. The *wildland-urban interface* areas shall be based on the findings of fact.

SECTION 303 MAPPING AND APPLICABILITY

303.1 Mapping of Wildfire Hazard Areas. Wildfire Hazard shall be recorded on official maps. These maps identify areas subject to the provisions of this code and shall be available for public inspection through an accessible online platform and at designated local government offices.

303.1.1 Map. This map shall be based on a combination of factors including, but not limited to, vegetative fuels, topography, local weather patterns, and fire behavior modeling data.

303.1.2 Locally Developed Mapping. The AHJ may develop and adopt local maps designating wildfire hazard and *fire intensity classifications* within its jurisdictional boundaries in accordance with Sections 303.1 through 303.3.

303.2 Fire Intensity Classification. *Fire Intensity Classification* shall be identified on the map in accordance with Section 303.1. *Fire Intensity Classification* is determined by expected wildfire behavior, including flame length and suppression difficulty and is separated into three levels: low, moderate, and high. The identified *fire intensity classification* establishes code requirements for construction and mitigation.

303.2.1 Low Fire Intensity Classification. *Low Fire Intensity Classification* is identified in areas with light to medium surface fuels, such as grasses, shrubs, and scattered low-density vegetation. These fuels are often discontinuous, which limits flame propagation but can sustain burning under moderate weather conditions. Fires in this class may occur on gentle to moderate *slopes*, where topography begins to influence the rate of spread. Although flame lengths remain relatively small—typically less than two feet—limited spotting may occur, especially with wind. Trained firefighters with protective equipment and standard hand tools can usually suppress these fires through



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direct attack, particularly on *slopes* under 30 percent. Mechanized equipment is typically unnecessary.

Key Characteristics Include:

1. **Fuels:** Light to medium surface fuels, including grasses, shrubs, and scattered vegetation (e.g., WNL, USL fuel types).
2. **Flame Length:** Less than 2 feet.
3. **Rate of Spread:** Low, increasing with *slopes* over 20 percent.
4. **Spotting:** Very short-range spotting is possible under windy conditions.
5. **Terrain Influence:** More active fire behavior on moderate *slopes* (20 to 30 percent).
6. **Suppression Difficulty:** Easily suppressed by trained firefighters using basic protective gear and hand tools. Direct attack is effective, and mechanized support is rarely needed.

303.2.2 Moderate Fire Intensity Classification. *Moderate Fire Intensity Classification* is identified in areas with moderate to heavy fuel loads, such as dense shrubs, small trees, and accumulated ground fuels. Fires in this class present continuous horizontal and vertical fuel arrangements, allowing flames to reach up to 8 feet in length. Fire behavior is notably influenced by moderate to steep *slopes*, often accelerating the spread. Short-range spotting becomes more common, complicating suppression efforts. Ground crews typically require mechanized support, such as engines and dozers, to establish control lines. Aircraft assistance may be necessary, particularly in inaccessible terrain. There is a significant increase in the potential for property damage and risk to life, especially in *wildland-urban interface* areas.

Key Characteristics Include:

1. **Fuels:** Moderate to heavy fuels, including dense shrublands, small trees, timber litter, and canopy fuels (e.g., USH, UIH fuel types).
2. **Flame Length:** Up to 8 feet.
3. **Rate of Spread:** Moderate to high, increasing significantly on *slopes* over 30 percent.
4. **Spotting:** Short-range spotting is common.
5. **Terrain Influence:** Steep *slopes* (30 percent or greater) increase fire spread and intensity.
6. **Suppression Difficulty:** Challenging for ground crews without support from engines, dozers, or aircraft. Dozers and plows are generally effective on moderate terrain.

303.2.3 High Fire Intensity Classification. *High Fire Intensity Classification* is identified in areas with heavy, continuous fuel loads, such as dense forest canopies, thick



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understory growth, and heavy dead/downed material. Fires in this class frequently occur on steep *slopes*, often exceeding 40 percent, where topography dramatically increases the rate of spread and severity. Flame lengths can exceed 30 feet, and both short- and medium-range spotting are common, particularly in windy conditions. Direct suppression by ground crews is typically ineffective, requiring indirect attack strategies, such as backburns and aerial retardant drops. Fires in this class pose extreme risk to life, property, and firefighter safety, especially in rugged or remote areas.

Key Characteristics Include:

1. **Fuels:** Heavy fuels, including dense forests, urban core areas with heavy fuel loads, and canopy-dominated regions (e.g., WNH, USH, UCH fuel types).
2. **Flame Length:** Up to 30 feet or more.
3. **Rate of Spread:** Rapid, especially on *slopes* greater than 40 percent.
4. **Spotting:** Short-range spotting is common; medium-range spotting is possible under windy conditions.
5. **Terrain Influence:** *Slopes* over 40 percent amplify intensity and spread, creating dangerous conditions for suppression.
6. **Suppression Difficulty:** Direct attack by ground forces and dozers is generally ineffective. Indirect strategies (backburning, aerial support) are often necessary.

These fires present significant danger to life, property, and responder safety.

303.3 Applicability of Code Provisions. The requirements of this code shall apply to all parcels located within designated Wildfire Hazard Areas and corresponding *fire intensity classifications* as identified on the official maps. The level of structure hardening, *defensible space*, and other mitigation measures required shall correspond to the applicable *fire intensity classification*—Low, Moderate, or High—as established by the board.

Structures and parcels identified with low *fire intensity classification* shall be constructed and maintained in accordance with the provisions for Class 1 structure hardening and site and area requirements.

Structures and parcels identified with moderate to high *fire intensity classifications* shall be constructed and maintained in accordance with the provisions for Class 2 structure hardening and site and area requirements.

SECTION 304 GROUND-TRUTHING

304.1 Purpose. This section establishes a process for owners or the owners authorized representative to request a ground-truthing review of their property's Wildfire Hazard or *fire intensity classification* as identified on state or locally adopted maps. The intent is to provide an opportunity to verify that mapping accurately reflects current, site-specific conditions.



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304.2 Determination of Fire Intensity Classification and Code Requirements. As determined by the *code official*, the *fire intensity classification* and associated requirements shall be based on a review of the vegetative fuels on the parcel and within 300' of the parcel boundary, topography, local weather patterns, and fire behavior modeling data and in accordance with the following *fire intensity classifications*:

304.2.1 Low *Fire Intensity Classification* in accordance with Section 303.2.1

304.2.2 Moderate *Fire Intensity Classification* in accordance with Section 303.2.2

304.2.3 High *Fire Intensity Classification* in accordance with Section 303.2.3

This determination shall be made based on existing conditions or conditions that have been established by a development plan approved by the local jurisdiction. Technical documentation shall be submitted in support of such request by a qualified wildfire professional and in accordance with Section 104.2.



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Chapter 4- Structure Hardening

SECTION 401 GENERAL

401.1 Scope. Exterior design and construction of new buildings and structures within the *wildland-urban interface* areas of Colorado shall be constructed in accordance with this chapter.

Exceptions:

1. Buildings of an accessory character classified as Group U occupancy (including *agricultural buildings*) of any size located at least 50 feet from a structure containing *occupiable* or *habitable space*.
2. One-story detached accessory, nonhabitable structures, such as tool and storage sheds, playhouses and similar uses, provided that the floor area does not exceed 120 square feet and the structure is located greater than or equal to 10 feet from the nearest adjacent occupiable structure.
3. The reconstruction, replacement, alteration, or repair of the exterior walls of an existing building, when less than 25 percent of the surface area of all exterior walls is affected.
4. The reconstruction, replacement, alteration, or repair of the exterior *roof covering* of an existing building, when less than 25 percent of the surface area of the exterior *roof covering* or an attachment thereto is affected.
5. Alterations or repairs to the exterior of an existing structure, or an attachment to it, when less than twenty-five percent of the exterior of the structure is affected by the alteration or repair.
6. Additions that do not increase the footprint of a structure by more than 500 square feet.

SECTION 402 BUILDING MATERIAL

402.1 Building material. Building materials shall comply with any one of the requirements in Section 402.2 through 402.4.

402.2 Noncombustible material. *Noncombustible* material shall comply with the definition of *noncombustible* materials in Section 202.

402.3 Fire-retardant-treated wood. *Fire-retardant-treated wood* shall be identified for exterior use and shall meet the requirements of Section 2303.2 of the 2024 *International Building Code*.

402.4 Ignition-resistant building material. Material shall be tested on the front and back faces in accordance with the extended ASTM E84 or UL 723 test, for a total test period of 30 minutes, or with the ASTM E2768 test. The materials shall bear identification showing the fire test results. Panel products shall be tested with a ripped or cut longitudinal gap of 1/8 inch. The materials, when tested in accordance with the test procedures set forth in ASTM E84 or UL 723



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for a test period of 30 minutes, or with ASTM E2768, shall comply with Sections 402.4.1 through 402.4.3.3. Materials or products which melt, drip or delaminate to the extent that the flame front is interrupted are not permitted.

Exception: Materials composed of a combustible core and a noncombustible exterior covering made from either aluminum at a minimum 0.019 inch thickness or corrosion-resistant steel at a minimum 0.0149 inch thickness shall not be required to be tested with a ripped or cut longitudinal gap.

402.4.1 Flame spread. The material shall exhibit a *flame spread index* not exceeding 25.

402.4.2 Flame front. The material shall exhibit a flame front that does not progress more than 10 feet 6 inches beyond the centerline of the burner at any time during the test.

402.4.3 Weathering. *Ignition-resistant building materials* shall maintain their performance in accordance with this section under conditions of use. The materials shall meet the performance requirements for weathering (including exposure to temperature, moisture and ultraviolet radiation) contained in Sections 402.4.3.1 through 402.4.3.3, as applicable to the materials and conditions of use.

402.4.3.1 Evaluation requirements for weathering. Fire-retardant-treated wood, wood-plastic composite materials and plastic lumber materials shall be evaluated after weathering in accordance with Method A “Test Method for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing” in ASTM D2898.

402.4.3.2 Wood-plastic composite materials. Wood-plastic composite materials shall also demonstrate acceptable fire performance after weathering by the following procedure: first testing in accordance with ASTM E1354 at an incident heat flux of 50 kW/m² in the horizontal orientation, then weathering in accordance with ASTM D7032 and then retesting in accordance with ASTM E1354 and exhibiting an increase of no more than 10 percent in peak rate of heat release when compared to the peak heat release rate of the nonweathered material.

402.4.3.3 Plastic lumber materials. Plastic lumber materials shall also demonstrate acceptable fire performance after weathering by the following procedure: first testing in accordance with ASTM E1354 at an incident heat flux of 50 kW/m² in the horizontal orientation, then weathering in accordance with ASTM D6662 and then retesting in accordance with ASTM E1354 and exhibiting an increase of no more than 10 percent in peak rate of heat release when compared to the peak heat release rate of the nonweathered material.



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SECTION 403 CLASS 1 STRUCTURE HARDENING

403.1 General. Class 1 structure hardening shall be in accordance with Sections 403.2 through 403.4.2 and shall apply to buildings and structures hereafter constructed, modified or relocated into or within areas of the *wildland-urban interface* having a low fire hazard severity.

403.2 Roofing. Roofs shall have a *roof covering* or *roof assembly* classified as Class A when tested in accordance with ASTM E108 or UL 790.

403.2.1 Flame and ember protection of roofs. For roof assemblies where the roof covering profile creates a space between the roof covering and roof deck, the space shall resist the entry of flames and embers by one or more of the following methods:

1. Firestopping with noncombustible material of the space between the roof covering and the roof deck.
2. Installation of one layer of cap sheet complying with ASTM D3909 over the combustible roof deck.
3. Installation of a listed Class A classified roof assembly.

403.2.2 Roof valley flashings. Valley flashings shall be not less than 0.019 inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide underlayment consisting of one layer of cap sheet complying with ASTM D3909 running the full length of the valley.

403.3 Gutters and downspouts. Gutters and downspouts shall be constructed of *noncombustible* material.

403.4 Ventilation Openings. Ventilation openings for enclosed attics, enclosed rafter spaces, and underfloor spaces shall be in accordance with Section 403.4.1 or Section 403.4.2 as applicable.

403.4.1 Performance Requirements. Ventilation openings shall be fully covered with listed vents, tested in accordance with ASTM E2886, to demonstrate compliance with all the following requirements:

1. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
2. There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
3. The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

403.4.2 Prescriptive Requirements. Ventilation openings for enclosed attics, enclosed rafter spaces, and underfloor spaces shall be covered with *noncombustible* 404.3 corrosion-resistant mesh with openings not to exceed 1/8-inch.



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SECTION 404 CLASS 2 STRUCTURE HARDENING

404.1 General. Class 2 structure hardening shall be in accordance with Sections 404.2 through 404.10.1 as well as the provisions of Class 1 structure hardening in Sections 403.2-403.4.2 and shall apply to buildings and structures hereafter constructed, modified or relocated into or within areas of the *wildland-urban interface* having a moderate or high fire hazard severity. See also Sections 101.6-101.7.

404.2 Protection of eaves. Eaves and soffits shall be protected on the exposed underside by *noncombustible material, ignition-resistant materials*, or by materials approved for not less than 1-hour *fire-resistance-rated construction, 5/8-inch Type X drywall*, 2-inch nominal dimension lumber, or 1 inch nominal *fire-retardant-treated wood* or 3/4 inch nominal fire-retardant-treated plywood, identified for exterior use and meeting the requirements of Section 2303.2 of the 2024 *International Building Code*. Fascias are required and shall be protected on the backside by *noncombustible material, ignition-resistant materials*, or by materials approved for not less than 1-hour *fire-resistance-rated construction, 5/8-inch Type X drywall*, or 2- inch nominal dimension lumber.

404.3 Exterior Walls. Exterior walls of buildings or structures shall be constructed with one of the following methods:

1. Exterior wall assemblies with a minimum of 1-hour fire-resistance rating, rated for exposure on the exterior side.
2. *Approved noncombustible materials.*
3. *Heavy timber or log wall construction.*
4. *Noncombustible materials* complying with Section 402.2 on the exterior side.
5. *Fire-retardant treated wood* complying with Section 402.3 on the exterior side. The *fire-retardant-treated wood* shall be labeled for exterior use and meet the requirements of Section 2303.2 of the 2024 *International Building Code*.
6. Ignition-resistant materials complying with Section 402.4 on the exterior side.

Such material shall extend from the top of the foundation to the underside of the eave or the underside of the roof sheathing.

Exceptions:

1. Exterior wall *embellishments* and architectural trim (exclusive of trim on exterior windows and doors) not to exceed 5 percent of the square footage of the exterior wall.
2. Roof or wall top cornice projections and similar assemblies.
3. Solid wood rafter tails and solid wood blocking installed between rafters having minimum dimension 2 inch nominal.

404.3.1 Exterior Wall Coverings. Exterior wall coverings shall be limited to the following:

1. *Noncombustible materials.*
2. *Fire-retardant-treated wood.*
3. *Ignition-resistant building materials.*



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Exception: Where options 1 or 2 in section 404.3 are used, vinyl siding may be used as an exterior covering.

404.3.2 Flashing. A minimum of 6 inches of metal flashing or *noncombustible* material applied vertically between the wall sheathing and the exterior cladding shall be installed at the ground, decking, and roof intersections.

Combustible sheathing products exposed by the gap created at the base of the exterior walls, posts, or columns must be protected with *noncombustible material* or *ignition-resistant building materials* while still permitting drainage and moisture control from behind exterior cladding.

404.4 Underfloor enclosure. Buildings or structures shall have underfloor areas enclosed to the ground or comply with exterior walls in accordance with Section 404.3.

404.5 Decking. Unenclosed decks shall have the deck walking surface constructed of one of the following:

1. *Approved noncombustible* materials
2. Class A rated material

Exception: Composite decking material with a minimum of Class B rating

3. *Fire-retardant-treated wood* identified for exterior use and meeting the requirements of Section 2303.2 of the 2024 *International Building Code*
4. *Ignition-resistant building materials* in accordance with Section 402.4.

404.6 Appendages and Projections. Appendages and projections shall be constructed in accordance with Section 404.3.

404.7 Exterior Glazing. Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, *multilayered glazed panels*, glass block or have a fire protection rating of not less than 20 minutes.

404.8 Exterior Doors. Exterior doors shall be *approved noncombustible* construction, solid core wood not less than 1 ¾-inches thick, or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with Section 404.7.

Exception: Vehicle access doors.

404.9 Vehicle Access Door Perimeter Gap. Exterior vehicle access doors shall resist the intrusion of embers from entering by preventing gaps between doors and door openings, at the head, sill, and jamb of doors from exceeding ⅛ inch as approved by the AHJ.

Gaps between doors and door openings shall be controlled by one of the following methods:

1. Weather-stripping products made of materials that: (a) have been tested for tensile strength in accordance with ASTM D638 (Standard Test Method for Tensile Properties of Plastics) after exposure to ASTM G155 (Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials) for a period of 2,000 hours, when the maximum allowable difference in tensile strength values between exposed and



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non-exposed samples does not exceed 10 percent; and (b) exhibit a V-2 or better flammability rating when tested to UL 94 (Standards for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances).

2. Door overlaps onto jambs and headers.
3. Garage door jambs and headers covered with metal flashing.

404.10 Detached Accessory Structures. Detached *accessory structures* located less than 50 feet from a building containing *habitable* or *occupiable space* shall have exterior walls constructed in accordance with Section 404.3 through 404.3.2.

404.10.1 Underfloor areas. Where the detached structure is located and constructed so that the structure or any portion thereof projects over a descending *slope* surface greater than 10 percent, the area below the structure shall have underfloor areas enclosed to within 6 inches of the ground, with exterior wall construction in accordance with Section 404.3 or underfloor protection in accordance with Section 404.4 or with 1/8-inch metal corrosion-resistant screen with a hardened zone within 5 feet.

Exception: The enclosure shall not be required where the underside of exposed floors and exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour *fire-resistance-rated construction*, *heavy timber construction*, *noncombustible* materials on the exterior side, or *fire-retardant-treated wood* on the exterior side. The *fire-retardant-treated wood* shall be labeled for exterior use and meet the requirements of Section 2303.2 of the 2024 *International Building Code*.



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Chapter 5- Site and Area Requirements

SECTION 501 GENERAL

501.1 Scope. The provisions of this chapter shall apply to parcels subject to this code.

501.2 Reference. As needed, the *code official* shall refer to the Home Ignition Zone (HIZ) Guide as developed by the Colorado State Forest Service.

Where conflicts occur between provisions of this code and the HIZ Guide, the provisions of this code shall govern. The provisions of this code, as applicable, shall take precedence over the provisions in the referenced standard.

SECTION 502 CLASS 1 REQUIREMENTS

502.1 Structure Ignition Zone 1 (0-5 feet): Immediate Zone

502.1.1 Objective. This zone is designed to reduce or eliminate ember ignition and direct flame contact with the structure, decks, stairs, and attachments.

502.1.2 Materials. Use *noncombustible*, hard surface materials in this zone, such as rock, gravel, sand, concrete, bare earth or stone/concrete pavers.

Exception: Ignition-resistant plantings, per an approved list by the AHJ that is not less than that created by the Colorado State Forest Service, are allowed in the Immediate Zone.

502.1.3 Plantings. Remove all plantings including shrubs, slash, combustible mulch and other woody debris, with the exception of ignition-resistant vegetation.

502.1.4 Trees. There shall be no planting of new trees in the immediate zone. Mature trees of no less than 10-inch diameter at 4.5 feet above ground level may be maintained.

Tree crowns extending to within 10 feet of any structure shall be pruned to maintain a minimum clearance of 10 feet.

Prune tree branches to a height of 6-10 feet from the ground or a third of the total height of the tree, whichever is less.

502.2 Site Signage

502.2.1 Marking of roads. *Approved* signs or other *approved* notices shall be provided and maintained for access roads and driveways to identify such roads and prohibit the obstruction thereof.

502.2.2 Marking of fire protection equipment. Fire protection equipment and fire hydrants shall be clearly identified in a manner *approved* by the *code official* to prevent obstruction.



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502.2.3 Address markers. Buildings shall have a permanently posted address, which shall be placed at each driveway entrance and be visible from both directions of travel along the road. In all cases, the address shall be posted at the beginning of construction and shall be maintained thereafter, and the address shall be visible and legible from the road on which the address is located in a manner *approved* by the *code official*.

502.3 Retaining Walls

502.3.1 Retaining Walls. Retaining walls shall be constructed with either *noncombustible* or ignition-resistant materials when any of the following conditions exist:

1. The retaining wall is within 8 feet of a structure regulated by this code or up to the property line when the property line is less than 8 feet away from the structure.
2. The retaining wall is integral to the support of a structure regulated by this code.
3. The retaining wall is integral to the egress from a structure regulated by this code to a public way, easement, or private road.

502.4 Fencing

502.4.1 Fencing. Fencing within 8 feet of a structure regulated by this code or up to the property line when the property line is less than 8 feet away from the structure shall be constructed with *noncombustible* or ignition-resistant materials.

Exception: Vinyl fencing. Vinyl fencing may be allowed.

SECTION 503 CLASS 2 REQUIREMENTS

503.1 General. Class 2 site and area requirements shall be in accordance with Sections 503.2 through 503.3.2 and include all requirements of Class 1 in Sections 502.1 through 502.4.

503.2 Structure Ignition Zone 2 (5-30 feet) Intermediate Zone

503.2.1 Objective. This zone is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to structures.

503.2.2 Dead Materials. Within the *fuel modification* area, hazardous dead plant material must be removed from live vegetation.

503.2.3 Fuels Accumulation. Avoid large accumulations of surface fuels such as logs, branches, slash and combustible mulch.

503.2.4 Trees. *Tree crowns* extending to within 10 feet of any structure shall be pruned to maintain a minimum clearance of 10 feet.

Prune tree branches to a height of 6-10 feet from the ground or a third of the total height of the tree, whichever is less.



503.2.4.1 Tree Spacing. *Tree crowns* within this zone shall be spaced to prevent structure ignition and promote fuel discontinuity to limit fire spread.

503.2.5 Shrubs. Shrub groups within this zone shall be spaced to prevent structure ignition. Shrubs shall be at least 10 feet away from the edge of tree branches.

503.3 Structure Ignition Zone 3 (30-100 feet) Expanded Zone

503.3.1 Objective. This zone focuses on mitigation that keeps fire on the ground.

503.3.2 Tree Spacing. *Tree crowns* within this zone shall be spaced at a minimum of 6-10 feet.



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Appendix A: PERMITS

The provisions of this appendix apply only when adopted by the governing body in the final ordinance.

A101.1 General. Where not otherwise provided in the requirements of the *International Building Code* or *International Fire Code*, permits are required in accordance with Sections A101.2 through A101.9.

A101.2 Permits required. Unless otherwise exempted, buildings or structures regulated by this code shall not be erected, constructed, altered, repaired, moved, converted, changed, or changed in use or occupancy unless a separate permit for each building or structure has first been obtained from the *code official*.

For buildings or structures erected for temporary uses, see Section 105.

A101.3 Permit application. To obtain a permit, the applicant shall first file an application therefor in writing on a form furnished by the code enforcement agency for that purpose. Every such application shall:

1. Identify and describe the work, activity, operation, practice or function to be covered by the permit for which application is made.
2. Describe the land on which the proposed work, activity, operation, practice or function is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building, work, activity, operation, practice or function.
3. Indicate the use or occupancy for which the proposed work, activity, operation, practice or function is intended.
4. Be accompanied by plans, diagrams, computation and specifications and other data as required in Appendix B.
5. State the valuation of any new building or structure or any addition, remodeling or alteration to an existing building.
6. Be signed by the applicant or the applicant's authorized agent.
7. Give such other data and information as required by the *code official*.

A101.3.1 Preliminary inspection. Before a permit is issued, the *code official* is authorized to inspect and approve the systems, equipment, buildings, devices, premises and spaces or areas to be used.

A101.3.2 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that



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the *code official* is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

A101.4 Permit approval. Before a permit is issued, the *code official*, or an authorized representative, shall review and approve permitted uses, occupancies or structures. Where laws or regulations are enforceable by other agencies or departments, a joint approval shall be obtained from agencies or departments concerned.

A101.5 Permit issuance. The application, plans, specifications and other data filed by an applicant for a permit shall be reviewed by the *code official*. If the *code official* finds that the work described in an application for a permit and the plan, specifications and other data filed therewith conform to the requirements of this code, the *code official* is allowed to issue a permit to the applicant.

When the *code official* issues the permit, the *code official* shall endorse in writing or stamp the plans and specifications APPROVED. Such *approved* plans and specifications shall not be changed, modified or altered without authorization from the *code official*, and work regulated by this code shall be done in accordance with the *approved* plans.

A101.5.1 Refusal to issue a permit. Where the application or construction documents do not conform to the requirements of pertinent laws, the *code official* shall reject such application in writing, stating the reasons therefor.

A101.6 Validity of permit. The issuance or granting of a permit or approval of plans, specifications and computations shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or conceal the provisions of this code or other ordinances of the jurisdiction shall not be valid.

A101.7 Expiration. Every permit issued by the *code official* under the provisions of this code shall expire by limitation and become null and void if the building, use or work authorized by such permit is not commenced within 180 days from the date of such permit, or if the building, use or work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days.

Any permittee holding an unexpired permit is allowed to apply for an extension of the time within which work is allowed to commence under that permit where the permittee is unable to commence work within the time required by this section for good and satisfactory reasons. The *code official* is authorized to extend the time for action by the permittee for a period not exceeding 180 days on written request by the permittee showing that circumstances beyond the control of the permittee have prevented action from being taken. Permits shall not be extended more than once.



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A101.8 Retention of permits. Permits shall at all times be kept on the premises designated therein and shall at all times be subject to inspection by the *code official* or other authorized representative.

A101.9 Revocation of permits. Permits issued under this code can be suspended or revoked where it is determined by the *code official* that:

1. It is used by a person other than the person to whom the permit was issued.
2. It is used for a location other than that for which the permit was issued.
3. Any of the conditions or limitations set forth in the permit have been violated.
4. The permittee fails, refuses or neglects to comply with any order or notice duly served on him or her under the provisions of this code within the time provided therein.
5. There has been any false statement or misrepresentation as to material fact in the application or plans on which the permit or application was made.
6. The permit is issued in error or in violation of any other ordinance, regulations or provisions of this code.

The *code official* is allowed to, in writing, suspend or revoke a permit issued under the provisions of this code whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation or any of the provisions of this code.

Appendix B: CONSTRUCTION DOCUMENTS

The provisions of this appendix apply only when adopted by the governing body in the final ordinance.

B101.1 General. Plans, engineering calculations, diagrams and other data shall be submitted in the format as required by the jurisdiction. The construction documents shall be prepared and submitted where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require additional documentation.

Exception: Submission of plans, calculations, construction inspection requirements and other data, if it is found that the nature of the work applied for is such that reviewing of plans is not necessary to obtain compliance with this code.

B101.2 Information on plans and specifications. Plans and specifications shall be drawn to scale on substantial paper or cloth and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations.

B101.3 Site plan. In addition to the requirements for plans in the *International Building Code*, site plans shall include topography, landscape and vegetation details and locations of structures or building envelopes. The *code official* is authorized to waive or modify the requirement for a site plan where the application for permit is for alteration or repair or where otherwise warranted. Identify the *fire intensity classification*.

B101.3.1 Defensible Space Site Plans. Defensible space site plans shall be prepared and submitted to the *code official* for review and approval as part of the site plans required for a permit. The *code official* is authorized to waive or modify the requirement for a defensible space site plan where the application for permit is for alteration or repair or where otherwise warranted.

B101.5 Other data and substantiation. Where required by the *code official*, the plans and specifications shall include classification of fuel loading, fuel model light, medium or heavy, and substantiating data to verify classification of fire-resistive vegetation.

B101.6 Retention of plans. One set of *approved* plans, specifications and computations shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work or as required by state or local laws.

B101.7 Examination of documents. The *code official* shall examine or cause to be examined the accompanying construction documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances.



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B101.8 Amended construction documents. Work shall be installed in accordance with the *approved* construction documents, and changes made during construction that are not in compliance with the *approved* documents shall be resubmitted for approval as an amended set of construction documents.

B101.9 Previous approvals. This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

B101.10 Phased approval. The *code official* is authorized to issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.



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Appendix C: INSPECTION AND ENFORCEMENT

The provisions of this appendix apply only when adopted by the governing body in the final ordinance.

C101.1 Inspection. Inspections shall be in accordance with Sections C101.1.1 through C101.1.4.3.

C101.1.1 General. Construction or work for which a permit is required by this code shall be subject to inspection by the *code official* and such construction or work shall remain visible and able to be accessed for inspection purposes until *approved* by the *code official*.

It shall be the duty of the permit applicant to cause the work to remain visible and able to be accessed for inspection purposes. Neither the *code official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid.

Where required by the *code official*, a survey of the lot shall be provided to verify that the mitigation features are provided and the building or structure is located in accordance with the *approved* plans.

C101.1.2 Authority to inspect. The *code official* shall inspect, as often as necessary, buildings and premises, including such other hazards or appliances designated by the *code official* for the purpose of ascertaining and causing to be corrected any conditions that could reasonably be expected to cause fire or contribute to its spread, or any violation of the purpose of this code and of any other law or standard affecting fire safety.

C101.1.2.1 Approved inspection agencies. The *code official* is authorized to accept reports of approved inspection agencies, provided that such agencies satisfy the requirements as to qualifications and reliability.

C101.1.2.2 Inspection requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the *code official* when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

C101.1.2.3 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *code official*. The *code official*, upon notification, shall make the requested inspections and shall



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either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *code official*.

C101.1.3 Reinspections. To determine compliance with this code, the *code official* can cause a structure to be reinspected. A fee can be assessed for each inspection or reinspection where work for which inspection is called is not complete or where corrections called for are not made.

Reinspection fees can be assessed where the *approved* plans are not readily available to the inspector, for failure to provide access on the date for which inspection is requested or for deviating from plans requiring the approval of the *code official*.

To obtain a reinspection, the applicant shall pay the reinspection fee as set forth in the fee schedule adopted by the jurisdiction. Where reinspection fees have been assessed, additional inspection of the work will not be performed until the required fees have been paid.

C101.1.4 Testing. Installations shall be tested as required in this code and in accordance with Sections C101.1.4.1 through C101.1.4.3. Tests shall be made by the permit holder or authorized agent and observed by the *code official*.

C101.1.4.1 New, altered, extended or repaired installations. New installations and parts of existing installations that have been altered, extended, renovated or repaired, shall be tested as prescribed herein to disclose defects.

C101.1.4.2 Apparatus, instruments, material and labor for tests. Apparatus, instruments, material and labor required for testing an installation or part thereof shall be furnished by the permit holder or authorized agent.

C101.1.4.3 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the *code official* for inspection and testing.

C101.2 Enforcement. Enforcement shall be in accordance with Sections C101.2.1 and C101.2.2.

C101.2.1 Authorization to issue corrective orders and notices. Where the *code official* finds any building or premises that are in violation of this code, the *code official* is authorized to issue corrective orders and notices.

C101.2.2 Service of orders and notices. Orders and notices authorized or required by this code shall be given or served on the owner, the owner's authorized agent, operator, occupant or other person responsible for the condition or violation either by verbal notification, personal service, or delivering the same to, and leaving it with, a person of suitable age and discretion on the premises; or, if such person is not found on the



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premises, by affixing a copy thereof in a conspicuous place on the door to the entrance of said premises and by mailing a copy thereof to such person by registered or certified mail to the person's last known address.

Orders or notices that are given verbally shall be confirmed by service in writing as herein provided.

C101.3 Compliance with orders and notices. Compliance with orders and notices shall be in accordance with Sections C101.3.1 through C101.3.8.

C101.3.1 General compliance. Orders and notices issued or served as provided by this code shall be complied with by the owner, the owner's authorized agent, operator, occupant or other person responsible for the condition or violation to which the corrective order or notice pertains.

If the building or premises is not occupied, then such corrective orders or notices shall be complied with by the owner or the owner's authorized agent.

C101.3.2 Compliance with tags. building or premises shall not be used when in violation of this code as noted on a tag affixed in accordance with Section C101.3.1.

C101.3.3 Removal and destruction of signs and tags. A sign or tag posted or affixed by the *code official* shall not be mutilated, destroyed or removed without authorization by the *code official*.

C101.3.4 Citations. Persons operating or maintaining an occupancy or premises subject to this code who allow a hazard to exist or fail to take immediate action to abate a hazard on such occupancy, premises or vehicle when ordered or notified to do so by the *code official* shall be guilty of a misdemeanor.

C101.3.5 Unsafe conditions. Buildings, structures or premises that constitute a fire hazard or are otherwise dangerous to human life, or that in relation to existing use constitute a hazard to safety or health or public welfare, by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster damage or abandonment as specified in this code or any other ordinance, are unsafe conditions. Unsafe buildings or structures shall not be used. Unsafe buildings are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition or removal, pursuant to applicable state and local laws and codes.

C101.3.5.1 Record. The *code official* shall cause a report to be filed on an unsafe condition. The report shall state the occupancy of the structure and the nature of the unsafe condition.

C101.3.5.2 Notice. Where an unsafe condition is found, the *code official* shall serve on the owner, owner's authorized agent or person in control of the building, structure or premises, a written notice that describes the condition deemed unsafe and specifies the required repairs or improvements to be made to abate the unsafe condition, or



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requires the unsafe structure to be demolished. Such notice shall require the person thus notified, or their designee, to declare to the *code official* within a stipulated time, acceptance or rejection of the terms of the order.

C101.3.5.2.1 Method of service. Such notice shall be deemed properly served where a copy thereof is served by one of the following methods:

1. Delivered to the owner or the owner's authorized agent personally.
2. Sent by certified or registered mail addressed to the owner or the owner's authorized agent at the last known address with a return receipt requested.
3. Delivered in any other manner as prescribed by local law.

Where the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the structure affected by such notice. Service of such notice in the foregoing manner on the owner's authorized agent or on the person responsible for the structure shall constitute service of notice on the owner.

C101.3.5.3 Placarding. Upon failure of the owner, the owner's authorized agent or the person responsible to comply with the notice provisions within the time given, the *code official* shall post on the premises or on defective equipment a placard bearing the word "UNSAFE" and a statement of the penalties provided for occupying the premises, operating the equipment or removing the placard.

C101.3.5.3.1 Placard removal. The *code official* shall remove the unsafe condition placard whenever the defect or defects on which the unsafe condition and placarding action were based have been eliminated. Any person who defaces or removes an unsafe condition placard without the approval of the *code official* shall be subject to the penalties provided by this code.

C101.3.5.4 Abatement. The owner, the owner's authorized agent, operator or occupant of a building, structure or premises deemed unsafe by the *code official* shall abate, correct or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other *approved* corrective action.

C101.3.5.5 Summary abatement. Where conditions exist that are deemed hazardous to life and property, the *code official* is authorized to abate or correct summarily such hazardous conditions that are in violation of this code.

C101.3.5.6 Evacuation. The *code official* shall be authorized to order the immediate evacuation of any occupied building, structure or premises deemed unsafe where such hazardous conditions exist that present imminent danger to the occupants. Persons so notified shall immediately leave the structure or premises and shall not enter or reenter until authorized to do so by the *code official*.



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C101.3.6 Prosecution of violation. If the notice of violation is not complied with promptly, the *code official* is authorized to request the legal counsel of the jurisdiction to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

C101.3.7 Violation penalties. An AHJ has the authority to establish fees.

C101.3.8 Abatement of violation. In addition to the imposition of the penalties herein described, the *code official* is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or to stop an illegal act, conduct of business or occupancy of a structure on or about any premises.



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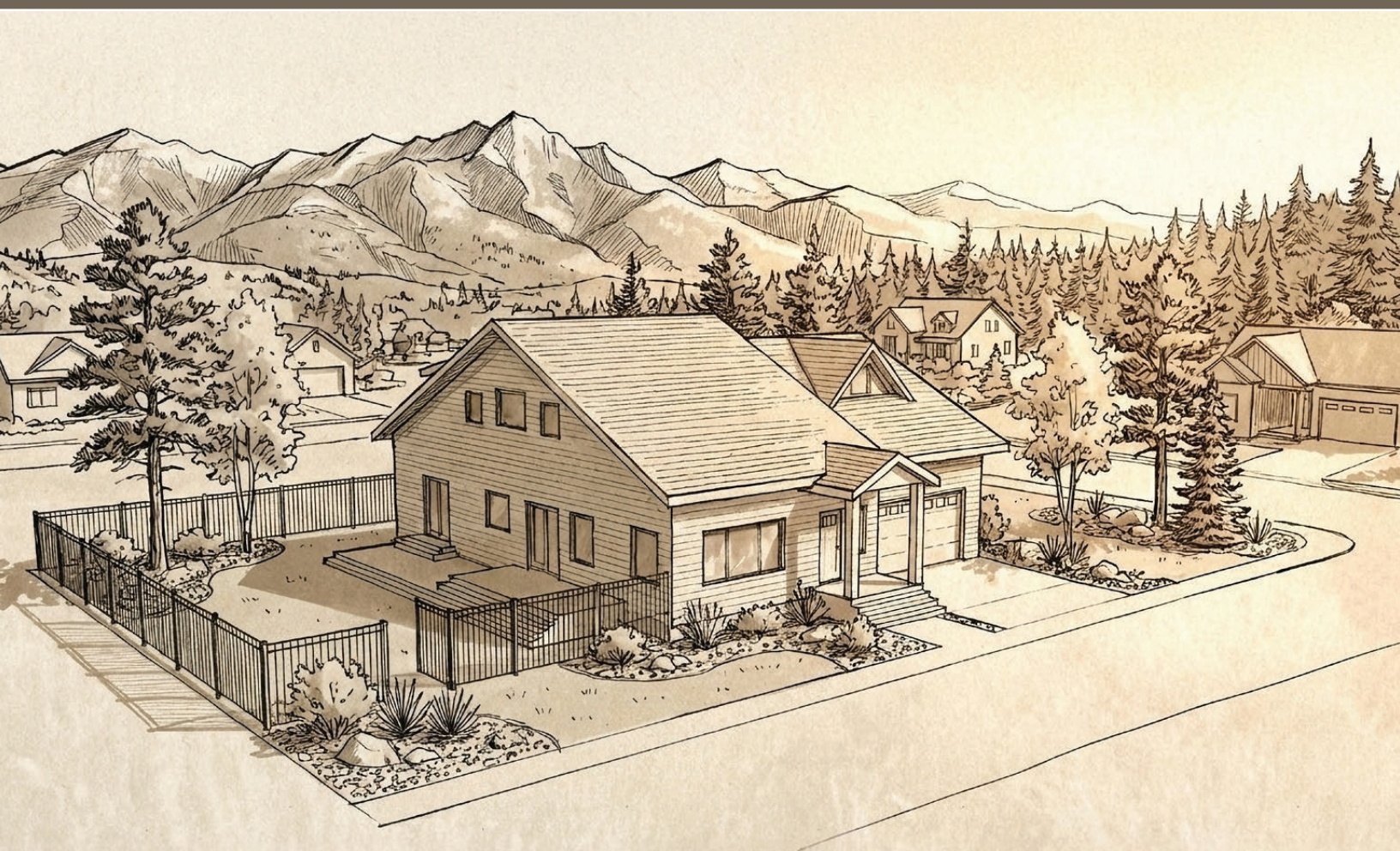


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Building for Wildfire Resilience in Colorado

A guide for builders and homeowners

cpaw.headwaterseconomics.org | December 2025





Building a structure with wildfire in mind.

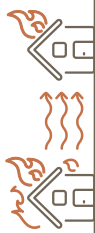
This document is intended to provide a readable breakdown of the requirements and applicability of the Colorado Wildfire Resiliency Code. In addition to the code requirements, it contains “best practice” measures that go beyond the code requirements. In general, the Colorado Wildfire Resiliency Code applies most broadly to new construction. Please reference the code for additional details on other types of construction or uses that must comply with regulations. While Colorado’s code applies to all types of structures, to include residences and commercial buildings, this guide primarily addresses home construction.

Wildfire risk reduction measures to a home and property, including using wildfire resistant building materials and managing vegetation, can increase a home’s chances of surviving a wildfire. Many commonly used building materials are wildfire resistant and provide better long-term maintenance and durability.

Homes burn down from wildfires in one of three ways:



Embers: Traveling far ahead of a wildfire front, embers can directly threaten a home by landing on combustible (flammable) material on or around a home, such as the roof or open window.



Radiant heat: Exposure from radiant heat occurs when nearby combustible materials and fuels ignite, such as a neighboring home. Influenced by duration and intensity, radiant heat can ignite a combustible material like wood siding or break the glass of windows and doors.

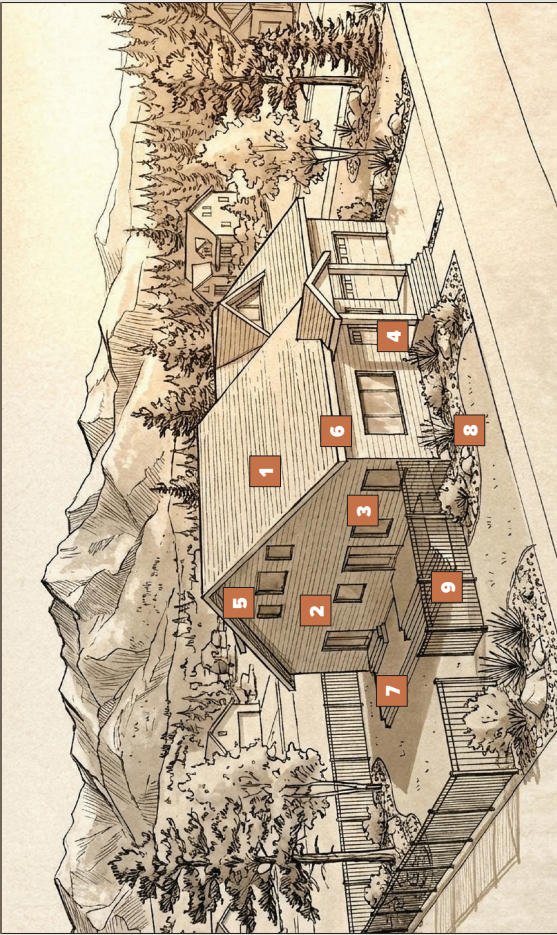


Direct flame contact: Direct flame contact occurs when combustible material provides a continuous pathway for flames to touch a building or home.

A home’s characteristics, including its building materials, design, and relation to its immediate surroundings principally determine its potential to burn. By using wildfire resistant building materials and managing the vegetation around your home, you can reduce exposure from potential ignitions.

Discussing wildfire risk reduction strategies with your neighbors can also increase your community’s overall resilience, especially in areas where homes are closely situated. Reducing the amount of combustible materials between homes, such as fences and vegetation, breaks up fuel continuity and can interrupt fire pathways leading from one home to another. By applying this full systems approach, homes, neighborhoods, and communities can be better prepared for wildfire.

Own Your Zone



1	Roof	Install a Class A-rated roof such as asphalt shingles or metal panels	Class 1 & Class 2
2	Exterior Walls	Use non-combustible siding, such as fiber-cement cladding	Class 2
3	Windows	Use dual-paned, tempered glass in windows and exterior doors	Class 2
4	Doors	Use fiberglass or metal exterior doors	Class 2
5	Eaves	Enclose open eaves with noncombustible soffit material Install metal soffit vents backed by 1/8 or smaller wire mesh	Class 2
6	Gutters & Vents	Install metal gutters Install metal gutters and downspouts.	Class 1 & Class 2
7	Deck & Porch	Use ignition-resistant or non-combustible decking material; if exposed, under decking must follow exterior wall guidelines.	Class 2
8	Landscaping	Use rock, gravel, sand, concrete or stone/concrete pavers to create a 5-foot buffer zone around the home. Prune trees and maintain defensible space up to 100 feet around a home.	Class 1 & Class 2
9	Fencing	Use noncombustible or ignition resistant fencing within the 8 feet surrounding a structure.	Class 1 & Class 2

Roof | Class 1 & Class 2



Section 403.2

Code Requirements:

- Use Class A-rated roofing material like asphalt shingles, metal or tile. (Follow installation requirements in Section 403.2 of the code.)
- Install flame and ember resistant approved vents or metal vents with install noncorrosive metal mesh screening 1/8" inch.
- Install metal flashing in roof valleys.

Best Practices:

- Add a metal drip edge between your roof underlayment and roof deck to prevent embers from igniting the roof surface.
- If installing skylights, choose flat, tempered glass with metal clad frames.

Why this matters:

- Roofs are highly vulnerable because they have a large, horizontal surface that can easily capture debris, vegetation, and other flammable materials that can ignite from embers.
- Gutters, roof valleys, and places where the roof surface meets walls (like dormers) can ignite from embers.

Landscaping | Class 1 & Class 2



Code Requirements:

- Use gravel, other rock mulch, concrete, stone, or tile in the 0 to 5-foot zone around your home to reduce the risk of ember ignition.

- Use ignition resistant plants within the 0 to 5-foot zone.

Reference the [Colorado State Forest Service list of approved plants](#).

- Use a metal fence panel where the fence connects to your home (minimum of 8' length). Vinyl fencing is allowed.

- For Class 2, within 5 to 30 feet around a home: remove dead plant material; trim tree crowns to maintain a space of 10 feet from structures; prune lower branches on trees (see code for

Section 502 & 503

specifications). Ensure that tree crowns 30 to 100 feet from the home are spaced a minimum of 6 feet.

Best Practices:

- Avoid using any plants in the 0 to 5-foot zone around your home.
- Do not use vinyl fencing.

Why this matters:

- Embers are responsible for most home losses during a wildfire. Reducing places for embers to land and ignite within five feet of the home is especially important.
- Flammable materials near your home, like mulch or plants, can ignite from embers and spread to your home.
- Wood or plastic fences can carry fire to the home.

Gutters & Vents | Class 1 & Class 2



Section 403.3

Code Requirements:

- Install noncombustible (i.e. metal) gutters and downspouts.
- Install flame and ember resistant vents complying with ASTM E2886 standards OR install noncombustible, noncorrosive mesh for vents in enclosed attics, enclosed rafter spaces, and underfloor areas (including crawl spaces and foundation vents).

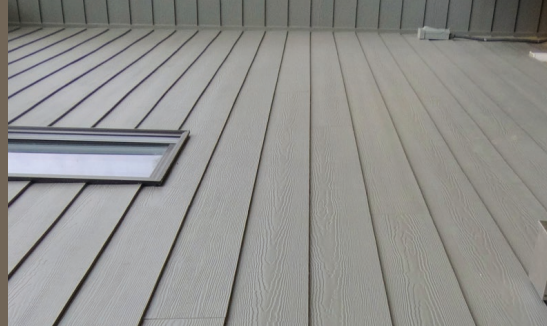
Best Practices:

- Install metal drip edge behind the gutter, and between the roof underlayment and roof deck.
- Use noncombustible gutter guards or covers to reduce debris buildup in the gutters.

Why this matters:

- Leaves and pine needles can gather in the gutter and catch fire from wind-blown embers.
- Gutters on higher floors of your home are harder to clean, making debris buildup more likely.
- If debris in the gutter ignites, it can expose the roof's edge, fascia, and roof sheathing to ignition.
- Plastic gutters can melt and fall, spreading fire along the home.

Exterior Walls | Class 2



Code Requirements:

- Install one or more of the following: non-combustible siding, such as fiber cement; fire-retardant treated wood; exterior wall assemblies with a 1-hour fire-resistance rating; heavy timber or log wall construction; or ignition resistant material siding, such as wood composite.
- Install 6 inches of vertical metal flashing or noncombustible material (such as fiber cement, brick or stone) where the ground, decking or roof intersects with the exterior wall.

Best Practices:

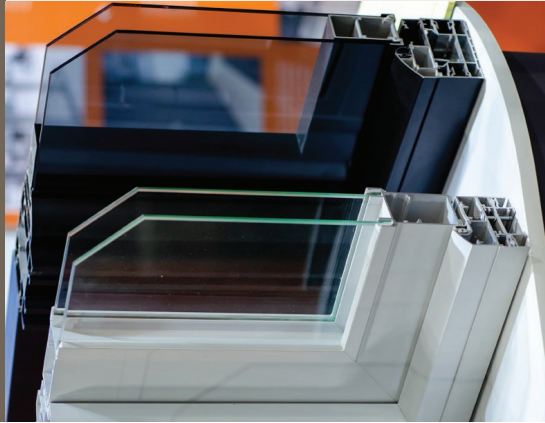
- Enclose the area under your home, porch, or deck with wire mesh with openings no larger than 1/8".
- Do not store combustible items (such as firewood, non-metal furniture) under the house, porch, deck or against the house walls.

Why this matters:

- Intersections where the exterior wall meets the deck or ground can ignite from embers that collect at the base of the wall.
- When fire ignites the exterior siding, it can spread to other parts of the wall and can expose the eaves, doors, and windows to ignition.
- Embers can also get under your home and ignite anything flammable stored underneath the home and/or deck.

Windows | Class 2

Section 404.7



Code Requirements:

- Install windows with double-pane, tempered glass. This applies to windows in exterior walls, window walls, glazed doors, windows in exterior doors, and skylights.

Best Practices:

- Install metal clad frames on windows.
- Use 1/8" or smaller metal window screens.
- If you are using exterior shutters, opt for solid metal.

Why this matters:

- Glass is one of the most vulnerable parts of a home during a wildfire because it can shatter under prolonged heat.
- Once the glass breaks, flames and embers can get inside the house and ignite flammable material like carpet and furniture.
- Wood and vinyl framed windows can burn or melt when exposed to heat or flames.
- Fiberglass or plastic screens can melt and expose the window frame to heat. Metal screens can help keep embers out.

Deck & Porch | Class 2

Section 404.5



Code Requirements:

- Use noncombustible, ignition resistant or fire-retardant treated wood for all walking surfaces.
- Underdecks must be enclosed to the ground or comply with exterior wall standards.

Best Practices:

- Enclose the area under your deck with wire mesh with openings no larger than 1/8".

Why this matters:

- The large, flat surface of a deck can be easily exposed to flames from below and to wind-blown embers.
- Flammable material stored on top of the deck (like furniture and firewood) can be easily ignited by embers.
- The space under the deck is especially at risk for ember buildup, which can ignite any flammable items stored there.
- If the deck catches fire, it can expose the house to intense heat and flames.

Doors | Class 2

Section 404.8



Code Requirements:

- Use noncombustible doors, such as fiberglass or metal exterior doors, or doors with a solid wood core not less than 1 3/4" thick.
- Install weather stripping around garage doors.

Best Practices:

- Install a metal garage door with a garage door seal kit.

Why this matters:

- During a wildfire, a door can be damaged by intense heat from nearby burning vegetation or structures.
- Debris like dead leaves often accumulate around doors, creating a place for embers to land and ignite the base of the door, frame, siding, or deck.
- Embers can accumulate in the small gaps between the door and frame, igniting the door frame.
- Once the door (or its window) fails, flames and embers can get inside the house and ignite flammable material like carpets and furniture.

Eaves | Class 2

Section 404.2



Code Requirements:

- Protect exposed fascia and the underside of eaves and soffits with noncombustible material, ignition resistant material, OR fire-rated construction as specified in Section 404.2 of the code.

Best Practices:

- For open eave design, install circular noncombustible vents and apply fire-rated caulk at all gaps in blocking between rafters.

Why this matters:

- Eaves can trap heat, and embers and fire can spread quickly across the side of the home and the roof.
- Embers can enter the attic through vents in the eaves.
- Maintaining a noncombustible zone 0-5' around the home is important in reducing exposure of the exterior wall and eaves.

You can tackle many effective wildfire-resilient projects in a weekend.



Some of the most effective strategies for safeguarding your home can be done yourself but must be regularly maintained. These measures may reflect best practices only, and may not reflect requirements of the Colorado Wildfire Resiliency Code, including:

- ☐ **Keep your roof and gutters clean.** Clear away pine needles, leaves, and other debris from your roof, especially in the valleys, and clean out your gutters regularly.
- ☐ **Secure the area under your home, porch, and deck.** If your home is raised or if you have a deck or porch, don't store combustible items underneath. Clear out any debris or flammable materials and use 1/8" wire mesh (instead of wood lattice) to close off the area. This helps keep out debris and prevents embers from getting underneath the deck area.
- ☐ **Move flammable items away from your home.** During fire conditions, take flammable items like furniture and barbecue grills off your deck or porch. Make sure things like RVs and trailers are parked at least 30 feet from your home.
- ☐ **Maintain your yard.** Regularly remove dead plants, grass, and leaves. Trim tree branches so they are at least 10 feet from other trees. Create space between trees, shrubs, and any items that could ignite, like patio furniture or sheds.



See the Colorado Wildfire Resiliency Code for additional details: <https://dfpc.colorado.gov/WRCB>

Throughout this report, we use the term "flammable" to mean combustible and/or flammable.

The information in this document is based on research by Headwaters Economics.

For more information, see <https://cpaw.headwaterseconomics.org> or email ryan@headwaterseconomics.org.

Community Planning Assistance for Wildfire (CPAW) produced this report for informational purposes. It provides general guidance and is not legal advice; consult your legal counsel for guidance specific to your situation. While every effort has been made to ensure accuracy, the information is provided "as is" without warranty of any kind, either expressed or implied. CPAW is a program of Headwaters Economics and is supported by the USDA Forest Service and private foundations. Headwaters Economics is an equal opportunity employer.

COUNCIL BILL NO. _____

ORDINANCE NO. _____

ORDINANCE

AN ORDINANCE REPEALING AND REENACTING TITLE 15, CHAPTER 15.12 OF THE MANITOU SPRINGS MUNICIPAL CODE AND ADOPTING BY REFERENCE THE 2021 EDITION OF THE INTERNATIONAL FIRE CODE WITH AMENDMENTS THERETO

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MANITOU SPRINGS, COLORADO, THAT:

Section 1: Chapter 15.12 of Title 15 of the City of Manitou Springs Municipal Code is hereby repealed in its entirety and reenacted as follows;

15.12.010 – Adoption.

- A. All prior editions of the Uniform Fire Code, as well as UFC Standards and Amendments to prior editions, are repealed. The 2021 edition of the International Fire Code ("IFC") and International Fire Code Standards are adopted by reference pursuant to Section 5.11 of the City Charter and shall have the same force and effect as though it were set out in its entirety in this chapter. Title 15 may be known and cited as the "Fire Prevention Code and Standards." The International Fire Code as adopted and all amendments thereto shall apply to every building, structure or asset, either within or outside the corporate limits of the City, the use of which the City has jurisdiction and authority to regulate.
- B. The International Fire Code is published by the International Code Council, 4051 Flossmoor Road, Country Club Hills, IL 60478. One copy of the 2021 International Fire Code and one copy of all the amendments to the International Fire Code shall be maintained in the Office of the City Clerk and may be inspected during regular business hours.

Adoption of the Colorado Wildfire Resiliency Code (CWRC).

The Manitou Springs City Council hereby adopts by reference the Colorado Wildfire Resiliency Code (CWRC), including applicable chapters, sections, and appendices governing the wildland–urban interface (WUI), ignition-resistant construction, defensible space, vegetation management, access, fuels mitigation, and other wildfire risk-reduction measures, as amended by this Resolution and Appendix O (CWRC is an entirely separate code that is adopted for reference purposes only).

The CWRC shall apply to:

- a) All new construction within designated WUI areas,
- b) Exterior building materials and assemblies,
- c) Defensible space requirements,
- d) Vegetation management and maintenance,
- e) Access standards for emergency response, and
- f) WUI risk reduction measures applicable within the District.

Administration and Enforcement.

The Fire Chief, Fire Marshal, or designees shall administer and enforce the adopted 2021 IFC and CWRC.

Enforcement may occur:

- a) Through plan review and inspection authority.
- b) In coordination with the Pikes Peak Regional Building Department; and
- c) Pursuant to authority granted through the El Paso County Board of County Commissioners as required by §32-1-1002(1)(d), C.R.S.

Establishment and Duties of Life Safety Inspectors. Organizational structure and duties of the Life Safety Division shall be as provided by the City's rules and regulations, as established by Intergovernmental Agreement, and/or by the City's internal organizational structure.

Definitions. The following definitions shall be utilized in addition to those set forth in the 2021 International Fire Code:

- a) Wherever the word "jurisdiction" is used, it is meant to be inclusive of the boundaries of the City of Manitou Springs as they currently or may exist hereafter.

- b) Where the term "Chief" is used, it shall be held to mean the Fire Chief of the Manitou Springs Fire Department, or the departments Fire Marshal or a designated member of the department.
- c) Where the term "Council" is used, it shall be held to mean the City Council of the City of Manitou Springs.
- d) Wherever the term "International Building Code" is used, it shall be held to mean the International Building Code as adopted, amended and incorporated into the El Paso County Building Code for unincorporated portions of El Paso County or the International Building Code as adopted, amended and incorporated into the applicable municipality's Building Code within a municipality's territorial limits.
- e) Wherever the term "counsel" is used, it shall be held to mean the City Attorney.

15.12.020 – Amendments to the International Fire Code

Revisions to the 2021 International Fire Code. The following sections of the 2021 International Fire Code are hereby revised with local amendments as follows:

Section 101.1. Amend Section 101.1 to read as follows: "101.1 Title. These regulations shall be known as the Fire Code of the City of Manitou Springs, hereinafter referred to as "this code."

SECTION 104 DUTIES AND POWERS OF THE FIRE CODE OFFICIAL

Section 104.1 General. Amend Section 104.1 to read as follows:

[A] 104.1 General. The fire code official is hereby authorized to enforce the provisions of this code. The fire code official shall have the authority to render interpretations of this code, and to adopt policies, procedures, rules and regulations in order to clarify the application of its provisions. Such interpretations, policies, procedures, rules, and shall be in compliance with the intent and purpose of this code and shall not have the effect of waiving requirements specifically provided for in this code. The fire chief or designee has authority in determining the application of this code and resolving any conflicts that may arise from enforcement of this code.

Section 104.6 Official records. Amend Section 104.6 to read as follows:

[A] 104.6 Official records. The fire code official shall keep official records as required by Sections 104.6.1 through 104.6.4. Such official records shall be retained for not less than seven (7) years or for as long as the structure or activity to which such records relate remain in existence, unless otherwise provided by other regulations.

Section 104.7.2 Actions. Add a new Section 104.7.2 to read as follows:

104.7.2 Actions, liability and legal defense. The Colorado Governmental Immunity Act, Article 10 of Title 24 Colorado Revised Statutes, shall apply to the actions, liability and legal defense of any Fire Code Official, officer or employee charged with the enforcement of this code.

SECTION 105 PERMITS

Section 105.1.2 Types of permits. Amend Section 105.1.2 to read as follows:

105.1.2 Types of Permits. There shall be three types of permits as follows:

1. Operational Permit. An operational permit allows the applicant to conduct an operation or a business for which a permit is required by Section 105.5 for either:
 - 1.1 A prescribed period.
 - 1.2 Until renewed or revoked.
2. Construction permit. A construction permit allows the applicant to install or modify systems and equipment for which a permit is required by section 105.6.
3. Administrative permit. An administrative permit allows the applicant to modify fire protection or life safety systems and equipment, having a limited scope of work, for which a construction permit would otherwise be issued. Administrative permits apply to the following:
 - i. 20-Head letters.
 - ii. 5-device letters.
 - iii. Temporary removal of equipment during construction activities.
 - iv. Others as approved by the fire code official.

Section 105.2.2 Inspection authorized. Amend Section 105.2.2 to read as follows:

[A] 105.2.2 Inspection authorized. Before a new operational permit is approved, the fire code official is authorized to inspect the receptacles, vehicles, buildings, devices, premises, storage spaces, areas, activities, processes, procedures, and all other relevant items of fire and life safety to be used to determine compliance with this code or any operational constraints required.

Section 105.3.4.1 Work at risk. Add new Section 105.3.4.1 to read as follows:

105.3.4.1 Work at risk. Where a permit is required, and upon the request of a permit applicant, the fire code official may issue a work-at-risk permit to begin work prior to the issuance of a permit. The work at risk permit will allow the applicant to begin installation, modification, or commencement of a system, process, or activity for which the permit is required prior to approved plans or a construction permit. The holder of the work at risk permit shall be authorized to proceed at their own risk with the installation or modification of the system, or other work requiring a permit, but shall not entitle them to any required inspections of the system or work until construction documents or permit applications are approved and the required permits are posted on site. Any work performed on the system will be done at the risk of the installing the contractor. Any required changes or modifications based upon approved plan review or inspection activities will be the responsibility of the contractor and shall be made prior to final approval of the system and Certificate of Occupancy. A work at risk permit fee shall be assessed as set forth by the adopted fee schedule.

Section 105.3.4.2 Temporary use permit. Add a new Section 105.3.4.2 to read as follows:

105.3.4.2 Temporary use permit. A temporary use permit may be issued upon request to allow an activity or temporary use to occur within a given occupancy where the occupancy classification may not meet the intended temporary use, or temporary activity when it is determined to create a considerable risk based upon the activity itself or environmental hazards. A request for temporary use must be submitted in writing to the fire code official and include a permit application, code study with details on the occupant loads, means of egress, fire protection systems, and specific hazards or activities present. Inspections shall be performed in accordance with Section 108 prior to the issuance of the temporary use permit. A temporary use permit may be issued for a maximum of 180 days and may only be extended upon approval by the fire code official. A temporary use permit fee shall be assessed as set forth by the adopted fee schedule.

Section 105.3.6 Compliance with code. Amend Section 105.3.6 to read as follows:

[A] 105.3.6 Compliance with code. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the fire code official from requiring the correction of errors in the construction documents and other data. Any addition to or alteration of approved construction documents shall be approved by the fire code official as evidenced by the issuance of a new or amended permit.

Section 105.3.6.1 Liability. Add a new Section 105.3.6.1 to read as follows:

105.3.6.1 Liability. The permittee shall indemnify the Fire Department, its officers, agents, and employees against any claim or liability arising from or based on the violation of this code or any other applicable law or regulation caused by any actions or omissions of the permittee arising out of the exercise of the activity authorized by the permit.

Section 105.5 Required operational permits. Amend Section 105.5 to read as follows:

105.5 Required operational permits. The fire code official is authorized to issue operational permits per fire department SOP for the operations set forth in Sections 105.5.1 through 105.5.55

Table 105.5.9 Permit amounts for compressed gases. Amend Table 105.5.9 to read as follows:

TABLE 105.5.9 PERMIT AMOUNTS FOR COMPRESSED GASES

TYPE OF GAS	AMOUNT (cubic feet at NTP)
Carbon dioxide used in carbon dioxide enrichment systems	875 (100 lbs.)
Carbon Dioxide used in insulated liquid carbon dioxide beverage dispensing applications	875 (100 lbs.)
Corrosive	200
Flammable (except cryogenic fluids and liquified petroleum gases)	200
Highly toxic	Any Amount
Inert and simple asphyxiant	6,000
Inert and simple asphyxiant in beverage dispensing applications	875 (100 lbs.)
Oxidizing (including oxygen)	504
Pyrophoric	Any Amount
Toxic	Any Amount

Section 105.5.17 Fire hydrants and valves. Amend Section 105.6.17 to read as follows:

105.5.17 Fire hydrants and valves. A Water District permit is required to use or operate fire hydrants or valves intended for fire suppression purposes that are installed on water systems and provided with ready access from a fire apparatus access road that is open to or generally used by the public.

Exception: A permit is not required for authorized employees of the water company that supplies the system or the fire department to use or operate fire hydrants or valves.

Section 105.5.18 Flammable and combustible liquids. Amend Section 105.5.18 to read as follows:

105.5.18 Flammable and combustible liquids. An operational permit is required:

1. To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the off-site transportation in pipelines regulated by the Department of Transportation (DOTn) nor does it apply to piping systems.
2. To store, handle or use Class I liquids in excess of 20 gallons in a building or in excess of 50 gallons outside of a building, except that a permit is not required for the following:
 - 2.1. The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant, or mobile heating plant, unless such storage, in the opinion of the fire code official, would cause an unsafe condition.
 - 2.2. The storage or use of paints, oils, varnishes, or similar flammable mixtures where such liquids are stored for maintenance, painting, or similar purposes for a period of not more than 30 days.
3. To store, handle or use Class II or Class III A liquids in excess of 55 gallons in a building or in excess of 100 gallons outside a building, except for fuel oil used in connection with oil-burning equipment. 3.1. To store, handle or use Class IIIB liquids of 120 gallons or more in a building or outside a building.

4. To store, handle or use Class IIIB liquids in tanks or portable tanks for fueling motor vehicles at motor fuel-dispensing facilities or where connected to fuel-burning equipment.
Exception: Fuel oil and used motor oil used for space heating or water heating.
5. To remove Class I or II liquids from an underground storage tank used for fueling motor vehicles by any means other than the approved, stationary on-site pumps normally used for dispensing purposes.
6. To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries, and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed, or used.
7. To place temporarily out of service (for more than 90 days) an underground, protected above-ground, or above-ground flammable or combustible liquid tank.
8. To change the type of contents stored in a flammable or combustible liquid tank to a material that poses a greater hazard than that for which the tank was designed and constructed.
9. To manufacture, process, blend or refine flammable or combustible liquids.
10. To engage in the dispensing of liquid fuels into the fuel tanks of motor vehicles at commercial, industrial, governmental, or manufacturing establishments in accordance with Section 5706.5.4 or to engage in on-demand mobile fueling operations in accordance with Section 5707.
11. To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of motor vehicles, marine craft, and other special equipment at commercial, industrial, governmental, or manufacturing establishments in accordance with Section 5706.5.4 or, where required by the fire code official, to utilize a site for on-demand mobile fueling operations in accordance with Section 5707.
12. To manufacture, produce or store, alcoholic beverages, distilled spirits, or wines in excess of 16-percent alcohol content stored in containers/vessels greater than 1.3 gallons each.

Section 105.5.25 Hot work operations. Amend Section 105.5.25 to read as follows:

105.5.25 Hot work operations. An operational permit is required for hot work including, but not limited to:

1. Public exhibitions and demonstrations where hot work is conducted.
2. Use of portable hot work equipment inside an occupied structure.
Exception: Work that is conducted under a construction permit.
3. Fixed-site hot work equipment, such as welding booths.
4. Hot work conducted within a wildfire risk area and/or during burn restrictions or during burn bans.
5. Application of roof coverings with the use of an open-flame device.
6. Where approved, the fire code official shall issue a permit to carry out a hot work program. This program allows approved personnel to regulate their facility's hot work operations. The approved personnel shall be trained in the fire safety aspects denoted in this chapter and shall be responsible for issuing permits requiring compliance with the requirements found in Chapter 35. These permits shall be issued only to their employees or hot work operations under their supervision. Organizations complying with sub-section 6 do not need an operational permit issued by the fire department.

Section 105.5.29 LP-gas. Amend Section 105.5.29 to read as follows:

105.5.29 LP-gas. An operational permit is required for:

1. Storage and use of LP-gas where a single container, cylinder, or tank is more than 125 gallons water capacity; or the aggregate capacity of containers is more than 125 gallons water capacity.
Exception: A permit is not required for individual containers with a 500-gallon (1893 L) water capacity or less or multiple container systems having an aggregate quantity not exceeding 500 gallons (1893 L) serving occupancies in Group R-3, one- and two-family dwellings and townhomes.
2. Operation of cargo tankers that transport LP-gas.
3. One or more LP-gas cabinets associated with a cylinder exchange program.

Section 105.5.34. Open burning. Amend Section 105.5.34 to read as follows:

105.5.34 Open burning and prescribed burns/fires. An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground. Instructions and stipulations of the permit shall be complied with.

Section 105.5.36 Open flames and candles. Amend Section 105.5.36 to read as follows:

105.5.36 Open flames and candles. An operational permit is required to use open flames or candles in connection with assembly areas, dining areas of restaurants, drinking establishments, or to use open flame effects before an audience.

Section 105.5.42 Pyrotechnic special effects material. Amend Section 105.5.42 to read as follows:

105.5.42 Pyrotechnic special effects material and display fireworks. An operational permit is required for use and handling of pyrotechnic special effects material. An operational permit is required for the storage, handling, and use of explosive material used in fireworks displays or for pyrotechnic special effect activities or flame effects before a proximate audience within the scope of Chapter 56 (See Section 105.6.16). An operational permit per 105.5.16 is required for the temporary storage and retail sale of consumer fireworks, 1.4G permitted by Section 5601.1.3.

Section 105.5.53 Lithium batteries. Add a new Section 103.5.53 to read as follows:

105.5.53 Lithium batteries. An operational permit is required for an accumulation of more than 15 cubic feet of lithium-ion and lithium metal batteries, where required by Section 321.1.

Section 105.5.54 Temporary change of use. Add a new Section 105.5.54 to read as follows:

105.5.54 Temporary change of use. An operational permit is required to temporarily change the use of a facility. A maximum of 90 days of use; no extensions or re-issue of permit for a minimum of 8 months.

Section 105.5.55 Other permits not otherwise listed. Add a new Section 105.5.55 to read as follows:

105.5.55 Other permits not otherwise listed. An operational permit may be required for hazardous activities or operations not otherwise specifically listed in this code that the fire code official determines creates a substantial risk or hazard.

Section 105.6 Required construction permits. Amend Section 105.6 to read as follows:

105.6 Required construction permits. The fire code official is authorized to issue construction permits for work as set forth in Sections 105.6.1 through 105.6.27.

Section 105.6.15 LP-gas. Amend Section 105.6.15 to read as follows:

105.6.15 LP-gas. A construction permit is required for:

1. Installation of or modification to an LP-gas system where a single container, cylinder, or tank is more than 125 gallons water capacity; or the aggregate capacity of containers is more than 125 gallons water capacity.
Exception: A permit is not required for individual containers with a 500-gallon water capacity or less or multiple container systems having an aggregate quantity not exceeding 500 gallons, serving occupancies in Group R-3, townhomes, and serving one- and two-family dwellings.
2. One or more LP-gas cabinets associated with a cylinder exchange program.

Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.

Section 105.6.20 Solar photovoltaic power systems. Amend Section 150.6.20 to read as follows:

105.6.20 Solar photovoltaic power systems. A construction permit is required to install or modify solar photovoltaic power systems. Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.

Exceptions: Group R-3 and structures designed and constructed in accordance with the International Residential Code.

Section 105.6.25 Fire protection system demolition permit. Add a new Section 105.6.25 to read as follows:

105.6.25 Fire protection system demolition permit. When a fire protection system, or portion thereof is no longer needed, desired, or required by code, a licensed fire protection contractor shall obtain a permit prior to any demolition or removal of any portion of the system. The request for a demolition permit must include a complete code study showing the system is no longer required and justification for the permanent removal of the system.

Section 105.6.26 Direct Current Fast Charging (DCFC) stations. Add a new Section 105.6.26 to read as follows:

105.6.26 Direct Current Fast Charging (DCFC) stations. A construction permit is required for the installation of any Direct Current Fast Charging (DCFC) stations.

Section 105.6.27 Other permits not otherwise listed. Add a new Section 105.6.27 to read as follows:

105.6.27 Other permits not otherwise listed. A construction permit is required for activities, installations, or operations not otherwise specifically listed in code that the fire code official determines creates a substantial risk or hazard.

SECTION 106 CONSTRUCTION DOCUMENTS

Section 106.1 Submittals. Amend Section 106.1 to read as follows:

[A] 106.1 Submittals. Construction documents and supporting data shall be submitted in two or more sets with each application for a permit and in such form and detail as required by the fire code official. The construction documents shall be prepared by an approved design professional where required by the jurisdiction in which the project is to be constructed.

Exception: The fire code official is authorized to waive the submission of construction documents and supporting data not required to be prepared by an approved design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with this code.

Section 106.3 Amended construction documents. Amend Section 106.3 to read as follows:

[A] 106.3 Amended construction documents. Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents. Where field conditions necessitate any substantial change from the approved construction documents, the fire code official shall have the authority to require the amended construction documents to be submitted for approval. Fees may be assessed for time spent on the review of corrected documents in accordance with Section 107 and the adopted fee schedule.

SECTION 107 FEES

Section 107.5 Related fees. Amend Section 107.5 to read as follows:

[A] 107.5 Related fees. The payment of the fee for the construction, alteration, removal or demolition, or activity of work done in connection to or concurrently with the work or authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

Section 107.7 Re-inspection fees. Add a new Section 107.7 to read as follows:

107.7 Re-inspection fees. Re-inspection fee as set forth in the approved/adopted fee schedule may be assessed for each inspection or reinspection when any portion of work for which inspection is called is not complete or when required corrections have not been completed. This subsection is not to be interpreted as requiring reinspection fees upon initial rejection of work for failure to comply with the requirements of this code, but as controlling the practice of calling for inspections before work is ready for the inspection or reinspection's, or if hazards are not abated in the required timeframe. The reinspection fees may be assessed:

1. When the permit is not properly posted and/or the approved plans are not available on the work site; or
2. For failure to provide access on the date for which inspection is requested; or
3. For failure to maintain all work in an exposed condition until inspected and approved for installation; or
4. For deviating from plans requiring the approval of the fire code official; or
5. For lack of sufficient documentation, equipment, or personnel needed to complete the inspection; or
6. The work that an inspection has been called for has not been pretested or is not ready for inspection.
7. Failure to comply with the conditions of the permit.
8. When identified, violations or hazards are not corrected or abated within the specified timeframe.

SECTION 111 MEANS OF APPEALS

Section 111.1 Board of appeals. Amend Section 111.1 to read as follows:

[A] 111.1 Board of appeals established. In order to hear and decide appeals of orders, decisions, or determinations made by the fire code official relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The board of appeals shall be established by the provisions of Appendix A of this code. When hearing issues related to this code, the board of appeals shall operate in accordance with Appendix A of this code.

Sections 111.2 Limitations on authority. Delete Section 111.2 in its entirety.

Section 111.3 Qualifications. Delete Section 111.3 in its entirety.

Section 111.4 Administration. Delete Sections 111.4 in its entirety.

SECTION 112 VIOLATIONS

Section 112.1 Unlawful acts. Amend Section 112.1 to read as follows:

[A] 112.1 Unlawful acts. It shall be unlawful for a person, firm, or corporation to erect, construct, alter, repair, remove, and/or conduct activities, demolish or utilize a building, occupancy, premises, or system regulated by this code, or cause the same to be done, in conflict with or in violation of any of the provisions of this code.

Section 112.3.1 Service. Amend Section 112.3.1 to read as follows:

[A] 112.3.1 Service. A notice of violation issued pursuant to this code shall be served on the owner, the owner's authorized agent, operator, occupant, or other person responsible for the condition or violation, either by personal service, mail, or by delivering the same to, and leaving it with, some person of responsibility on the premises. The fire code official is authorized to affix a stop work order, a cease and desist tag or similar notice prohibiting the use thereof, until such repairs or alterations are made. For unattended or abandoned locations, a copy of such notice of violation shall be posted on the premises in a conspicuous place at or near the entrance to such premises and the notice of violation shall be mailed by certified mail with a return receipt requested or a certificate of mailing, to the last known address of the owner, the owner's authorized agent, or occupant.

Section 112.4 Violation penalties. Amend Section 112.4 to read as follows:

[A] 112.4 Violation penalties. Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, repair, or do work in violation of the approved construction documents or directive of the fire code official, or of a permit or certificate used under provisions of this code, shall be guilty of a Misdemeanor punishable by a fine of not more than Three hundred (\$300.00) dollars or by imprisonment not exceeding 90 days, or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense. Penalties shall be assessed for violations of this code as authorized by C.R.S. 32-1-1002 (3) and (4), or any other applicable federal, state or local law.

SECTION 113 STOP WORK ORDER

Section 113.4 Failure to comply. Amend Section 113.4 Failure to Comply to read as follows:

[A] 113.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or

unsafe condition, shall be subject to a fines established by the authority having jurisdiction to be not more than Three Hundred (\$300.00) dollars.

Section 113.5 Penalties. Add a new Section 113.5 to read as follows:

113.5 Penalties. It is unlawful for any person to violate any of the provisions of this part including any provisions of the International Fire Code, International Fire Code Appendices, and International Fire Code Amendments, as adopted. Any person convicted of a violation of any provision set forth in this part shall be punished in accord with the penalties as authorized by C.R.S. 32-1-1002 (3) and (4), or any other applicable federal, state or local law.

CHAPTER 2 DEFINITIONS

SECTION 202 GENERAL DEFINITIONS

Definition EXTRACTION. Add a definition to read as follows:

EXTRACTION. The process of removing essential oils or other botanic material from a given plant material.

Definition HOT WORK AREA. Amend definition HOTWORK AREA to read as follows:

HOT WORK AREA. An area no less than a 35-foot radius and 15 feet in elevation; above and below, that is exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.

Definition MINIMUM EXPLOSIVE CONCENTRATION (MEC). Add a definition to read as follows:

MINIMUM EXPLOSIVE CONCENTRATION (MEC). The lowest mass to volume concentration of combustible dust that will propagate a flame (sometimes referred to as LFL). The MEC for grain dust is 0.055 oz. /ft³.

Definition OCCUPANCY CLASSIFICATION. [BG] Institutional Group I-2. Amend Occupancy Conditions to read as follows:

Occupancy Conditions. Buildings of Group I-2 shall be classified as one of the following occupancy conditions and shall comply with Section 407 of the International Building Code:

[BG] Condition 1. This occupancy condition shall include facilities that provide nursing and medical care but do not provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to, nursing homes, memory care facilities, and foster care facilities.

Definition PILE. Add a definition to read as follows:

PILE. Independently stacked commodities possibly organized by separate spacers, dunnage, or pallets in which the demise of any storage container on a lower tier compromises the structural stability of the storage system.

Definition POST OIL PROCESSING. Add a definition to read as follows:

POST OIL PROCESSING. The process of refining essential oils after extraction from the plant material, including, but not limited to dewaxing, and winterization processes.

Definition POWERED MICROMOBILITY DEVICES. Add a definition to read as follows:

POWERED MICROMOBILITY DEVICES. Motorized bicycles, motorized scooters, and other personal mobility devices powered by a lithium-ion or lithium metal battery. The term does not include motor vehicles that are required to be registered with the Department of Motor Vehicles for the state or jurisdiction.

Definition RACK. Add a definition to read as follows:

RACK. Shelves or similar structural frame-supported system of tiers in which the demise of any storage container on a lower tier does not affect the structural stability of the storage system.

Part II – General Safety Provisions

CHAPTER 3 GENERAL REQUIREMENTS

SECTION 301 GENERAL

Section 301.2 Permits. Amend Section 301.2 to read as follows:

301.2 Permits. Permits shall be required as set forth in Section 105.5 for the activities or uses regulated by Sections 306, 307, 308, 315, 320, 322, and 324

SECTION 304 COMBUSTIBLE WASTE MATERIAL

SECTION 307 OPEN BURNING, RECREATIONAL FIRES AND PORTABLE OUTDOOR FIRE PLACES

Section 307.1.2 Burn restrictions and burn bans. Add a new Section 307.1.2 to read as follows:

307.1.2 Burn restrictions and burn bans. The Fire Chief of a fire jurisdiction is authorized to issue a burn restriction or burn ban as deemed necessary when local conditions make recreational fires, open burning, other open flame, or similar activities hazardous or objectionable. County wide burn bans shall be issued by the Fire Warden (El Paso County Sherriiff).

Section 307.2.2 Air quality permits. Add a new Section 307.2.2 to read as follows:

307.2.2 Air quality permits. Air quality permits may be required by the State of Colorado Department of Health Air Quality Program for any type of open burning listed in Section 307. It is the responsibility of the permit holder to contact the State of Colorado Department of Health and/or the El Paso County Department of Health to determine if an Air Quality Permit is required.

Section 307.4.1 Bonfires. Amend Section 307.4.1 to read as follows:

307.4.1 Bonfires. A bonfire shall not be conducted within 50 feet (15 240 mm) of a structure or combustible material unless the fire is contained in a barbecue pit. Conditions that could cause a fire to spread within 50 feet (15 240 mm) of a structure shall be eliminated prior to ignition. A bonfire is generally classified as combustible products stacked or organized greater than 3 feet in diameter and 2 feet in height, utilized for any religious, celebratory, or similar purpose.

Section 307.4.1.1 Materials. Add a new Section 307.4.1.1 to read as follows:

307.4.1.1 Materials. Bonfires shall be constructed of solid wood products as approved by the fire code official and void of any trash, debris, or rubbish. Bonfires should not use flammable liquid as an ignition source.

Section 307.4.2 Recreational fires. Amend Section 307.4.2 to read as follows:

307.4.2 Recreational fires. Recreational fires shall not be conducted within 10 feet of a structure or combustible material. Conditions that could cause a fire to spread within 10 feet of a structure shall be eliminated prior to ignition.

Section 307.4.3 Portable outdoor fireplaces. Amend section 307.4.3 to read as follows:

307.4.3 Portable outdoor fireplaces. Portable outdoor fireplaces shall be used in accordance with the manufacturer's instructions and shall not be operated within 10 feet of a structure or combustible material.

Exception: Occupants of one- and- two family dwellings:

1. Shall operate portable outdoor fireplaces in accordance with the manufacturer's instructions.
2. May operate portable outdoor fireplaces with no minimum distance requirement from a structure or combustible material affiliated with occupants of the one- or two-family dwelling.
3. Shall NOT operate a portable outdoor fireplace within 10 feet of a neighboring structure or combustible material, including but not limited to a tree, bush, or common fence.

Section 307.4.3.1 Spark arrestor. Add a new Section 307.4.3.1 to read as follows:

307.4.3.1 Spark arrestor. Use of a functional spark arrestor is required for all solid fuels such as wood or charcoal, for recreational fires, and all outdoor fireplaces.

Section 307.5 Attendance. Amend Section 307.5 to read as follows:

307.5 Attendance. Open burning, bonfires, recreational fires, and use of portable outdoor fireplaces shall be constantly attended by a minimum of one alert, ambulatory, unimpaired, responsible adult until the fire is extinguished. A minimum of one portable fire extinguisher complying with Section 906 with a minimum 4-A rating or other approved on-site fire-extinguishing equipment, such as dirt, sand, water barrel, garden hose, or water truck, shall be available for immediate utilization by the attendant responsible.

SECTION 308 OPEN FLAMES

Section 308.1.4 Open-flame cooking devices. Amend Section 308.1.4 to read as follows:

308.1.4 Open-flame cooking devices. Charcoal and solid-fuel burners and other open-flame cooking devices shall not be operated on combustible balconies or within 10 feet (3048mm) of combustible construction. Exceptions:

1. One- and two-family dwellings.
2. Where buildings, balconies, and decks are protected by an automatic sprinkler system.
3. LPG cooking devices having LPG container with a water capacity not greater than 47 pounds [nominal 20-pound LPG capacity].

Section 308.1.4.1 Valves. Add a new Section 308.1.4.1 to read as follows:

308.1.4.1. Valves. All valves shall be turned off when propane cylinders are not in use.

Section 308.1.4.2 Egress from buildings. Add a new Section 308.1.4.2 to read as follows:

308.1.4.2 Egress from buildings. Open flame devices shall never be used or stored in or near stairwells, corridors, or other areas that are intended to be used as a means of egress or considered an interior living space.

Section 308.2 Permits required. Amend Section 308.2 to read as follows:

308.2 Permits required. Permits shall be obtained from the fire code official in accordance with Section 105.5 prior to engaging in the following activities involving open flame, fire, and burning:

1. Use of a torch or flame-producing device to remove paint from a structure.
2. Use of open flame, fire, or burning in connection with Group A or E occupancies.
3. Use or operation of torches and other devices, machines, or processes liable to start or cause a fire in or on wildfire risk areas.

4. Use of flame effects before a proximal audience.

SECTION 316 HAZARDS TO FIRE FIGHTERS

Section 316.3.1 Modifications and alterations. Add a new section 316.3.1 to read as follows:

316.3.1 Modifications and alterations. Modifications, alterations, or changes made to buildings and structures that are of non-approved work and pose a threat to the life and safety of emergency responders are prohibited.

SECTION 319 MOBILE FOOD PREPARATION VEHICLES

Section 319.4.1 Fire protection for cooking equipment. Amend Section 319.4.1 to read as follows:

Section 319.4.1 Fire protection for cooking equipment. Cooking equipment shall be protected by automatic fire extinguishing systems in accordance with Section 904.13.

Exception: If the vehicle was designed and constructed or cooking appliances were installed prior to April 1, 2026, or an approval from the fire code official.

SECTION 322 STORAGE OF LITHIUM-ION AND LITHIUM METAL BATTERIES. ADD A NEW SECTION 322 TO READ AS FOLLOWS:

SECTION 322 - STORAGE OF LITHIUM-ION AND LITHIUM METAL BATTERIES

Section 322.1. Add a new Section 322.1 to read as follows:

322.1 General. The storage of lithium-ion and lithium metal batteries shall comply with Section 322.

Exceptions:

1. New or refurbished batteries installed in the equipment, devices, or vehicles they are designed to power.
2. New or refurbished batteries packed for use with the equipment, devices, or vehicles they are designed to power.
3. Batteries in original retail packaging that are rated at 300 watt-hours or less for lithium-ion batteries or contain 25 grams or less of lithium metal for lithium metal batteries.
4. Temporary storage of batteries or battery components during the battery manufacturing process before completion of final quality control checks.
5. Temporary storage of batteries during the vehicle manufacturing or repair process.

Section 322.2 Permits. Add a new Section 322.2 to read as follows:

322.2 Permits. Permits shall be required for an accumulation of more than 15 cubic feet of lithium-ion and lithium metal batteries, other than batteries listed in the exceptions to Section 322.1, as set forth in Section 105.5.53.

Section 322.3 Fire safety plan. Add a new Section 322.3 to read as follows:

322.3 Fire safety plan. A fire safety plan shall be provided in accordance with Section 403.10.6. In addition, the fire safety plan shall include emergency response actions to be taken upon detection of a fire or possible fire involving lithium-ion or lithium metal battery storage.

Section 322.4 Storage requirements. Add a new Section 322.4 to read as follows:

322.4 Storage requirements. Lithium-ion and lithium metal batteries shall be stored in accordance with Section 322.4.1, 322.4.2, or 322.4.3, as applicable.

Section 322.4.1 Limited indoor storage in containers. Add a new Section 322.4.1 to read as follows:

322.4.1 Limited indoor storage in containers. Not more than 5 cubic feet of lithium-ion or lithium metal loose discarded batteries shall be permitted to be stored in containers in accordance with all the following.

1. Containers shall be open-top and constructed of noncombustible materials or shall be approved for battery collection.
2. A second container or group of containers shall be separated by not less than 3 feet of open space, or 10 feet of space that contains combustible materials.
3. Containers shall be located not less than 5 feet from exits or exit access doors.

Section 322.4.2 Indoor storage area. Add a new Section 322.4.2 to read as follows:

322.4.2 Indoor storage areas. Indoor storage areas for lithium-ion and lithium metal batteries, other than those complying with Section 322.4.1, shall comply with Sections 322.4.2.1 through 322.4.2.6.

Section 322.4.2.1 Technical opinion and report. Add a new Section 322.4.2.1 to read as follows:

322.4.2.1 Technical opinion and report. A technical opinion and report complying with Section 104.8.2 shall be prepared to evaluate the fire and explosion risks associated with the indoor storage area and to make recommendations for fire and explosion protection. The report shall be submitted to the fire code official and shall require the fire code official's approval prior to issuance of a permit. In addition to the requirements of Section 104.8.2, the technical opinion and report shall specifically evaluate the following:

1. The potential for deflagration of flammable gases released during a thermal runaway event.
2. The basis of design for an automatic sprinkler system, approved fire suppression system, and fire alarm system. Such design basis shall reference relevant full-scale fire testing or another approved method of demonstrating sufficiency of the recommended design.

Section 322.4.2.2 Construction requirements. Add a new Section 322.4.2.2 to read as follows:

322.4.2.2 Construction requirements. Where indoor storage areas for lithium-ion and lithium metal batteries are in a building with other uses, battery storage areas shall be separated from the

remainder of the building by 2-hour rated fire barriers or horizontal assemblies. Fire barriers shall be constructed in accordance with Section 707 of the International Building Code, and horizontal assemblies shall be constructed in accordance with Section 711 of the International Building Code. Exceptions:

1. Where battery storage is contained in one or more approved prefabricated portable structures providing a complete 2-hour fire resistance rated enclosure, fire barriers and horizontal assemblies are not required.
2. Where battery storage is limited to new batteries in packaging that has been demonstrated to and approved by the fire code official as sufficient to isolate a fire in packaging to the package interior, fire barriers and horizontal assemblies are not required.

Section 322.4.2.3 Fire protection systems. Add a new Section 322.4.2.3 to read as follows:

322.4.2.3 Fire protection systems. Indoor storage areas for lithium-ion and lithium metal batteries shall be protected by an automatic sprinkler system complying with Section 903.3.1.1 or an approved alternative fire suppression system. The system design shall be based on recommendations in the approved technical opinion and report required by Section 322.4.2.1.

Section 322.4.2.4 Fire alarm systems. Add a new Section 322.4.2.4 to read as follows:

322.4.2.4 Fire alarm systems. Indoor storage areas for lithium-ion and lithium metal batteries shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use air-aspirating smoke detection, radiant energy-sensing fire detection, or both. The system design shall be based on recommendations in the approved technical opinion and report required by Section 322.4.2.1.

Section 322.4.2.5 Explosion control. Add a new Section 322.4.2.5 to read as follows:

322.4.2.5 Explosion control. Where the approved technical opinion and report required by Section 322.4.2.1 recommends explosion control, explosion control complying with Section 911 shall be provided.

Section 322.4.2.6 Reduced requirements. Add a new Section 322.4.2.6 to read as follows:

322.4.2.6 Reduced requirements for storage of partially charged batteries. Indoor storage areas for lithium-ion and lithium metal batteries with a demonstrated state of charge not exceeding 30 percent shall not be required to comply with Sections 322.4.2.1, 322.4.2.2, or 322.4.2.5, provided that procedures for limiting and verifying that the state of charge will not exceed 30 percent have been approved.

Section 322.4.3 Outdoor storage. Add a new Section 322.4.3 to read as follows:

322.4.3 Outdoor Storage. Outdoor storage of lithium-ion or lithium metal batteries shall comply with Sections 322.4.3.1 through 322.4.3.3.

Section 322.4.3.1 Distance from storage to exposures. Add a new Section 322.4.3.1 to read as follows:

322.4.3.1 Distance from storage to exposures. Outdoor storage of lithium-ion or lithium metal batteries, including storage beneath weather protection in accordance with Section 414.6.1 of the International Building Code, shall comply with one of the following.

1. Battery storage shall be located not less than 20 feet from any building, lot line, public street, public alley, public way, or means of egress.
2. Battery storage shall be located not less than 3 feet from any building, lot line, public street, public alley, public way, or means of egress, where the battery storage is separated by a 2-hour fire-resistance-rated assembly without openings or penetrations and extending 5 feet above and to the sides of the battery storage area.
3. Battery storage shall be located not less than 3 feet from any building, lot line, public street, public alley, public way, or means of egress, where batteries are contained in approved prefabricated portable structures providing a complete 2-hour fire-resistance-rated enclosure.

Section 322.4.3.2 Storage area size limits and separation. Add a new Section 322.4.3.2 to read as follows:

322.4.3.2 Storage area size limits and separation. Outdoor storage areas for lithium-ion or lithium metal batteries, including storage beneath weather protection in accordance with Section 414.6.1 of the International Building Code, shall not exceed 900 sq. ft. The height of battery storage in such areas shall not exceed 10 feet. Multiple battery storage areas shall be separated from each other by not less than 10 feet of open space.

Section 322.4.3.3 Fire Detection. Add a new Section 322.4.3.3 to read as follows:

322.4.3.3 Fire detection. Outdoor storage areas for lithium-ion or lithium metal batteries, regardless of whether such areas are open, under weather protection, or in a prefabricated portable structure, shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use radiant energy-sensing fire detection.

SECTION 323 POWERED MICROMOBILITY DEVICES. ADD A NEW SECTION 323 TO READ AS FOLLOWS:

SECTION 323 POWERED MICROMOBILITY DEVICES

Section 323.1 General. Add a new Section 323.1 to read as follows:

323.1 General. Lithium-ion and lithium metal battery-powered micromobility devices shall be operated and maintained in accordance with this section.

Exceptions:

1. Storage, repair, and charging in residential occupancies of battery-powered mobility devices, provided that such devices are for personal use by its owner.
2. Charging of a single powered mobility device in any occupancy by its owner.

323.1.1 Prohibited locations. The use of a residential occupancy as a business for the charging of commercially owned powered mobility devices as part of rental or sales service shall not be permitted.

Section 323.2 Battery chargers and equipment. Add a new Section 323.2 to read as follows:

323.2 Battery chargers and equipment. Powered micromobility devices shall be charged in accordance with their listing and the manufacturer's instructions using only the original equipment manufacturer-supplied charging equipment or charging equipment in accordance with the listing and manufacturer's instructions.

Section 323.3 Listing. Add a new Section 323.3 to read as follows:

323.3 Listing. Powered micromobility devices shall be listed and labeled in accordance with UL 2272 or UL 2849, as applicable.

Section 323.4 Battery charging areas. Add a new Section 323.4 to read as follows:

323.4 Battery charging areas. Where approved, powered micromobility devices shall be permitted to be charged in a room or area that complies with all the following:

1. Only listed devices utilizing listed charging equipment shall be permitted to be charged.
2. Is provided with sufficient electrical receptacles to allow the charging equipment for each device to be directly connected to a receptacle. Extension cords and relocatable power taps shall not be used.
3. Storage of combustible materials, combustible waste, or hazardous materials shall not be permitted.
4. The charging operation shall not be conducted in or obstruct any required means of egress.
5. Removable storage batteries shall not be stacked or charged in an enclosed cabinet unless the cabinet is specially designed and approved for such purposes.
6. A minimum distance of 18 inches shall be maintained between each removable storage battery during charging operations unless each battery is isolated from neighboring batteries by an approved fire-resistant material.
7. A minimum of 18 inches shall be maintained between the locations of the batteries on each powered micromobility device during charging operations.
8. The indoor room or area shall be protected by a fire alarm system utilizing air-aspirating smoke detectors or radiant energy-sensing fire detection.

Section 323.5 Fire safety plan. Add a new Section 323.5 to read as follows:

323.5 Fire safety plan. A fire safety plan shall be provided in accordance with Section 403.10.6. In addition, the fire safety plan shall include emergency response actions to be taken upon detection of a fire or possible fire involving lithium-ion or lithium metal battery storage.

SECTION 324 ELECTRIC VEHICLE (EV) CHARGING STATIONS. ADD A NEW SECTION 324 TO READ AS FOLLOWS:

SECTION 324 ELECTRIC VEHICLE (EV) CHARGING STATIONS.

Section 324.1 Scope. Add a new Section 324.1 to read as follows:

324.1 Scope. Electric vehicle charging stations installed inside of buildings or open parking lots shall be in compliance with the International Building Code, NFPA 70, and this Section as applicable.

Section 324.2 Permit. Add a new Section 324.2 to read as follows:

324.2 Permit. Permits shall be obtained for Direct Current Fast Charging (DCFC) stations as set forth in Section 105.6.

Section 324.3 Access. Add a new Section 324.3 to read as follows:

324.3 Access. Approved fire suppression access shall be provided for all electric vehicle charging stations.

Section 324.4 Listing. Add a new Section 324.4 to read as follows:

324.4 Listing. Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2202. Electric vehicle supply equipment shall be listed and labeled in accordance with UL 2594.

Section 324.5 Landscape. Add a new Section 324.5 to read as follows:

324.5 Landscape. Landscaping shall not obstruct access to electric vehicle charging stations. Weeds, grass, brush, trash, and other combustible materials shall be kept not less than 10 feet from electrical vehicle charging station.

Section 324.6 Location. Add a new Section 324.6 to read as follows:

324.6 Location. Electric vehicle charging equipment shall be designed and located in a manner that does not create a safety hazard or impede pedestrian, bicycle, or wheelchair movement. Direct current fast charging stations shall be located at grade and not within 25 feet of any exit discharge.

Section 324.7 Emergency disconnect. Add a new Section 324.8 to read as follows:

324.7 Emergency disconnect. An emergency disconnect switch shall be located at least 20 feet but not more than 100 feet away from all direct current fast charging stations.

Section 324.8 Labeling and signage. Add a new Section 324.9 to read as follows:

324.8 Labeling and signage. Permanently affixed labels shall be posted on electronic vehicle charging stations identifying voltage, amperage level, and emergency disconnect location as approved by the fire code official. Safety information related to the operation of the charging station may also be required.

Section 324.9 Separation. Add a new section 324.10 to read as follows:

321.9 Separation. Electric vehicle charging stations shall be segregated into groups not exceeding eight (8) parking spaces consecutively. Each group of charging stations shall be separated by one of the following methods:

1. A minimum of 9 feet separation from neighboring vehicles.
2. A 2-hour fire barrier constructed in accordance with Section 707 of the International Building Code and 2-hour horizontal assembly constructed in accordance with Section 711 of the International Building Code, as appropriate.
3. Alternative separation methods may be permitted as approved by the fire code official.

Exception: Fleet vehicles owned by a single entity may be exempt from separation requirements where approved by the fire code official.

Section 324.10 Vehicle impact protection. Add a new Section 324.11 to read as follows:

324.10 Vehicle impact protection. Where provided, vehicle impact protection shall be in accordance with Section 312.

Section 324.11 Maintenance. Add a new Section 324.12 to read as follows:

324.11 Maintenance. Electric vehicle charging stations shall be properly maintained. Contact information shall be provided on the equipment to address the responsible party of equipment malfunction.

Section 324.12 Securing. Add a new Section 324.13 to read as follows:

324.12 Securing. Electric vehicle charging stations shall be capable of securing electrical discharge when vehicles is not connected. Plug shall be secured from non-authorized use and/or tamper.

CHAPTER 4 EMERGENCY PLANNING AND PREPAREDNESS

SECTION 401 GENERAL

Section 401.1 Scope. Amend Section 401.1 to read as follows:

401.1 Scope. Reporting of emergencies, coordination with emergency response forces, emergency plans, and procedures for managing or responding to emergencies shall comply with the provisions of this section.

SECTION 403 EMERGENCY PREPAREDNESS REQUIREMENTS

Section 403.4.3 Assembly points. Amend Section 403.4.3 to read as follows:

403.4.3 Assembly points. Outdoor assembly areas shall be designated and shall be located a safe distance from the building being evacuated so as to avoid interference with fire department operations. Outdoor assembly areas shall be accessed via an accessible route. The assembly areas shall be arranged to keep each class separate to provide accountability of all individuals.

Section 403.10.6 Lithium-ion and lithium metal batteries. Add a new Section 403.10.6 to read as follows:

403.10.6 Lithium-ion and lithium metal batteries. An approved fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for occupancies that involve activities for the research and development, testing, manufacturing, handling, storage of lithium-ion batteries or lithium metal batteries of a fire area exceeding 500 square feet, or the repair or servicing of vehicles powered by lithium-ion batteries or lithium metal batteries.

Exceptions:

1. New or refurbished batteries are installed for use in the equipment or vehicles they are designed to power.
2. New or refurbished batteries are packed for use with the equipment or vehicles they are designed to power for merchandizing purposes.
3. New or refurbished lithium-ion batteries rated at no more than 300 Watt-hours and lithium metal batteries containing no more than 25 grams of lithium metal in their original retail packaging.
4. The storage, repair, and charging activities in detached one-and two-family dwellings and townhouses, provided that such devices are for personal use.
5. The storage, repair, and charging activities associated with personal use in sleeping units and dwelling units of Group R-1 and R-2 occupancies.

Section 403.10.6.1 Mitigation planning. Add a new Section 403.10.6.1 to read as follows:

403.10.6.1 Mitigation planning. The approved fire safety and evacuation plan shall include thermal runaway event mitigation; measures addressing activities undertaken to prevent thermal runaway; early detection of a thermal runaway event; and mitigation measures to be undertaken to limit the size and impact of the event on occupants and the facility.

SECTION 404 FIRE SAFETY, EVACUATION AND LOCKDOWN PLANS

Section 404.2.1 Fire evacuation plans. Amend Section 404.2.1 to read as follows:

404.2.1 Fire evacuation plans. Fire evacuation plans shall include the following:

1. Emergency egress or escape routes and whether evacuation of the building is to be complete by selected floors or areas only or with a defend-in-place response.
2. Procedures for employees who must remain to operate critical equipment before evacuating.
3. Procedures for the use of elevators to evacuate the building where occupant evacuation elevators complying with Section 3008 of the International Building Code are provided.
4. Procedures for assisted rescue for persons unable to use the general means of egress unassisted.
5. Procedures for accounting for employees and occupants after evacuation has been completed.
6. Identification and assignment of personnel responsible for rescue or emergency medical aid.
7. The preferred and any alternative means of notifying occupants of a fire or emergency.
8. The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.
9. Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.
10. A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.
11. Outdoor assembly areas shall be accessible by all occupants. Outdoor assembly areas shall be designated and shall be located a safe distance, as approved by the fire code official, from the building being evacuated so as to avoid interference with fire department operations.

Section 404.2.2 Fire safety plans. Amend Section 404.2.2 to read as follows:

404.2.2 Fire safety plans. Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy includes the following:
 - 2.1. Procedures for notifying occupants, including areas with a private mode alarm system.
 - 2.2. Procedures for occupants under a defend in-place response.
 - 2.3. Procedures for evacuating occupants, including those who need evacuation assistance.
3. Site plans indicating the following:
 - 3.1. The occupancy assembly point.
 - 3.2. The locations of fire hydrants.
 - 3.3. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:
 - 4.1. Exits.
 - 4.2. Primary evacuation routes.
 - 4.3. Secondary evacuation routes.
 - 4.4. Accessible egress routes.
 - 4.4.1. Areas of refuge.

- 4.4.2. Exterior areas for assisted rescue.
- 4.5. Refuge areas associated with smoke barriers and horizontal exits.
- 4.6. Manual fire alarm boxes.
- 4.7. Portable fire extinguishers.
- 4.8. Fire alarm annunciators and controls.
5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.
6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.
7. Identification and assignment of personnel responsible for maintenance, housekeeping, and controlling fuel hazard sources.

SECTION 408 FIRE WATCH. ADD A NEW SECTION 408 TO READ AS FOLLOWS:
SECTION 408 FIRE WATCH

Section 408.1 General. Add a new Section 408.1 to read as follows:

408.1 General. Fire Watch shall be required at the discretion of the fire code official for a building with a disabled fire protection system, or when there are situations that could compromise the public's safety.

Section 408.2 Fire Watch Duties. Add a new Section 408.2 to read as follows:

408.2 Fire Watch Duties. The primary duty of fire watch personnel shall be to perform constant patrols and watch for the occurrence of fire. The combination of fire watch duties and site security duties is acceptable if approved by the fire code official.

1. Conduct continuous patrols of the entire facility (or affected area)
2. Identify any fire, life, or property hazards.
3. Immediately notify the Fire Department if a fire is discovered by calling 9-1-1.
4. Notify occupants of the facility of the need to evacuate.
5. Maintain a log of Fire Watch activities.
6. Fire Watch personnel cannot have other duties besides their assigned Fire Watch except those assigned or approved by the fire code official.
7. Fire Watch personnel must be familiar with the existing system of the facility.

Section 408.2.1 Fire Watch patrol frequency. Add a new Section 408.2.1 to read as follows:

408.2.1 Fire Watch patrol frequency. Fire Watch personnel shall continuously patrol the entire facility (or affected area) in a manner such that the entire patrol area is inspected every 30 minutes. If the patrol cannot be completed in 30 minutes more personnel are needed to perform the fire watch.

Exception: Based on the risk, facilities such as those with occupant's incapable of self-preservation, shall be patrolled every 15 minutes.

Section 408.2.2 Fire Watch log. Add a new Section 408.2.2 to read as follows:

408.2.2 Fire Watch log. A Fire Watch log shall be maintained on-site. The log must be available at all times until the Fire Watch has been terminated by fire code official. Records shall be made available for review by the fire code official upon request the log shall show the following:

1. Name of the person conducting the Fire Watch.
2. Times that each patrol was started and completed.

Section 408.3 Fire Watch levels. Add a new Section 408.3 to read as follows:

408.3 Fire Watch levels. Levels of Fire Watch are based on occupancy types and shall adhere to Table 408.3(1) and Table 408.3(2). Modification to Fire Watch shall be at the discretion of the fire code official prior to modifications are implemented.

Table 408.3(1) Fire Watch level. Add a new Table 408.3(1) to read as follows:

Table 408.3(1) Fire Watch level

LEVEL 1	Continuous monitoring of the affected area for signs of smoke or fire for the sole purpose of notifying emergency services (dialing 9-1-1)	One or more approved employees of the building owner; security guards; or qualified fire department personnel
LEVEL 2	Same as Level 1 and assist with evacuation	Same as LEVEL 1
LEVEL 3	Same as Level 2 and fire extinguishment / hazard mitigation	One or more qualified fire department personnel. NOTE: An emergency action plan may be required. Established only by fire code official

Table 408.3(2) Fire Watch per occupancy classification. Add a new Table 408.3(2) to read as follows:

Table 408.3 (2) Fire Watch per occupancy classification

Situation	Level of Fire Watch per Occupancy Classification					
	A	B, M	E	H	F, I, R	S
Loss of any required fire protection system	1 or 2	1A	2 ^B	2 or 3	1, 2, or 3	1 ^C , 2 ^D , or 3

Special circumstances such as an occupant load increase, or the nature of the activity.	3	ESTABLISHED ONLY BY THE FIRE CODE OFFICIAL. AS REQUIRED BY FIRE INSPECTION OR OTHER CIRCUMSTANCES
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- a. All building occupants and/or staff must be notified that the system(s) are out of service.
- b. Only while the building is occupied, and all staff must be notified that the system(s) are out of service.
- c. Stocked but no occupants.
- d. During operations.

Section 408.4 Fire Watch fees. Add a new Section 408.4, to read as follows:

408.4 Fire Watch fees. Fire Watch involving fire department personnel shall have fees assessed as set forth in the approved/adopted fee schedule.

Part III – Building and Equipment Design Features

CHAPTER 5 FIRE SERVICE FEATURES

SECTION 501 GENERAL

Section 501.1 Scope. Amend Section 501.1 to read as follows:

501.1 Scope. Fire service features for buildings, structures, and premises shall comply with this chapter and Appendix D.

SECTION 503 FIRE APPARATUS ACCESS ROADS

Section 503.1 Where required. Amend Section 503.1 to read as follows:

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3 and Appendix D.

Section 503.2 Specifications. Amend Section 503.2 to read as follows:

503.2 Specifications. Fire apparatus access roads shall be installed and arranged in accordance with Sections 503.2.1 through 503.2.8 and Appendix D.

Section 503.3 Marking. Amend Section 503.3 to read as follows:

Section 503.3 Marking. Where required by the fire code official, approved signs or other approved notices or markings that include the words “NO PARKING – FIRE LANE” shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility. Markings shall be provided for and maintained in accordance with section D103.6.

Section 503.4 Obstruction of fire apparatus access roads. Amend Section 503.4 to read as follows:

Section 503.4 Obstruction of fire apparatus access roads. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Section 503.2.1, 503.2.2, Appendix D, and any area marked as a fire lane as described in Section 503.3 shall be maintained at all times.

SECTION 505 PREMISES IDENTIFICATION

Section 505.1 Address identification. Amend Section 505.1 to read as follows:

505.1 Address identification. New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 5 inches high with a minimum stroke width of 1/2 inch. Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole, or other sign or means shall be used to identify the structure. Address identification shall be maintained.

Section 505.1.1 Suite numbers. Add a new Section 505.1.1 to read as follows:

505.1.1 Suite numbers. Any area occupied by tenants of a mall or shopping center, or any area used for other than single-unit or multi-unit residential occupancy that abuts a public courtyard or other public space shall be identified by numbers that are a minimum of 4 inches (101.6 mm) in height with a minimum stroke of 1/2 inch (12.7mm) so as to be plainly visible and legible from a distance of at least fifty (50) feet (1.5 m) from the main entrance to the area.

Section 505.1.2 Addressing of rear doors. Add a new Section 505.1.2 to read as follows:

505.1.2 Addressing of rear doors. The rear door entrance of access doors of all malls, strip centers, commercial center buildings and other areas with multi-tenant spaces shall be identified with the appropriate address number and business name. The address numbers and/or letters shall be at least 3 inches (76.2 mm) in height and no less than three-eighths (3/8) inch (9.5 mm) stroke.

SECTION 506 KEY BOXES

Section 506.1 Where required. Amend Section 506.1 to read as follows:

506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for lifesaving, fire-fighting purposes, or where monitored fire protection systems or elevators exist in the building, the fire code official is authorized to require a key box to be installed on new and existing buildings; and in an approved location. The key box shall be of an approved type listed in accordance with UL 1037 and shall contain keys to gain necessary access as required by the fire code official.

SECTION 507 FIRE PROTECTION WATER SUPPLIES

Section 507.3 Fire Flow. Amend Section 507.3 to read as follows:

507.3 Fire Flow. Fire flow requirements for buildings or portion of buildings and facilities shall be determined as outlined in Appendix B of this code.

Section 507.5 Fire hydrant systems. Amend Section 507.5 to read as follows:

507.5 Fire hydrant systems. Fire hydrant systems shall comply with Sections 507.5.1 through 507.5.6, NFPA 24, and Appendix C.

Section 507.5.1 Where required. Amend Section 507.5.1 to read as follows.

507.5.1 Where required. Where a portion of the facility of building hereafter constructed or moved into or within the jurisdiction is more than 400 feet from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.

Exceptions:

1. For Group R3 and Group U occupancies, the distance requirement shall be 500 feet.
2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 500 feet.
3. Use of alternative water supply per NFPA 1142 or the International Wildland-Urban Interface Code as authorized by the fire code official.

Section 507.5.1.1 Hydrant for standpipe. Amend Section 507.5.1.1 to read as follows:

507.5.1.1 Hydrant for standpipe and fire sprinkler systems. Buildings equipped with a standpipe and/or fire sprinkler system installed in accordance with Chapter 9 shall have a fire hydrant within 100 feet (30.4 m) of the fire department connection.

SECTION 509 FIRE PROTECTION AND UTILITY EQUIPMENT IDENTIFICATION AND ACCESS

Section 509.2.1 Clear space. Add Section 509.2.1 to read as follows:

Section 509.2.1 Clear space. A three (3) foot clear space shall be maintained in front of, to the side of, and around, fire protection equipment, to include all fire sprinkler riser assemblies, control valves, fire alarm control panels, fire alarm annunciators, and power supply panels. This clear space shall include an unobstructed path of travel to the fire protection system appurtenances.

SECTION 510 EMERGENCY RESPONDER COMMUNICATION COVERAGE

Section 510.4 Technical requirements. Amend section 510.4 to read as follows:

510.4 Technical requirements. Systems, components, and equipment required to provide the emergency responder radio coverage system shall comply with this section, the published technical and performance rules and regulations of the Pikes Peak Radio Communications Network and NFPA 1225 Standard for Emergency Services Communications.

SECTION 511 FIRE FIGHTER AIR REPLENISHMENT SYSTEMS. ADD A NEW SECTION 511 TO READ AS FOLLOWS:

SECTION 511 FIRE FIGHTER AIR REPLENISHMENT SYSTEMS.

Section 511.1 General. Add a new Section 511.1 to read as follows:

511.1 General. Where required by the fire code official, a fire fighter air replenishment system shall be provided in accordance with Appendix L101.2.

CHAPTER 6 BUILDING SERVICES AND SYSTEMS

SECTION 603 ELECTRICAL EQUIPMENT, WIRING AND HAZARDS

Section 603.5 Relocatable power taps and current taps. Amend Section 603.5 to read as follows:

603.5 Relocatable power taps and current taps. The construction and use of current taps and relocatable taps shall be in accordance with NFPA 70 and this code. Multiplug adapters, such cube adapters, unfused plug strips or any other device not complying with NFPA 70 shall be prohibited.

Section 603.5.2 Application and use. Amend Section 603.5.2 to read as follows:

603.5.2 Application and use. Relocatable power taps and current taps shall be directly connected to a permanently installed receptacle.

SECTION 611 MAGNETIC RESONANCE IMAGING FACILITIES. ADD A NEW SECTION 611 TO READ AS FOLLOWS:

SECTION 611 MAGNETIC RESONANCE IMAGING FACILITIES

Section 611.1 General. Add a new Section 611.1 to read as follows:

611.1 General. Magnetic resonance imaging (MRI) facilities shall be inspected, tested, and maintained in accordance with the most current American College of Radiology (ACR) safety Guidelines and NFPA 99 Health Care Facilities Code.

Exception: As approved by the fire code official, existing facilities may comply with the edition in effect at the time of installation.

Section 611.2 Records. Add a new Section 611.2 to read as follows:

611.2 Records. Records shall be maintained of all testing and repair conducted on the MRI device/facility and associated devices and equipment. Records shall be available to the fire code official.

Section 611.3 Zones. Add a new Section 611.3 to read as follows:

611.3 Zones. All MRI Zones shall be clearly established within the facility with proper signage per the ACR.

Section 611.4 Signage. Add a new Section 611.4 to read as follows:

611.4 Signage. In addition to the ACR required signage an NFPA 704 shall be required at the entry to the MRI Level IV zone.

Section 611.4.1 Size. Add a new Section 611.4.1 to read as follows:

611.4.1 Size. The NFPA 704 signage at the MRI level IV Zone shall be a minimum of 7-1/2 IN x 7-1/2 IN with each individual block being a minimum of 3-1/4 IN x 3-1/4 IN. The following shall be in each individual block. Blue-2, Red-0, Yellow-0, White MRI.

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

CHAPTER 8 INTERIOR FINISH, DECORATIVE MATERIALS, AND FURNISHINGS

SECTION 806 NATURAL DECORATIVE VEGETATION IN NEW AND EXISTING BUILDINGS

Section 806.5 Maintenance. Add a new Section 806.5 to read as follows:

806.5 Maintenance. Live natural vegetation shall be maintained. Dried out dead vegetation shall be removed.

CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION 901 GENERAL

Section 901.1.1 Approved Contractors. Add a new Section 901.1.1 to read as follows:

901.1.1 Approved Contractors. All fire protection systems and appliances referenced by this code shall be designed, installed, repaired, inspected, tagged, and maintained by an approved licensed contractor. Private fire hydrants shall be inspected and maintained by an approved licensed contractor.

Exceptions:

1. Non-rechargeable portable fire extinguishers are permitted to be inspected by a property owner or management company representative. These individuals are not required to maintain an FSC-D license or Service Technician D. Companies conducting inspections on fire extinguishers shall maintain a current copy of NFPA 10 Standard for Portable Fire Extinguishers as a reference for inspection requirements and shall maintain records of annual inspections as required by NFPA 10.
2. New portable fire extinguishers may be installed and tagged by a general contractor, or a business owner/manager without requiring a fire suppression contractor license.
3. The monthly inspection of portable fire extinguishers required by NFPA 10 Standard for Portable Fire Extinguishers, does not have to be performed by a licensed fire suppression contractor.

Section 901.3.1 Administrative permits. Add a new Section 901.3.1 to read as follows:

901.3.1 Administrative permits. Any additions or remodeling to existing commercial sprinkler systems involving 20 sprinkler heads or less, fire alarm systems involving 5 devices or less, or temporary removal of system components during construction, will not require a construction permit when approved by the fire code official. The approved letters shall become the de-facto permit for the scope of work described therein. The letter submittal and review process shall comply with the guidance documents provided by the fire code official.

Section 901.4.8 System replacement. Add a new Section 901.4.8 to read as follows:

901.4.8 System replacement. Where a fire protection or life safety system is being replaced, the system shall be designed and installed per the current edition of the appropriate NFPA standard. Replacement of fire alarm control units (FACU) shall fall under one of the following conditions:

1. Failure due to damage or age and cannot be repaired or replaced with an identical unit. If the new FACU is not listed as compatible with the remaining existing devices, components, or equipment, the existing required fire alarm system no longer functions as originally designed and installed and the entire system must be brought up to compliance with currently adopted codes and standards.

2. Building or system expansion or modification. If the existing FACU cannot support additional components or equipment resulting from a system expansion of building modification and a new FACU is not listed as compatible with the existing devices, components, or equipment the existing required system must be brought up to compliance with the currently adopted codes and standards.
3. Voluntary replacement. If a new FACU is desired, and one cannot be found that is compatible with the existing devices, components, or equipment, the system must either be left in place as-is or brought up to compliance with currently adopted codes and standards.

Section 901.7 System out of service. Amend Section 901.7 to read as follows:

901.7 Systems out of service. Where a required fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall be either evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shutdown until the fire protection system has been returned to service.

Where utilized, fire watches shall be provided with not less than one approved means for notification of the fire department, and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires. Follow fire watch requirements as required in section 408.

Exception: Facilities with an approved notification and impairment management program. The notification and impairment program for water-based fire protection systems shall comply with NFPA 25

Section 901.7.7 Permanent removal from service. Add a new Section 901.7.7 to read as follows:

901.7.7 Permanent removal from service. When a fire protection system is permanently removed from service it shall be completely removed from the structure, to include all valves, panels, devices, appliances, wiring, piping, appurtenances, fire department connections, etc. The only portion of the system permitted to remain includes portions concealed in walls or ceilings. The water riser stub coming out of the ground and associated fire line shall be abandoned in accordance with the responsible water district standards. A construction permit per 105.6.26 is required prior to any system removal.

SECTION 903 AUTOMATIC SPRINKLER SYSTEM

Section 903.2.4 Group F-1. Amend Section 903.2.4 to read as follows:

903.2.4 Group F-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

1. A Group F-1 fire area exceeds 12,000 square feet.
2. A Group F-1 fire area is located more than three stories above grade plane.

3. The combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet.
4. A Group F-1 occupancy used to manufacture lithium-ion or lithium metal batteries.
5. A Group F-1 occupancy used to manufacture vehicles, energy storage systems or equipment containing lithium-ion or lithium metal batteries where the batteries are installed as part of the manufacturing process.

Section 903.2.7.3 Lithium-ion or lithium metal battery storage. Add a new Section 903.2.7.3 to read as follows:

903.2.7.3 Lithium-ion or lithium metal battery storage. An automatic sprinkler system shall be provided in a room or space within a Group M occupancy where required for the storage of lithium-ion or lithium metal by Section 322 or Chapter 32 of this code.

Section 903.2.9 Group S-1. Amend Section 903.2.9. to read as follows:

903.2.9 Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 12,000 square feet.
2. A Group S-1 fire area is located more than three stories above grade plane.
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet.
4. A Group S-1 fire area used for the storage of commercial motor vehicles where the fire area exceeds 5,000 square feet.
5. A Group S-1 fire area used for the storage of lithium-ion or lithium metal powered vehicles where the fire area exceeds 500 square feet.

Section 903.2.9.1 Repair garages. Amend Section 903.2.9.1 to read as follows:

903.2.9.1 Repair garages. An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with Section 406.8 of the International Building Code, as shown:

1. Buildings having two or more stories above grade plane, including basements, with a fire area containing a repair garage exceeding 10,000 square feet.
2. Buildings not more than one story above grade plane, with a fire area containing a repair garage exceeding 12,000 square feet.
3. Buildings with repair garages servicing vehicles parked in basements.
4. A Group S-1 fire area used for the repair of commercial motor vehicles where the fire area exceeds 5,000 square feet.

5. A Group S-1 fire area used for the repair of vehicles powered by lithium-ion or lithium metal batteries that exceed 500 square feet.

Section 903.2.11.1.4 Lithium battery laboratories. Add a new Section 903.2.11.1.4 to read as follows:

903.2.11.1.4 Lithium battery laboratories; research and development or testing. An automatic sprinkler system shall be installed throughout the fire areas utilized for the research and development or testing of lithium-ion or lithium metal batteries.

Section 903.3.1.1 NFPA 13 sprinkler system. Amend Section 903.3.1.1 to read as follows:

903.3.1.1 NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Sections 903.3.1.1.1 and 903.3.1.1.3.

Section 903.3.1.1.1 Exempt locations. Amend Section 903.3.1.1.1 to read as follows:

903.3.1.1.1 Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved monitored automatic fire detection system in accordance with Section 907.2 and NFPA 72 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from a room merely because it is damp, of fire-resistance-rated construction, or contains electrical equipment.

1. A room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. A room or space where sprinklers are considered undesirable because of the nature of the contents, where approved by the fire code official.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than 2 hours.
4. Safe deposit or other vaults of fire-resistive construction when used for the storage of records, files, and other documents, when stored in metal cabinets.
5. Elevator machine rooms, provided all of the following are met:
 - 5.1. The elevator equipment is to be installed within an enclosure having a fire-resistive rating no less than that specified by the International Building Code
 - 5.2. No combustible storage is permitted to be stored in the room.
 - 5.3. A portable fire extinguisher rated not less than 2A:20BC is provided at the door giving access into the room.

Section 903.3.1.1.3 Shell building design. Add a new Section 903.3.1.1.3 to read as follows:

903.3.1.1.3 Shell building design. Fire sprinkler systems in shell buildings, other than specified as a Group B Occupancy, shall be designed according to the requirements set forth in NFPA 13 for Ordinary Hazard Group II criteria.

Section 903.3.1.1.4 Lithium-ion or lithium metal batteries. Add a new Section 903.3.1.1.4 to read as follows:

903.3.1.1.4 Lithium-ion or lithium metal batteries. Where automatic sprinkler systems are required by this code for areas containing lithium-ion or lithium metal batteries, the design of the system shall be installed in accordance with Section 322.4.2.

903.3.5.2 Residential combination services. Amend Section 903.3.5.2 to read as follows:

903.3.5.2 Residential combination services. A single combination water supply shall be permitted provided that the domestic demand is added to the sprinkler demand as required by NFPA 13D.

Section 903.3.5.3 Dead-end fire service mains. Add new Section:903.3.5.3 to read as follows:

903.3.5.3 Dead-end fire service mains. Unless approved by the fire code official, dead-end fire service mains shall not be used when there is not a reliable secondary or redundant means of water supply within 500 feet of a structure along an approved route.

Section 903.3.5.4 Safety factor in hydraulic information. Add a new Section 903.3.5.4 to read as follows:

903.3.5.4 Safety factor in hydraulic information. A safety factor of 10% shall be incorporated into the fire flow information when designing water-based fire suppression systems.

Section 903.4 Sprinkler system supervision and alarms. Amend Section 903.4 to read as follows:

903.4 Sprinkler system supervision and alarms. Valves controlling the water supply for automatic sprinkler systems, pumps, tanks, water levels and temperatures, critical air pressures and waterflow switches on all sprinkler systems shall be electrically supervised by a listed fire alarm control unit.

Exceptions:

1. Automatic sprinkler systems protecting one- and two-family dwellings.
2. Limited area sprinkler systems in accordance with Section 903.3.8.
3. Automatic sprinkler systems installed in accordance with NFPA ~~43R~~ 13D where a common supply main is used to supply both domestic water and the automatic sprinkler system, and a separate shutoff valve for the automatic sprinkler system is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths, or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, pre-action, and deluge sprinkler systems that are sealed or locked in the open position.

8. Underground key or hub gate valves in roadway boxes.

Section 903.4.2 Alarms. Amend Section 903.4.2 to read as follows:

903.4.2 Alarms. An approved audible and visual device, located on the exterior of the building in an approved location, shall be connected to each automatic sprinkler system. Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system.

Section 903.4.2.1 Waterflow alarm systems. Add a new Section 903.4.2.1 to read as follows:

903.4.2.1 Waterflow alarm systems. Additional initiating and/or notification devices may be required by the fire code official in normally occupied areas. To include separated occupancies being served by the same automatic sprinkler system.

SECTION 904 ALTERNATIVE AUTOMATIC FIRE-EXTINGUISHING SYSTEMS

Section 904.2.1 Restriction. Amend Section 904.2.1 to read as follows:

904.2.1 Restriction on using automatic sprinkler system exceptions or reductions. Automatic fire-extinguishing systems shall not be considered alternatives for the purposes of exceptions or reductions permitted for automatic sprinkler systems or by other requirements of this code.

Exception: Data and/or server rooms not exceeding 800 square feet, protected with only an alternative extinguishing system.

Section 904.13.2 System interconnection. Amend Section 904.13.2 to read as follows:

904.13.2 System interconnection. The actuation of the fire extinguishing system shall automatically shut down the fuel and/or electrical power supply to the cooking equipment; any electrical receptacles under the hood and any receptacle that could be used to power equipment located under the hood shall also be shut down. The fuel and electrical power supply reset shall be manual.

Section 904.13.2.1 Ventilation. Add a new Section 904.13.2.1 to read as follows:

904.13.2.1 Ventilation system interconnection. Upon activation of the fire suppression systems, the exhaust for the hood shall remain on.

Section 904.13.6 Monitoring. Add a new Section 904.13.6 to read as follows:

904.13.6 Monitoring. Where an occupancy is equipped with a fire alarm system in accordance with this code, the cooking system shall be connected to the building fire alarm.

SECTION 905 STANDPIPE SYSTEMS

Section 905.3.1 Height Class III. Amend Section 905.3.1 to read as follows:

905.3.1 Height Class I. standpipe systems shall be installed throughout a building where any of the following conditions exist:

1. Four or more stories are above or below grade plane.
2. The floor level of the highest story is located more than 30 feet above the lowest level of fire department vehicle access.
3. The floor level of the lowest story is located more than 30 feet below the highest level of fire department vehicle access.

Exceptions:

1. Class I standpipes are permitted in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Class I standpipes are permitted in Group and E occupancies.
3. Class I standpipes are permitted in parking garages.
4. Class I standpipes are permitted in basements equipped throughout with an automatic sprinkler system.
5. Class I standpipes are permitted in buildings where occupant-use hose lines will not be utilized by trained personnel or the fire department.
6. In determining the lowest level of fire department vehicle access, it shall not be required to consider either of the following:
 - 6.1. Recessed loading docks for four vehicles or less.
 - 6.2. Conditions where topography makes access from the fire department vehicle to the building impractical or impossible.

Section 905.3.4 Stages. Amend Section 905.3.4 to read as follows:

905.3.4 Stages. Stages greater than 1,000 square feet in area shall be equipped with a Class I wet standpipe system with 2½ inch hose connections on each side of the stage.

Section 905.3.4.1 Hose and cabinet. Delete Section 905.3.4.1 in its entirety:

Section 905.3.6 Helistops and heliports. Amend Section 905.3.6 to read as follows:

905.3.6 Helistops and heliports. Buildings with a rooftop helistop or heliport shall be equipped with a Class I standpipe system extended to the roof level on which the helistop or heliport is located in accordance with Section 2007.5.

Section 905.3.8 Landscaped roofs. Amend Section 905.3.8 to read as follows:

905.3.8 Landscaped roofs. Buildings or structures that have landscaped roofs and that are equipped with a standpipe system shall have the standpipe system extended to the roof level on which the rooftop garden or landscaped roof is located. Roof top valves shall be protected from tampering.

Section 905.4 Location of Class I standpipe hose connections. Amend Section 905.4 to read as follows:

905.4 Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required interior exit stairway, a hose connection shall be provided for each story above and below grade plane. Hose connections shall be located on an intermediate landing unless otherwise approved by the fire code official.

Exceptions:

1. A single hose connection shall be permitted to be installed in the open corridor or open breezeway between open stairs that are not greater than 75 feet apart.
2. Where stairways are constructed with a vestibule in accordance with the International Building Code, the hose connections may be installed inside the floor level vestibule.
2. On each side of the wall adjacent to the exit opening of a horizontal exit.

Exception: where floor area adjacent to a horizontal exit are reachable from an interior exit stairway hose connection by a 30-foot hose stream from a nozzle attached to 100 feet of hose, a hose connection shall not be required at the horizontal exit.

3. In every exit passageway, at the entrance from the exit passageway to other areas of a building. Exception: Where floor areas adjacent to an exit passageway are reachable from an interior exit stairway hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building.
4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an exit passageway or exit corridor to the mall. In open mall buildings, adjacent to each public entrance to the mall at the perimeter line and adjacent to each entrance from an exit passageway or exit corridor to the mall.
5. Where the roof has a slope less than 4 units vertical in 12 units horizontal (33.3-percent slop), a hose connection shall be located to serve the roof or at the highest landing of an interior exit stairway with access to the roof provided in accordance with Section 1011.2.
6. Where the most remote portion of a non-sprinklered floor or story is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or story is more than 200 feet (60 960 mm) from a hose connection, the fire code official is authorized to require that additional hose connections be provided in approved locations.

SECTION 906 PORTABLE FIRE EXTINGUISHERS

Section 906.1 Where required. Amend Section 906.1 to read as follows:

906.1 Where required. Portable fire extinguishers shall be installed in all of the following locations:

1. In new and existing Group, A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

Exceptions:

1. In group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B: C.
2. In Group E occupancies portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each classroom is provided with a portable fire extinguisher having a minimum rating of 2-A:20-B: C.
3. In storage areas of Group S occupancies where forklift powered industrial truck or powered cart operators are the primary occupants, fixed extinguishers, as specified in NFPA 10, shall not be required where in accordance with all of the following:
 - 3.1. Use of vehicle-mounted extinguishers shall be approved by the by the fire code official.
 - 3.2. Each vehicle shall be equipped with a 10-pound, 40A:80B:C extinguisher affixed to the vehicle using a mounting bracket approved by the extinguisher manufacturer of the fire code official for vehicular use.
 - 3.3. Not less than two spare extinguishers of equal or greater rating shall be available onsite to replace a discharged extinguisher.
 - 3.4. Vehicle operators shall be trained in the proper operation, use and inspection of extinguishers.
 - 3.5. Inspections of vehicle-mounted extinguishers shall be performed daily.
2. Within 30 feet (9144 mm) distance of travel from commercial cooking equipment and from domestic cooking equipment in Group I-1; I-2, Condition 1; and R-2 college dormitory occupancies.
3. In areas where flammable or combustible liquids are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 3316.1
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.
7. Main electrical rooms not provided with fire sprinklers.

Section 906.2.1. Amend Section 906.2.1 by adding an exception, to read as follows:

906.2.1 Certification of service personnel for portable fire extinguishers. Service personnel providing or conducting maintenance on portable fire extinguishers shall possess a valid certificate issued by an approved governmental agency, or other approved organization for the type of work performed.

Exception: Certification or licensing is not required for fire authorities or their employees who are maintaining and recharging air-pressurized water (APW) extinguishers which are the property of the fire authority.

Section 906.5.1 Storage of extinguishers. Add a new Section 906.5.1 to read as follows:

906.5.1 Storage of extinguishers. Occupancies that store used, or serviced extinguishers shall have a storage closet or cabinet, enclosed by a solid surface, or by other means determined by the fire code official.

SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

Section 907.1 General. Amend Section 907.1 to read as follows:

907.1 General. This section covers the application, installation, performance, and maintenance of fire alarm systems and their components in new and existing buildings and structures. The requirements of Section 907.2 apply new buildings and structures, new fire alarm systems in existing buildings, and complete fire alarm system replacements. The requirements of Section 907.9 are applicable to new and existing buildings and structures.

Section 907.2 Where required. Amend Section 907.2 to read as follows:

907.2 Where required – new buildings and structures. An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.25.1 and provide occupant notification in accordance with Section 907.5 unless other requirements are provided by another section of this code.

Not fewer than one manual fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow the elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

Exceptions:

1. The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory service.
2. The manual fire alarm box is not required for Group R-2 occupancies unless required by the fire code official to provide a means for fire watch personnel to initiate an alarm during a sprinkler system impairment event. Where provided, the manual fire alarm box shall not be located in an area that is open to the public.

Section 907.2.2.2 Laboratories. Add a new Section 907.2.2.2 to read as follows:

907.2.2.2 Lithium battery laboratories; research and development or testing. A fire alarm system shall be installed throughout the fire areas utilized for the research and development or testing of lithium-ion or lithium metal batteries.

Section 907.2.4.1 Manufacturing involving lithium-ion or lithium metal batteries. Add a new Section 907.2.4.1 to read as follows:

907.2.4.1 Manufacturing involving lithium-ion or lithium metal batteries. The fire alarm systems shall be required and designed in accordance with Section 322.4.2.

Section 907.2.6.2 Group I-2. Amend Section 907.2.6.2 to read as follows:

907.2.6.2 Group I-2. An automatic smoke detection system shall be installed in corridors in Group I-2, Condition 1 facilities, and spaces permitted to be open to the corridors by Section 407.2 of the International Building Code. The system shall be activated in accordance with Section 907.4. Group I-2, Condition 2 occupancies shall be equipped with an automatic smoke detection system as required in Section 407 of the International Building Code.

Exceptions:

1. Corridor smoke detection is not required in smoke compartments that contain sleeping units where such units are provided with addressable smoke detectors that comply with UL 268. Such detectors shall provide an audible and visual alarm at the care providers' station attending each unit.
2. Corridor smoke detection is not required in smoke compartments that contain sleeping units where sleeping unit doors are equipped with automatic door-closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.

Section 907.2.7.2 Storage of lithium-ion or lithium metal batteries. Add a new Section 907.2.7.2 to read as follows:

907.2.7.2 Storage of lithium-ion or lithium metal batteries. The fire alarm systems shall be required in accordance with Section 322 and designed in accordance with Section 322.4.2.

Section 907.2.10.1 Storage of lithium-ion or lithium metal batteries. Add a new Section 907.2.10.1 to read as follows:

907.2.10.1 Storage of lithium-ion or lithium metal batteries. The fire alarm systems shall be required and designed in accordance with Section 322.4.2.

Section 907.2.24 Main electrical rooms. Add a new Section 907.2.24 to read as follows:

907.2.24 Main electrical rooms. Main electrical rooms permitted to be non-sprinklered under NFPA 13 shall be provided with an approved monitored automatic smoke detection system installed in accordance with NFPA 72 and electronically supervised by an approved supervising station in accordance with this code.

Section 907.4.4 Lithium-ion or lithium metal batteries. Add a new Section 907.4.4 to read as follows:

907.4.4 Lithium-ion or lithium metal batteries. Where fire alarm systems are required by this code for areas containing lithium-ion or lithium metal batteries, the design of the system shall be installed in accordance with Section 322.4.2.

Section 907.5.2.2 Emergency voice/alarm. Amend Section 907.5.2.2 to read as follows:

907.5.2.2 Emergency voice/alarm communication systems. Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler water-flow device, or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving approved information and directions on a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on at least the alarming floor, the floor above, the floor below, the main ground level, and the highest occupied floor. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. Exit stairways.
3. Each floor.
4. Areas of refuge as defined in Chapter 2.

SECTION 910 SMOKE AND HEAT REMOVAL

Section 910.3.5 Fusible link temperature rating. Amend Section 910.3.5 to read as follows:

910.3.5 Fusible link temperature rating. Where vents are installed in areas provided with automatic fire sprinklers and the vents operate by a fusible link, the fusible link shall have a temperature rating of at least 100 F above the operating temperature of the fire sprinklers.

SECTION 912 FIRE DEPARTMENT CONNECTIONS

Section 912.2.3 Multiple Fire Departments Connections (FDC). Add a new Section 912.2.3 to read as follows:

912.2.3 Multiple Fire Department Connections (FDC). When the demand of a sprinkler system exceeds 1,500 gallons per minute, additional fire department connections shall be provided and located as required by the fire code official. All FDC's shall be of equal capacity.

SECTION 914 FIRE PROTECTION BASED ON SPECIAL DETAILED REQUIREMENTS OF USE AND OCCUPANCY

Section 914.12 Extraction operations. Add a new Section 904.12 to read as follows:

914.12 Extraction operations. Extraction rooms, booths, or hoods, including ductwork where required for hazardous exhaust systems, shall be protected by an approved automatic fire-extinguishing system complying with Chapter 9 where any of the following exist:

1. Extraction processes utilizing flammable and/or combustible materials, or off-gassing flammable vapors from spent plant material or oil.
2. Vapors are released exceeding 25% of the lower flammable limit from flammable liquid extraction processes or flammable liquid post-oil processing.

Section 916.6.1. Add a new table 916.1 to read as follows:

Table 916.6.1 Location for Gas Detection Sensors

GAS NAME	SPECIFIC GRAVITY	DETECTOR LOCATION
<i>Lighter than Air</i>		
Ammonia	0.6	12 to 18 Inches from Ceiling
Helium	0.14	12 to 18 Inches from Ceiling
Hydrogen	0.07	12 to 18 Inches from Ceiling
Methane	0.55	12 to 18 Inches from Ceiling
Neon	0.69	12 to 18 Inches from Ceiling
<i>Neutrally Buoyant</i>		
Ambient Air	1	
Acetylene	0.91	48 to 75 Inches from the Floor
Carbon Monoxide	0.97	48 to 75 Inches from the Floor
Nitrogen	0.97	48 to 75 Inches from the Floor
Oxygen	1.1	48 to 75 Inches from the Floor
<i>Heavier than Air</i>		
Argon	1.38	12 to 18 Inches from the Floor
Carbon Dioxide	1.52	12 to 18 Inches from the Floor
Chlorine	2.5	12 to 18 Inches from the Floor
Ozone	1.65	12 to 18 Inches from the Floor
Propane (LPG)	1.5	12 to 18 Inches from the Floor
Krypton	2.89	12 to 18 Inches from the Floor
Refrigerant R-22	3	12 to 18 Inches from the Floor
Refrigerant R-134A	3.5	12 to 18 Inches from the Floor
Refrigerant R-410A	3	12 to 18 Inches from the Floor

Sulfur Dioxide	2.25	12 to 18 Inches from the Floor
Xenon	4.53	12 to 18 Inches from the Floor

CHAPTER 10 MEANS OF EGRESS

SECTION 1009 ACCESSIBLE MEANS OF EGRESS

Section 1009.8 Two-way communication. Amend Section 1009.8 to read as follows:

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1, 1009.8.2, and NFPA 72 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the level of exit discharge.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within areas of refuge in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with ramps conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible means of egress or serve as part of the required accessible route into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.
6. Two-way communication systems are not required in Group I-2 or I-3 facilities.

CHAPTER 11 CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

SECTION 1101 GENERAL

Section 1101.4.4 Variance. Add a new Section 1101.4.4 to read as follows:

1101.4.4 Variance. The authority having jurisdiction (AHJ) may issue a variance to any of the provisions of Chapter 11 where it is not practical or poses an undue hardship. Granting of a variance

shall be based on showing of good cause and a request shall be made in writing from the building owner.

SECTION 1107 EXISTING HIGH PILED STORAGE FACILITIES. ADD A NEW SECTION 1107 TO READ AS FOLLOWS:

SECTION 1107 EXISTING HIGH PILED STORAGE FACILITIES

Section 1107.1 Scope. Add a new Section 1107.1 to read as follows:

1107.1 Scope. Existing buildings utilizing high pile storage defined by Chapter 32 in which no official record exists; such as certificate of occupancy, fire department records, or similar verifying high pile use, the building shall comply with this section.

Section 1107.2 General. Add a new Section 1107.2 to read as follows:

1107.2 General. Based on the storage arrangement and commodity class, existing buildings shall comply with Table 3206.2.

Section 1107.3 Performance requirements. Add a new Section 1107.3 to read as follows.

1107.3 Performance requirements. Where structural limitations, as determined by an engineering analysis by a Colorado registered structural engineer, prohibits compliance with Chapter 32, storage arrangement and commodity class shall be in compliance with 104.9 of this code. Such performance alternatives shall be submitted for review and approved by the fire code official.

SECTION 1108 EXISTING ELECTRICAL ENERGY STORAGE SYSTEMS. ADD A NEW SECTION 1108 TO READ AS FOLLOWS:

SECTION 1108 EXISTING ELECTRICAL ENERGY STORAGE SYSTEMS

Section 1108.1 Scope. Add a new Section 1108.1 to read as follows:

1108.1 Scope. Existing buildings utilizing existing electrical energy storage systems (ESS) as defined by Section 1207, shall comply with this section.

Section 1108.2 Permit. Add a new Section 1108.2 to read as follows:

1108.2 Permit. An operational permit will be required per Section 105.5.14.

Section 1108.2.1 Permit requirements. Add a new Section 1108.2.1 to read as follows:

1108.2.1 Permit requirements. In order to obtain an operational permit, the following must be reviewed and approved by the fire code official:

1. Hazard mitigation analysis per Section 1207.1.4.
2. Fire remediation plan per Section 1207.1.6.
3. Decommissioning plan per Section 1207.2.3.

Section 1108.3 Repairs. Add a new Section 1108.3 to read as follows:

1108.3 Repairs. Repairs of ESS systems with OEM compatible parts shall comply with Section 1207.3.6.

Section 1108.4 System replacement. Add a new Section 1108.4 to read as follows:

1108.4 System Replacement. Replacement of ESS systems shall comply with Section 1207.3.8.

Section 1108.5 Inspection and testing. Add a new Section 1108.5 to read as follows:

1108.5 Inspection and testing. Inspection and testing of existing ESS systems shall comply with Section 1207.2.2.1.

CHAPTER 12 ENERGY SYSTEMS

SECTION 1207 ELECTRICAL ENERGY STORAGE SYSTEMS (ESS)

Section 1207.1 Scope. Amend Section 1207.1 to read as follows:

1207.1.1 Scope. ESS having capacities exceeding the values shown in Table 1207.1.1 shall comply with this section and NFPA 855 Standard for the Installation of Stationary Energy Storage Systems as required by the fire code official.

CHAPTER 13 RESERVED

CHAPTER 14 RESERVED

CHAPTER 15 RESERVED

CHAPTER 16 RESERVED

CHAPTER 17 RESERVED

CHAPTER 18 RESERVED

CHAPTER 19 RESERVED

PART IV – SPECIAL OCCUPANCIES AND OPERATIONS

CHAPTER 20 AVIATION FACILITIES

SECTION 2006 AIRCRAFT FUELING

Section 2006.4.1.1 Documentation. Add a new Section 2006.4.1.1 to read as follows:

2006.4.1.1 Documentation. A vehicle maintenance checklist for aircraft-fueling vehicles shall be documented on a daily basis by the apparatus operator, in accordance with current Air Transport Association (ATA) Specification form 103.04A.

SECTION 2007 HELISTOPS AND HELISPORTS

Section 2007.1 General. Amend Section 2007.1 to read as follows:

2007.1. General. Helistops and heliports shall be maintained in accordance with Sections 2007.2 through 2007.8. Helistops and heliports on buildings shall be constructed in accordance with the International Building Code, and NFPA 418 Standard for Heliports.

Section 2007.5 Standpipe systems. Amend Section 2007.5 to read as follows:

2007.5 Standpipe systems. A building with a rooftop helistop or heliport shall be provided with a Class I standpipe system extended to the roof level on which the helistop or heliport is located. All portions of the helistop and heliport area shall be within 150 feet of a 2½-inch outlet on the standpipe system.

CHAPTER 21 DRY CLEANING

CHAPTER 22 COMBUSTIBLE DUST PRODUCING FACILITIES

CHAPTER 23 MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES

SECTION 2303 LOCATION OF DISPENSING DEVICES

Section 2303.2 Emergency disconnect switches. Amend Section 2303.2 to read as follows:

2303.2. Emergency disconnect switches. Approved, clearly identified, and readily accessible emergency disconnect switches shall be provided at approved locations to stop the transfer of fuel to the fuel dispensers in the event of a fuel spill or other emergency.

Two emergency disconnect switches for exterior fuel dispensers shall be required as follows:

1. Exterior: Shall be located within 100 feet (30.4 m) of, but not less than 20 feet (6 m) from, the fuel dispensers. The switch shall be a mushroom-style switch/ that is readily accessible and must cut off power to all dispensers and pumps.
2. Interior: Shall be located at the attendant duty location. The switch shall be a mushroom-type switch/button which will shut off the flow of fuel and cut off power to all dispensers and pumps.
3. Emergency disconnect switches shall shut off the power in conformance with NFPA 70 and NFPA 30A.
4. Emergency controls shall be of a type that is only manually resettable.

For interior fuel-dispensing operations, the emergency disconnect switch shall be installed at an approved location along the path of egress.

Section 2303.2.2 Emergency disconnect switch signage. Add a new Section 2303.2.2 to read as follows:

2303.2.2 Emergency disconnect switch signage. Signs shall be provided in approved locations and of the legible size as follows:

1. Interior: At least 1 inch (25.2 mm) in height and 1/8-inch (3.175 mm) stroke red on white background.
2. Exterior: At least 2 inches (51 mm) in height and 1/4-inch (6.35 mm) stroke red on white background.

CHAPTER 24 FLAMMABLE FINISHES

CHAPTER 25 FRUIT CROP RIPENING

CHAPTER 26 FUMIGATION AND INSECTICIDAL FOGGING

CHAPTER 27 SEMICONDUCTOR FABRICATION FACILITIES

CHAPTER 28 LUMBER YARDS

CHAPTER 29 MANUFACTURE OF ORGANIC COATINGS

CHAPTER 30 INDUSTRIAL OVENS

CHAPTER 31 TENTS, TEMPORARY SPECIAL EVENT STRUCTURES

CHAPTER-32 HIGH-PILED COMBUSTIBLE STORAGE

SECTION 3201 GENERAL

Section 3201.5 Facility closure. Add a new Section 3201.5 to read as follows:

3201.5. Facility closure. Facilities containing permitted high-piled storage areas, that are no longer utilizing high-piled storage practices shall comply with sections 3201.5.1 through 3201.5.2.

Section 3201.5.1 Temporarily out-of-service facilities. Add a new Section 3201.5.1 to read as follows:

3201.5.1. Temporarily out-of-service facilities. Facilities without a high-piled combustible storage operational permit; containing fire protection systems not being monitored or inspected on a regular basis shall be deemed permanently out of service and shall be closed in an approved manner complying with section 3201.5.2. Highpiled combustible storage facilities that do not meet this section are considered temporarily out of service and shall continue to maintain a permit, monitoring, and inspections.

Section 3201.5.2 Facility closure plan. Add a new Section 3201.5.2 to read as follows:

3201.5.2. Facility closure plan. When a high-piled combustible storage facility is considered for permanent closure as defined in Section 3201.5.1, the permit holder for the facility shall apply for closure approval by submitting an application to the fire code official a minimum of 30 days prior to facility closure. The closure plan shall be finalized by an owner/operator scheduled inspection to verify compliance with the application and close out the operational permit.

SECTION 3205 HOUSEKEEPING AND MAINTENANCE

Section 3205.7 Designation. Amend Section 3205.7 to read as follows:

3205.7 Designation of storage heights. Where required by the fire code official, an approved visual method of indicating the maximum allowable storage height shall be provided.

SECTION 3211 BUILDINGS CONTAINING AREAS CAPABLE OF ACCOMMODATING HIGH PILE COMBUSTIBLE STORAGE. ADD A NEW SECTION 3211 TO READ AS FOLLOWS:

SECTION 3211 BUILDINGS CONTAINING AREAS CAPABLE OF ACCOMMODATING HIGH PILE COMBUSTIBLE STORAGE

Section 3211.1 General. Add a new Section 3211.1 to read as follows:

3211.1 General. Any building containing an area capable of high piled storage, but otherwise not meeting definitions and/or requirements of this chapter, shall be maintained in accordance with section 3211.2.

Section 3211.2 Designation of storage heights. Add a new Section 3211.2 to read as follows:

3211.2 Designation of storage heights. Areas capable of high piled combustible storage, but currently not being utilized as such, shall have visual storage height limits displayed in accordance with Section 3205.7.

SECTION 3212 EXISTING BUILDINGS. ADD A NEW SECTION 3212 TO READ AS FOLLOWS:
SECTION 3212 EXISTING BUILDINGS

Section 3212.1 General. Add a new Section 3212.1 to read as follows:

3212.1 General. Existing facilities containing high piled combustible storage areas shall be in accordance with Section 1107.

CHAPTER 33 FIRE SAFETY DURING CONSTRUCTION & DEMOLITION

SECTION 3301 GENERAL

Section 3301.1 Scope. This chapter shall apply to structures in the course of construction, alteration or demolition, including those in underground locations. Compliance with NFPA 241 is required for items not specifically addressed herein. This scope applies to commercial, multi-family residential, and townhouse developments.

Exception: One and Two-Family Dwellings, not including townhouses as specified above, shall comply with Chapter 33 but shall be exempt from sections 3303.1, 3303.1.1, 3303.2, and 3303.3.

SECTION 3303 OWNER'S RESPONSIBILITY FOR FIRE PROTECTION

Section 3303.3.1 Violations. Delete Section 3303.3.1 in its entirety.

SECTION 3311 ACCESS FOR FIRE FIGHTING

3311.1.1 Minimum specifications for temporary roads. Add a new Section 3311.1.1 to read as follows:

3311.1.1. Minimum specifications for temporary roads. Temporary access roads shall be an all-weather surface comprised of either the first lift of asphalt or concrete/compacted gravel to a thickness capable of supporting the imposed loads of fire department apparatus. A 20-ft minimum width shall be maintained unless the permanent road is designed less than 20-ft, in which case the temporary road shall be the intended width of the permanent road. Adequate street signs and fire lane signs shall be installed where applicable. Temporary access roads must be approved by the fire code official and maintained in accordance with this section.

SECTION 3312 MEANS OF EGRESS

Section 3312.1 Stairways required. Amend Section 3312.1 to read as follows:

3312.1 Stairways required. Where building construction exceeds 30 feet to an occupiable floor level in height above the lowest level of fire department vehicle access, a temporary or permanent stairway shall be provided. As construction progresses, such stairways shall be extended to within one floor of the highest point of construction having secured decking or flooring.

SECTION 3313 WATER SUPPLY FOR FIRE PROTECTION

Section 3313.2 Combustible building materials. Amend Section 3313.2 to read as follows:

3313.2 Combustible building materials. When combustible building materials of the building under construction are delivered to a site, a minimum fire flow of that equal to the building size and type referenced in Table B105.1(2) shall be provided. The fire hydrants used to provide this fire-flow supply shall be within the requirements of Table C102.1 of the combustible building materials, as measured along an approved fire apparatus access lane.

Section 3313.3.1 Fire separation up to 30 feet. Amend Section 3303.3.1 to read as follows:

3313.3.1 Fire separation up to 30 feet. Where a building of Type III, IV, or V construction has a fire separation distance of less than 30 feet from property lot lines, and an adjacent property has an existing structure or otherwise can be built on, the water supply shall provide the minimum fire flow of that equal to the building size and type referenced in Table B105.1(2) for the building.

Section 3313.3.2 Fire separation of 30 feet up to 60 feet. Amend Section 3313.3.2 to read as follows:

3313.3.2 Fire separation of 30 feet up to 60 feet. Where a building of Type III, IV, or V construction has a fire separation distance of 30 feet up to 60 feet from property lot lines, and an adjacent property has an existing structure or otherwise can be built on, the water supply shall provide a minimum fire flow of that equal to the building size and type referenced in Table B105.1(2) for the building.

Section 3313.3.3 Fire separation of 60 feet or greater. Amend Section 3313.3.3 to read as follows:

3313.3.3 Fire separation of 60 feet or greater. Where a building of Type III, IV, or V construction has a fire separation of 60 feet or greater from a property lot line, a water supply shall provide the minimum fire flow required for the building size and type referenced in Table B105.1(2) for the building.

Section 3313.4 Vertical construction. Amend Section 3313.4 to read as follows:

3313.4 Vertical construction, Type I and II construction. When combustible building materials and/or fuel powered stationary equipment are delivered to the construction site, water supply in accordance with Section 3313.2 shall be provided.

SECTION 3314 STANDPIPES

Section 3314.1 Where required. Amend Section 3314.1 to read as follows:

3314.1 Where required. In buildings required to have standpipes by Section 905.3.1, not less than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 30 feet in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at locations adjacent to stairways complying with Section 3312.1. As construction progresses, such standpipes shall be extended to within one floor of the highest point of construction having secured decking or flooring. Additional standpipes may be required by request of the fire code official.

SECTION 3319 ONE AND TWO-FAMILY DWELLINGS. ADD A NEW SECTION 3319 TO READ AS FOLLOWS:

SECTION 3319 ONE AND TWO-FAMILY DWELLINGS.

3319.1 Where required. Add a new Section 3319.1 to read as follows:

3319.1 Where required. One and Two-Family Dwellings shall comply with this section. The following items are to be inspected by a qualified person and documented in accordance with section 3303.3.

This list shall include the following as applicable:

1. Fire hydrants are operational, clearly visible from access roads and are not obstructed.
2. Temporary heating equipment shall be in accordance with section 3304.
3. Street signs are visible and installed.
4. Construction site addressing visible and clear of obstructions.
5. Control of combustible waste material in accordance with section 3305.
6. Fire apparatus access roads required by section 3311 are maintained clear of obstructions that reduce the width of the usable roadway to less than 20 feet.
7. Portable fire extinguisher(s) on site and quickly accessible for use by all trades.
8. Any trades conducting hot work shall comply with section 3303.8.

CHAPTER 34 TIRE REBUILDING AND TIRE STORAGE

SECTION 3408 FIRE PROTECTION

Section 3408.3 Fire sprinklers. Add a new Section 3408.3 to read as follows:

3408.3 Fire sprinklers. Where the area for storage of tires exceeds the requirements of Section 903.2.9.2, the area shall be sprinklered in accordance with Section 903.3.1.1.

CHAPTER 35 WELDING AND OTHER HOT WORK

CHAPTER 36 MARINAS

CHAPTER 37 COMBUSTIBLE FIBERS

CHAPTER 38 HIGHER EDUCATION LABS

CHAPTER 39 PROCESSING AND EXTRACTION FACILITIES

SECTION 3903 PROCESSING AND EXTRACTION

Section 3903.1 Construction. Amend Section 3903.1 to read as follows:

3903.1 Construction. Processing shall be in a building complying with the International Building Code and Sections 3903.1.1 through 3903.7.1.

Section 3903.1.1 Extraction rooms. Add a new Section 3903.1.1 to read as follows:

3903.1.1 Extraction rooms. Extraction rooms utilizing hazardous materials shall be fully enclosed in accordance with the International Building Code.

Exception: Enclosed booths constructed in accordance with Chapter 24.

Section 3903.1.2 Penetrations. Add a new Section 3903.1.2 to read as follows:

3903.1.2 Penetrations. Shall be comply with Section 703

Section 3903.1.3 Means of egress. Add a new Section 3903.1.3 to read as follows:

3903.1.3 Means of egress. Means of egress shall comply with the following:

1. Exit doors leading from the extraction room shall swing in the direction of egress.

2. Exit doors from the extraction room must be provided with panic hardware.

Section 3903.1.4 Fire protection. Add a new Section 3903.1.4 to read as follows:

3903.1.4 Fire protection. Extraction rooms, booths, or hoods, including ductwork where required for hazardous exhaust systems, shall be protected by an approved automatic fire-extinguishing system complying with Chapter 9 where any of the following exist:

1. Extraction processes utilizing flammable and/or combustible materials, or off-gassing flammable vapors from spent plant material or oil.
2. Vapors are released exceeding 25% of the lower flammable limit from flammable liquid extraction processes or flammable liquid post-oil processing.

Section 3903.1.5 Electrical equipment. Add a new Section 3903.1.5 to read as follows:

3903.1.5 Electrical equipment. Extraction rooms, hoods, or booths utilizing hazardous materials shall be classified as a Class 1 Division 1 area in accordance with NFPA 70.

Section 3903.7 Smoking and open flames. Add a new Section 3903.7 to read as follows:

3903.7 Smoking and open flames. Smoking, open flames, direct-fired heating devices, and other similar equipment shall be prohibited in areas where flammable vapors exist.

Section 3903.7.1 Smoking. Add a new Section 3903.7.1 to read as follows:

3903.7.1 Smoking. Smoking shall be prohibited, and “No Smoking” signs shall be provided in accordance with Section 5003.7.1.

SECTION 3904 SYSTEMS AND EQUIPMENT

Section 3904.3 Equipment field verification. Add a new Section 3904.3 to read as follows:

3904.3 Equipment field verification. All newly installed extraction equipment shall be inspected, and location field verified by the fire code official.

Section 3904.3.1 Re-certification. Add a new Section 3904.3.1 to read as follows:

3904.3.1 Re-certification. The extraction equipment shall be recertified every 2 years by the manufacturer or by an approved third party. The recertification report shall include the following items from 3904.2.2.2: 1-5, 7 & 9-11.

Section 3904.4 Refrigerated equipment. Add a new Section 3904.4 to read as follows:

3904.4 Refrigerated equipment. Refrigerators, freezers, and other cooling equipment used to store or process flammable and/or combustible materials shall be listed for the storage of flammable/combustible liquids or be listed for Class 1, Division 1 locations. Equipment shall be in accordance with NFPA 45 and applicable provisions of the International Building Code and this code.

Section 3904.5 Explosion hazards. Add a new Section 3904.5 to read as follows:

3904.5 Explosion hazards. Where an explosion condition exists, heating equipment such as vacuum ovens, heating mantels, heat guns, or other equipment shall not be used to heat flammable or combustible liquids or oils containing LPG.

SECTION 3905 SAFETY SYSTEMS

Section 3905.1 Gas detection. Amend Section 3905.1 to read as follows:

3905.1 Gas detection. For extraction processes utilizing flammable gases as solvents, a continuous gas detection system complying with Section 916 shall be provided. The gas detection design shall be in compliance with Section 5001.3.3.19.

Section 3905.1.2 Failure of the gas detection system. Amend Section 3905.1.3 to read as follows:

3905.1.2 Failure of the gas detection system. Failure of the gas detection system shall result in the deactivation of the heating system; activation of the mechanical ventilation system where the system is interlocked with the gas detection system.

Section 3905.1.3 Gas detection components. Add a new Section 3905.1.2 to read as follows:

3905.1.3 Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017 for use with the vapors being detected.

Section 3905.1.4 Interlocks. Add a new Section 3905.1.4 to read as follows:

3905.1.4 Interlocks. Electrical components within the extraction room shall be interlocked with the gas detection system. Activation of the gas detection system shall disable all light switches and electrical outlets.

Section 3905.3 LPG use. Add a new Section 3905.3 to read as follows:

3905.3 LPG use. Extraction equipment utilizing LPG shall comply with Chapter 61 and NFPA 58

SECTION 3906 EXHAUST. ADD A NEW SECTION 3906 TO READ AS FOLLOWS:

SECTION 3906 EXHAUST

Section 3906.1 Exhaust system. Add a new Section 3906.1 to read as follows:

3906.1 Exhaust system. A hazardous exhaust system complying with this code and the International Mechanical Code shall be provided for flammable and/or combustible material extraction processes.

Exceptions:

1. Unheated distillation process with less than 1/2 gallon of flammable and/or combustible materials performed under a listed and labeled chemical fume hood installation complying with this code.
2. Solvent distillation units in compliance with Section 5705.4.

SECTION 3907 CO2 EXTRACTIONS. ADD A NEW SECTION 3907 TO READ AS FOLLOWS:

SECTION 3907 CO2 EXTRACTIONS

Section 3907.1 Carbon dioxide solvent. Add a new Section 3901.1 to read as follows:

3907.1 Carbon dioxide solvent. Extraction facilities using carbon dioxide as a solvent shall comply with 5307.

Section 3907.2 Calibration. Add a new Section 3907.2 to read as follows:

3907.2 Calibration. Auto calibrating and self-zeroing devices or detectors shall be prohibited.

CHAPTER 40 - STORAGE OF DISTILLED SPIRITS AND WINES

SECTION 4003 PRECAUTIONS AGAINST FIRE

Section 4003.3.4 Electrical. Amend Section 4003.4 to read as follows:

4003.3.4 Electrical. Electrical wiring and equipment shall be installed and maintained in accordance with Section 603, Section 608, and NFPA 70.

Section 4003.4 Lightning. Amend Section 4003.4 to read as follows:

4003.4 Lightning. Structures containing barrel storage shall be protected from lightning. The lightning protection equipment shall be installed in accordance with NFPA 70 and NFPA 780.

Section 4003.5 Standby or emergency power. Add a new Section 4003.5 to read as follows:

4003.5 Standby or emergency power. Where mechanical ventilation, treatment systems, limit controls, alarm, detection, or other electrically operated systems are required, such systems shall be provided with an emergency or standby power system in accordance with NFPA 70 and Section 604.1, as amended.

Exception: Standby power for mechanical ventilation and limit control systems shall not be required where an approved fail-safe engineered system is installed.

Section 4003.6 Security. Add a new Section 4003.6 to read as follows:

4003.6 Security. The manufacture, production, and storage of distilled spirits and wines shall be safeguarded from unauthorized access in an approved manner.

SECTION 4004 STORAGE

Section 4004.1.1 Storage plan. Add a new Section 4004.1.1 to read as follows:

4004.1.1 Storage plan. Aisle and storage plans shall be submitted in accordance with Chapter 50.

Section 4004.1.2 Emergency planning. Add a new Section 4004.1.2 to read as follows:

4004.1.2 Emergency planning. Fire safety and evacuation plans in accordance with Section 404, shall be prepared, and maintained.

SECTION 4006 SIGNAGE

Section 4006.1 Hazard identification signs. Amend Section 4006.1 to read as follows:

4006.1 Hazard identification signs. Unless otherwise exempted by the fire code official, visible hazard identification signs, as specified in Section 5003.5 through 5003.6.2 and NFPA 704 for the specific material contained, shall be placed on stationary containers and above-ground tanks; at entrances to locations where hazardous materials are stored, dispensed, used, or handled in quantities requiring a permit; and at specific entrances and locations designated by the fire code official. Exception: Casks are not required to be labeled.

Section 4006.1.1 Maintenance and style. Amend Section 4006.1.1 to read as follows:

4006.1.1 Maintenance and style. Signs and markings required by Section 4006.1 shall not be obscured or removed; shall be in English as a primary language or in symbols permitted by this code; shall be durable; and the size, color, and lettering shall be as specified in Section 5003.6 through 5003.6.1.

Part V – Hazardous Materials

CHAPTER 50 HAZARDOUS MATERIALS

SECTION 5001 GENERAL

Section 5001.2.2 Hazard categories. Amend Section 5001.2.2 to read as follows:

5001.2.2 Hazard Categories. Hazardous materials shall be classified according to hazard categories. The categories include materials regulated by this chapter and materials regulated elsewhere in this code, including Appendix E for Hazard Categories.

Section 5001.3.3.19 Detection of a gas or vapor. Add a new Section 5001.3.3.19 to read as follows:

5001.3.3.19 Detection of a gas or vapor. Detection and alarm are required where a release of a hazardous material gas or vapor could cause immediate harm to any person by exceeding the permissible exposure level (PEL) of the gas, by decreasing the oxygen level to below 19.5 percent, or by exceeding 25 percent of the lower flammable limit (LFL) of a flammable gas. A detection and alarm system may initiate a means of mitigation of the dangerous effects of a release as well as notification to occupants.

SECTION 5003 GENERAL REQUIREMENTS

Section 5003.5 Hazard identification signs. Amend Section 5003.5 to read as follows:

5003.5 Hazard identification signs. Unless otherwise exempted by the fire code official, visible hazard identification signs as specified in NFPA 704 for the specific material contained shall be placed on stationary containers and above-ground tanks and at entrances to locations where hazardous materials are stored, dispensed, used, or handled in quantities requiring a permit and at specific entrances and locations per section 5003.6.2 or designated by the fire code official.

Section 5003.5.1 Markings. Amend Section 5003.5.1 to read as follows:

5003.5.1 Markings. Individual containers, cartons, or packages shall be conspicuously marked or labeled in an approved manner. Rooms or cabinets containing hazardous materials shall be conspicuously labeled, for example: "COMPRESSED GAS"

Section 5003.6.1 Size. Add a new section 5003.6.1 to read as follows:

5003.6.1 Size. Exterior of the structure the NFPA 704 signs shall be a minimum of 10 IN X 10 IN with each individual block being a minimum of 5 IN X 5IN. The hazard ranking numbers shall be a minimum of 4 IN in height and 2.5 IN in width, with a 5/8 stroke. Interior door leading to rooms storing hazardous materials the NFPA 704 signs shall be a minimum of 7-1/2 IN X 7-1/2 IN with each individual block being a minimum of 3 1/4 IN X 3-1/4 IN. The hazard ranking numbers shall be a minimum of 3 IN in height and 2 IN in width, with a 13/32 stroke. NFPA 704 labels on containers,

cartons, cabinets, cylinders, and packages shall be a minimum of 5 IN X 5 IN with each individual block being a minimum of 2-1/2 IN X 2-1/2 IN. The hazard ranking numbers shall be a minimum of 2 IN in Height and 1.5 IN in width, with a 5/16 stroke. All letters and numbers on the NFPA 704 shall be black in color.

Section 5003.6.2 Location of signs. Add a new Section 5003.6.2 to read as follows:

5003.6.2 Location of signs. Signs shall be in locations approved by the fire code official and as a minimum shall be posted at the following locations:

1. Two exterior walls, doors, or enclosures containing a means of access to a building or facility.
2. Each access to a room or area that contains hazardous materials.
3. Each principal means of access to an exterior storage area that contains hazardous materials.

SECTION 5004 STORAGE

Section 5004.1 Scope. Amend 5004.1 to read as follows:

5004.1 Scope. Storage of hazardous materials in amounts exceeding the maximum allowable quantity per control area as set forth Section 5003.1 shall be in accordance with Sections 5001, 5003, 5004, and 5005.

Storage of hazardous materials in amounts not exceeding the maximum allowable quantity per control area as set forth in Section 5003.1 shall be in accordance with Section 5001, 5003, and 5004.2. Retail and wholesale storage and display of nonflammable solid and nonflammable and noncombustible liquid hazardous materials in Group M occupancies and Group S storage shall be in accordance with Section 5003.11.

Section 5004.2 Spill control and secondary containment for liquid and solid hazardous materials. Amend Section 5004.2 to read as follows:

5004.2 Spill control and secondary containment for liquid and solid hazardous materials. Regardless of the MAQ, rooms, buildings or area for the storage of liquid or solid hazardous materials shall be provided with spill control and secondary containment in accordance with Section 5004.2.1 through 5004.2.3.

Exception: Outdoor storage of containers on approved containment palettes in accordance with Section 5004.2.3.

Section 5004.2.1 Spill control for hazardous material liquids. Amend Section 5004.2.1 to read as follows:

5004.2.1 Spill control for hazardous material liquids. Rooms, buildings or areas used for storage of hazardous materials liquids in individual vessels having a capacity of more than 55 gallons, or in which the aggregate capacity of multiple vessels exceeds 120 gallons, shall be provided with spill control to prevent the flow of liquids to adjoining areas. Floors in indoor locations and similar surfaces in outdoor locations shall be constructed to contain aa spill from the largest single vessel by one of the following methods:

1. Liquid-tight sloped or recessed floors in indoor locations or similar areas in outdoor locations.
2. Liquid-tight floors in indoor locations or similar areas in outdoor locations provided with liquid-tight raised or recessed sills or dikes.
3. Sumps and collection systems.
4. Other approved engineered systems.

Except for surfacing, the floors, sills, dikes, sumps and collection systems shall be constructed of noncombustible material, and the liquid-tight seal shall be compatible with the material stored. When liquid tight sills or dikes are provided, they are not required at perimeter openings having an open-grate trench across the opening that connects to an approved collection system.

Section 5004.2.2 Secondary containment for hazardous material liquids and solids. Amend Section 5004.2.2 to read as follows:

5004.2.2 Secondary containment for hazardous material liquids and solids. Where required by Table 2704.2.2 buildings, rooms or areas used for the storage of hazardous materials liquids or solids shall be provided with secondary containment in accordance with this section when the capacity of an individual vessel or the aggregate capacity of multiple vessels exceeds the following:

1. Liquids: Capacity of an individual vessel exceeds 55 gallons (114 L) or the aggregate capacity of multiple vessels exceeds 120 gallons (454 L); and
2. Solids: Capacity of an individual vessel exceeds 550 pounds (136.1 kg) or the aggregate capacity of multiple vessels exceeds 1,000 pounds (249.5 kg).

CHAPTER 51 AEROSOLS

CHAPTER 52 RESERVED

CHAPTER 53 COMPRESSED GASSES

SECTION 5306 MEDICAL GASES

Section 5306.5 Medical gas systems and equipment. Amend Section 5306.5 to read as follows:

5306.5 Medical gas systems and equipment. Medical gas systems and equipment shall be installed, tested and labeled in accordance with NFPA 99 and the general provisions of this chapter. Existing medical gas systems and equipment shall be used and maintained in accordance with the use, maintenance, inspection and testing provisions of NFPA 99 for medical gas systems and equipment. Veterinary clinics shall comply with NFPA 99, Chapter 15 Dental Gas and Vacuum Systems.

SECTION 5307 COMPRESSED GASES NOT OTHERWISE REGULATED

Section 5307.2.1 Gas detection system. Amend section 5307.2.1 to read as follows:

5307.2.1 Gas detection system. In rooms or areas not provided with ventilation in accordance with Section 5307.2 or where over 6,000 cubic feet of compressed gas is stored or used, a gas detection system complying with Section 916, or where approve, and oxygen depletion alarm system, either of which initiates audible and visual alarm signals in the room or area where sensors are installed, shall be provided.

Section 5307.2.2 Auto Shutoff Add Section 5307.2.2 to read as follows:

5307.2.2 Auto Shutoff. Where over 6,000 cubic feet of compressed gas is in use and connected to a system and ventilation per Section 5307.2 is not provided, a gas detection system that activates an automatic fail-safe feature that shuts off the flow from the supply tank upon activation is required.

Section 5307.2.3 Signage. Add Section 5307.2.3 to read as follows:

5307.2.3 Signage. Hazard identification signs shall be posted at the entrance to the room and indoor areas where the inert gas is located, and at the entrance to the room or indoor area where the inert gas containers are located. The sign shall be not less than 8 inches (200 mm) in width and 6 inches (150 mm) in height and indicate:

Section 5307.2.3.1 Inert gas systems. Add Section 5307.2.3.1 to read as follows:

5307.2.3.1 Inert gas systems.

CAUTION -INERT GAS IF ALARM IS SOUNDING VENTILATE THE AREA BEFORE ENTERING A HIGH INERT GAS CONCENTRATION IN THIS AREA CAN CAUSE ASPHYXIATION

Section 5307.3.1 Ventilation Amend section 5703.3.1 to read as follows:

5307.3.1 Ventilation. Where insulated liquid carbon dioxide storage tanks, cylinders, piping and equipment are located indoors, rooms or areas containing storage tanks, cylinders, piping and equipment, and other areas where a leak of carbon dioxide is expected to accumulate, shall be

provided with mechanical ventilation in accordance with Section 5004.3 and designed to maintain the room containing carbon dioxide at a negative pressure in relation to the surrounding area. These systems shall comply with the system requirements in 5004.3.1 and shall be equipped with Standby or emergency power per 5004.7.

Exception: A gas detection system with a fail-safe auto shut off, complying with Section 5307.3.1 shall be permitted in lieu of mechanical ventilation.

Section 5307.3.2 Gas detection system. Amend Section 5307.3.2 to read as follows:

5307.3.2 Gas detection system. Where a carbon dioxide system in accordance with Section 5307.3 is in use, a gas detection system shall be provided in rooms or indoor areas and in below-grade outdoor locations with insulated carbon dioxide systems. Carbon dioxide sensors shall be provided within 12 inches (305 mm) of the floor in the area where the gas is expected to accumulate or other approved locations.

The system shall be designed as follows:

1. Activates an audible and visible supervisory alarm at a normally attended location upon detection of a carbon dioxide concentration of 5,000 ppm (9000 mg/m³).
2. Activates an audible and visible alarm within the room or the immediate area where the system is installed upon detection of a carbon dioxide concentration of 30,000ppm (54 000 mg/m³).
3. Activates a fail-safe feature that shuts off flow from the supply tank upon reaching 5,000 ppm (9000 mg/m³) and/or loss of power.

Exception: A ventilation system complying with Section 5307.3.2 shall be permitted in lieu of a fail-safe auto shutoff.

SECTION 5308 CARBON DIOXIDE (CO²) GAS ENRICHMENT SYSTEMS USING A NATURAL GAS BURNER IN PLANT GROWING (HUSBANDRY) APPLICATIONS. ADD A NEW SECTION 5308 TO READ AS FOLLOWS:

SECTION 5308 CARBON DIOXIDE (CO²) GAS ENRICHMENT SYSTEMS USING A NATURAL GAS BURNER IN PLANT GROWING (HUSBANDRY) APPLICATIONS

Section 5308.1 General. Add a new Section 5308.1 to read as follows:

5308.1 General. Natural gas burners that are utilized to generate carbon dioxide (CO²) in plant growing (husbandry) applications shall comply with Sections 5308.2 through 5308.6. A mechanical exhaust system shall be provided as required by 5308.6 and the International Mechanical Code. This code section shall apply to all applications in new and existing buildings.

Section 5308.2 Permits. Add a new Section 5308.2 to read as follows:

5308.2 Permits. Permits shall be required in accordance with Sections 105.6 and 105.7.

Section 5308.3 Equipment. Add a new Section 5308.3 to read as follows:

5308.3 Equipment. Natural gas burners shall be listed, labeled, and installed in accordance with the manufacturer's installation instructions. Piping systems, combustion and ventilation air, and venting for natural gas appliances shall be designed and installed in accordance with approved standards, the International Fuel Gas Code, and manufacturer's recommendations.

Section 5308.4 Required protection. Add a new Section 5308.4 to read as follows:

5308.4 Required protection. A carbon dioxide (CO²) gas detection system shall be provided in accordance with Section 5308.4.1 and a carbon monoxide (CO) gas detection system shall be provided in accordance with Section 5308.4.2.

Section 5308.4.1 Carbon dioxide (CO²) detection. Add a new Section 5308.4.1 to read as follows:

5308.4.1 Carbon dioxide (CO²) detection. Rooms or areas where carbon dioxide is used indoors or in enclosed outdoor locations shall be provided with a carbon dioxide gas detection and alarm system.

Section 5308.4.1.1 Detectors. Add a new Section 5308.4.1.1 to read as follows:

5308.4.1.1. Detectors. Detectors shall comply with all of the following:

1. Suitable for the use intended and shall be listed or approved.
2. Permanently mounted.
3. Installed at a height of no more than 18 inches above the floor.
4. Directly connected to building electrical or fire alarm systems and protected from accidental disconnection or damage.
5. Auto calibrating and self "zeroing" devices are not permitted unless they can be zeroed and spanned.
6. Where the point of use is remote from the supply a detection and alarm system is required for each point of use.

Section 5308.4.1.2 Notification. Add a new Section 5308.4.1.2 to read as follows:

5308.4.1.2 Notification. The detection system shall be capable of notifying personnel in the immediate area of a leak at 5,000 parts per million. Upon reaching 30,000 parts per million this system must notify all building occupants of a mandatory evacuation.

Exception: Systems with a fail-safe feature that shuts off carbon dioxide flow from the source upon reaching 5,000 parts per million or loss of power are not required to notify building occupants at 30,000 parts per million.

Section 5308.4.1.3 Signage. Add a new Section 5308.4.1.3 to read as follows:

5308.4.1.3 Signage. Shall be in compliance with Section 5307.

Section 5308.4.1.4 Shut down. Add a new Section 5308.4.1.4 to read as follows:

5308.4.1.4 Shut down. All carbon dioxide (CO²) burner systems shall shut down in the event of a loss of electrical power to the carbon dioxide (CO²) detectors.

Section 5308.4.2 Carbon monoxide (CO) detection. Add a new Section 5308.4.2 to read as follows:

5308.4.2 Carbon monoxide (CO) detection. Rooms or areas where carbon dioxide burners are used indoors or in enclosed outdoor locations shall be provided with a carbon monoxide gas detection and alarm system.

Section 5308.4.2.1 Detectors. Add a new Section 5308.4.2.1 to read as follows:

5308.4.2.1 Detectors. Detectors shall comply with all of the following:

1. Shall be listed or approved for the intended use.
2. Permanently mounted.
3. Installed per manufacturer's recommendations and directions.
4. Directly connected to building electrical and protected from accidental disconnection or damage.

Section 5308.4.2.2 Notification. Add a new Section 5308.4.2.2 to read as follows:

5308.4.2.2 Notification. The CO detection system shall be capable of notifying personnel in the immediate area of a leak at 35 ppm and upon activation shall initiate the following:

1. Close the valve to each burner.
2. Activate the mechanical exhaust system.

Section 5308.4.2.3 Shut down. Add a new Section 5308.4.2.3 to read as follows:

5308.4.2.3 Shut down. All carbon dioxide (CO²) burner systems shall shut down in the event of a loss of electrical power to the carbon monoxide (CO) detectors.

Section 5309.5 Detector testing. Add a new Section 5309.5 to read as follows:

5309.5 Detector testing. The equipment, systems and devices listed in 5308.4 shall be tested annually and in accordance with the approved manufacturer's requirements.

Section 5308.6 Ventilation. Add a new Section 5308.6 to read as follows:

5308.6 Ventilation. Mechanical ventilation shall be installed in addition to a detection and alarm system as required in Section 5308.4. All gas systems shall have ventilation installed as required by Sections 5001.3.3.10, 5004.3 through 5004.3.1, and the International Mechanical Code. Construction plan data and/or a technical report by a registered design professional shall be submitted to the fire

code official demonstrating compliance with the requirements. Approved plans/permits for ventilation from the governing mechanical authority shall be prima facie evidence for compliance.

Exception: No ventilation is required for those systems equipped with a gas detection fail-safe feature, as described in the exception for 5308.4.1.2.

CHAPTER-54 CORROSIVE MATERIALS

CHAPTER-55 CRYOGENIC FLUIDS

CHAPTER-56 EXPLOSIVES AND FIREWORKS

SECTION 5601 GENERAL

Section 5601.1.3 Fireworks. Amend Section 5601.1.3 to read as follows:

5601.1.3 Fireworks. The possession of permissible fireworks as defined by 12-28-101 C.R.S. and as permitted by Article 28 of Title 12 C.R.S. shall be permitted by individuals over the age of sixteen years. No fire protection district shall prohibit the sale of permissible fireworks, as defined in section 32-1-1002 (1) (d).

Exceptions:

1. Storage handling of fireworks as permitted in Section 5604.
2. Manufacture, assembly and testing of fireworks as permitted in Section 5605.
3. The use of fireworks for fireworks display as permitted in Section 5608.
4. The possession, storage, sale, handling and use of specific types of Division 1.4G fireworks where permitted by applicable laws (Article 28 of Title 12 C.R.S.), ordinances and regulations, provided that such fireworks and facilities comply with the 2006 edition of NFPA 1124, CPSC 16 CFR Parts 1500 and 1507, and DOTn 49 CFR Parts 100-185, as applicable for consumer fireworks.

SECTION 5608 FIREWORKS DISPLAY

Section 5608.1 General. Amend Section 5608.1 to read as follows:

5608.1 General. Outdoor fireworks display, use of pyrotechnics before a proximate audience, and pyrotechnic special effects in motion picture, television, theatrical, and group entertainment productions shall comply with Sections 5608.2 through 5608.10 and NFPA 1123, ~~or~~ NFPA 1126 and/or NFPA 160, as applicable.

Section 5608.2.1.1 Fire extinguishers. Add a new Section 5608.2.1.1 to read as follows:

5608.2.1.1 Fire extinguishers. The person, group, or organization sponsoring the firework display shall consult with the fire code official to determine the level of fire protection required. Four or more fire extinguishers of the classification and size as approved by the fire code official shall be readily accessible while the pyrotechnics are being loaded, prepared for firing, or fired.

Section 5608.2.1.2 Standby personnel. Add a new Section 5608.2.1.2 to read as follows:

5608.2.1.2 Standby personnel. Standby fire department personnel and equipment may be required by the fire department prior to and during the event. The fire department shall be reimbursed by the event coordinator or responsible party for all costs associated with providing this service.

Section 5608.2.1.3. Weather conditions. Add a new Section 5608.2.1.3 to read as follows:

5608.2.1.3 Weather conditions. Firework displays if permitted during “High” or “Very High” fire danger conditions shall require a minimum of one dedicated brush truck with sufficient staffing to operate said vehicle at the site of the display both prior to and throughout the event. The total number of equipment and staffing shall be approved by the fire code official. Firework displays are prohibited during any issued burn bans, extreme fire danger, or red flag warning conditions.

Exception: Scheduled public events held over well-irrigated landscaping and/or bodies of water as approved by the fire code official and the presence of standby equipment and personnel.

Section 5608.6.1 Mortar rack reinforcement. Add a new Section 5608.6.1 to read as follows:

5608.6.1 Mortar rack reinforcement. Aboveground mortar racks shall be constructed and secured to withstand a catastrophic malfunction in a mortar rack(s). Added sandbag reinforcement to the mortar rack(s) shall be required. Sandbags shall be used to secure mortar rack(s) and to prevent tip-over or movement. Placement of sandbags at the mortar rack(s) shall be on spectator sides of the rack(s) and on each end of a rack or group of racks at a minimum. The sandbags shall be stacked to a minimum height of three-fourths (3/4) of the rack(s) frame height.

Section 5608.8.1 Wind speed. Add new Section 5608.8.1 to read as follows:

5608.8.1 Wind speed. Firework displays shall not be fired when wind speeds measured by the fire code official are exceeding 15 mph.

CHAPTER-57 FLAMMABLE AND COMBUSTIBLE LIQUIDS

CHAPTER-58 FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS

CHAPTER-59 FLAMMABLE SOLIDS

CHAPTER-60 HIGHLY TOXIC AND TOXIC MATERIALS

CHAPTER-62 ORGANIC PEROXIDES

CHAPTER-61 LIQUEFIED PETROLEUM GASSES

SECTION 6109 STORAGE OF PORTABLE LP-GAS CONTAINERS AWAITING USE OR RESALE

Section 6109.13 Protection of containers. Amend Section 6901.13 to read as follows:

6109.13 Protection of containers. LP-gas containers shall be stored within a suitable enclosure or otherwise protected against tampering. Vehicle impact protection shall be provided as required by Section 6107.4.

CHAPTER-63 OXIDIZERS, GASSES, AND CRYOGENIC FLUIDS

CHAPTER-64 PYROPHORIC MATERIALS

CHAPTER-65 PYROXYLIN (CELLULOSE NITRATE) PLASTICS

CHAPTER-66 UNSTABLE (REACTIVE) MATERIALS

CHAPTER-67 WATER REACTIVE SOLIDS AND LIQUIDS

Part VI – Reference Standards

CHAPTER-80 REFERENCED STANDARDS

SECTION 8001 GENERAL. ADD A SECTION 8001 TO READ AS FOLLOWS:

8001 GENERAL

SECTION 8001.1 Adoption of Standards. Add a new Section 8001.1 as follows:

Section 8001.1 Adoption of Standards. In every case where this code references NFPA standards, the most current edition, to include TIA's and errata's of said standards is hereby adopted. The current edition shall become effective on January 1 of the year following NFPA's effective date for said standard.

AMEND CHAPTER 80 ADD REFERENCES TO READ AS FOLLOWS:

ACR	American College of Radiology safety guidelines
DISCUS	Distilled Spirits Council of U.S. 1250 Eye Street, NW Suite 400, Washington D.C. 20005 Recommended Fire Protection Practices for Distilled Spirits Beverage Facilities
NFPA 418	Standard for Heliports

NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
NFPA 855	Standard for Installation of Stationary Energy Storage Systems
NFPA 1225	Standard for Emergency Services Communications
UL 2272	2016 Electrical Systems for Personal E-Mobility Devices
UL 2849	2020 Electrical Systems for eBikes
MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways

Part VII - Appendices

APPENDIX A - BOARD OF APPEALS

Appendix A is adopted with the following amendments.

SECTION A101 GENERAL

Section A101.3 Membership of board. Amend Section A101.3 to read as follows:

A101.3 Membership of board. The board shall consist of all elected members of the Fire Protection District Board of the authority having jurisdiction. The fire code official shall be an ex officio member of said board but shall not vote on any matter before the board.

Section A101.3.1 Qualifications. Delete Section A101.3.1 in its entirety.

Section A101.3.2 Alternate members. Delete Section A101.3.2 in its entirety.

Section A101.3.3 Vacancies. Delete Section A101.3.3 in its entirety.

Section A101.3.4 Chairperson. Delete Section A101.3.4 in its entirety.

Section A101.3.5 Secretary. Delete Section A101.3.5 in its entirety.

Section A101.3.6 Conflict of interest. Delete Section A101.3.6 in its entirety.

Section A101.3.7 Compensation of members. Delete Section A101.3.7 in its entirety.

Section A101.3.8 Removal from the board. Delete Section A101.3.8 in its entirety.

Section A101.4 Rules and procedures. Amend Section A101.4 to read as follows:

A101.4 Rules and procedures. The board should maintain current established policies and procedures necessary to carry out its duties consistent with the provisions of this code and applicable state law. The procedures shall not require compliance with strict rules of evidence but should

mandate that only relevant information be presented. The fire code official may request outside fire code officials from neighboring jurisdictions to be present to assist with interpretation of this code.

Section A101.5 Notice of meetings. Amend Section A101.5 to read as follows:

A101.5 Notice of meetings. The board shall meet on their normal schedule of public meetings. Notice of meetings shall be within the board's normal notices and should not differ from existing proceedings.

Section A101.5.1 Open hearing. Delete Section A101.5.1 in its entirety.

Section A101.5.2 Quorum. Delete Section A101.5.2 in its entirety.

Section A101.5.3 Postponed hearing. Delete Section A101.5.3 in its entirety.

Section A101.6 Legal counsel. Amend Section A101.6 to read as follows:

A101.6 Legal counsel. The jurisdiction should consult with their currently established counsel to the board to provide general legal advice concerning matters before them for consideration.

Section A101.7 Board decision. Amend Section A101.7 to read as follows:

A101.7 Board decision. The board shall only modify or reverse the decision of the fire code official by a majority vote of the board members.

Section A101.8 Court review. Amend Section A101.8 to read as follows:

A101.8 Court review. Any person, whether or not a previous party of the appeal, shall have the right to apply to the appropriate court for a writ of certiorari to correct errors of law. The fire district board shall operate in accordance with their established rules, regulations and procedure in accordance with Colorado Revised Statute Title 32.

APPENDIX B – FIRE FLOW REQUIREMENTS

Appendix B is adopted in its entirety.

APPENDIX C FIRE HYDRANT LOCATION & DISTRIBUTION

Appendix C is adopted in its entirety.

APPENDIX D – FIRE APPARATUS ACCESS ROADS

Appendix D is adopted with the following amendments.

SECTION D102 REQUIRED ACCESS

Section D102.1 Access and loading. Amend Section D102.1 to read as follows:

D102.1 Access and loading. Facilities, buildings, or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with asphalt, concrete, or other approved driving surface capable of supporting the imposed load of fire apparatus weighing up to 75,000 pounds with a minimum single axle weight of 27,000 pounds. Alternative methods such as brick pavers, road, base, and gravel as approved by the fire code official.

SECTION D103 MINIMUM SPECIFICATIONS

Figure D103.1 Dead-End Fire Apparatus Access Roads. Amend Figure D103.1 to depict as follows:

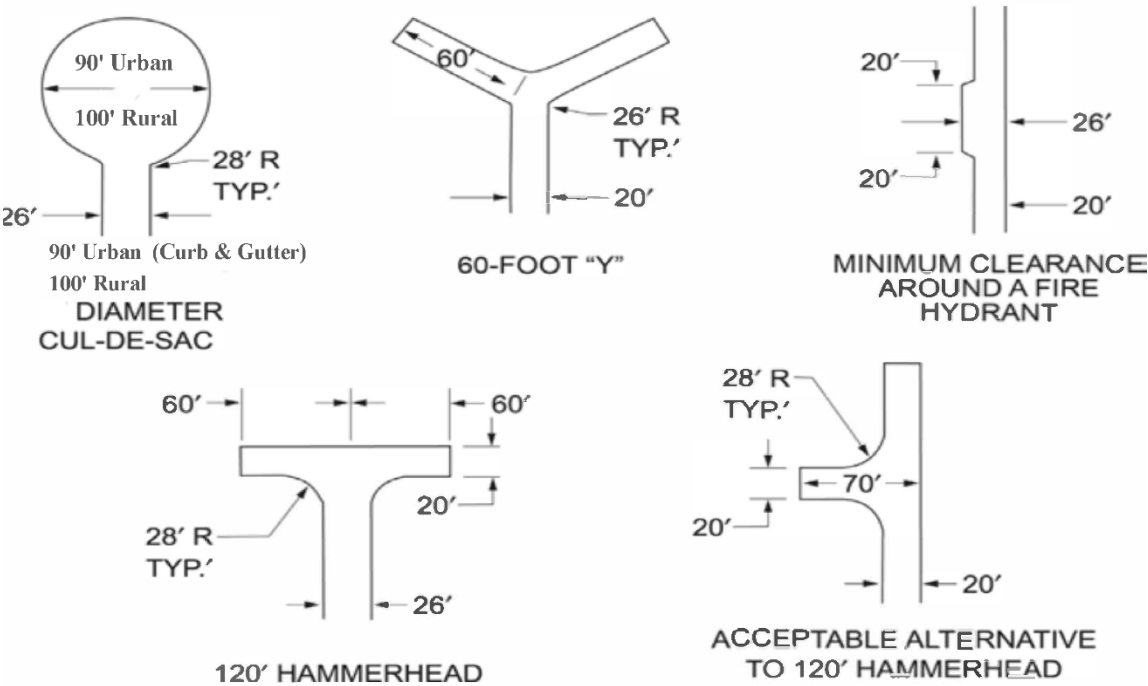


Table D103.4 Requirements for Dead-End Fire Apparatus Access Roads. Amend Table D103.4 to read as follows:

LENGTH (feet)	WIDTH (feet)	TURNAROUND REQUIRED
0-150	20	None required

151-500	20	120-foot Hammerhead, 60-foot “Y” or 90’ urban (curb & gutter), 100’ rural diameter cul-de-sac in accordance with Figure D103.1
501-750	26	120-foot Hammerhead, 60-foot “Y” or 90’ urban (curb & gutter), 100’ rural diameter cul-de-sac in accordance with Figure D103.1
Over 750	Special approval required	

For SI: 1 foot = 304.8 mm.

Section D103.5 Fire apparatus road gates. Amend Section D103.5 to read as follows:

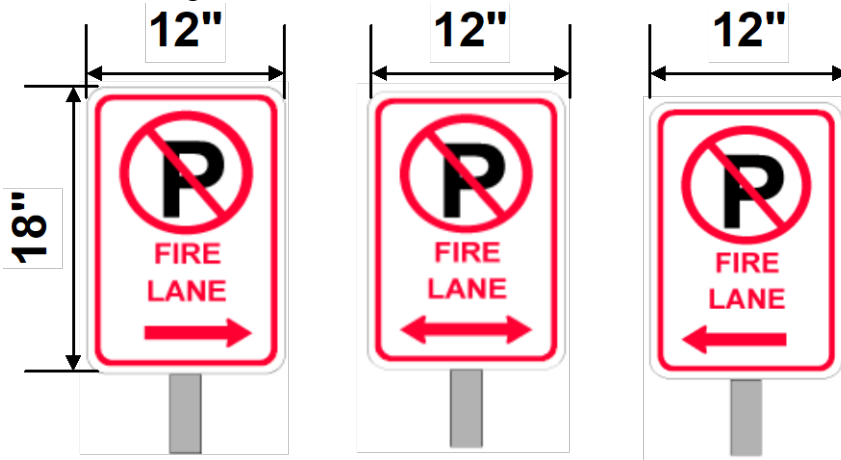
D103.5 Fire apparatus access road gates. Gates securing the fire apparatus access roads shall comply with all of the following criteria:

1. Where a single gate is provided, the gate clear opening width shall be not less than 16 or as approved as the approved as the fire code official. Where a fire apparatus road consists of a divided roadway, the gate clear opening width shall be not less than 16 or as approved as the approved as the fire code official.
2. Gates shall be approved by the fire code official.
3. Construction of gates shall be of materials that allow manual operation by one person.
4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.
5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. When outbound/egress movements do not include an automatic method of the gate opening when a vehicle is present, an approved means of opening the gate by the fire department shall be provided. Emergency opening devices shall be approved by the fire code official.
6. Methods of locking shall be submitted for approval by the fire code official.
7. Electric gate operators, where provided, shall be listed in accordance with UL 325.
8. Gates intended for automatic operation shall be designed, constructed, and installed to comply with the requirements of ASTM F2200.

Section D103.6 Signs. Amend Section D103.6 to read as follows:

D103.6 Signs. Where required by the fire code official, fire apparatus access roads shall be marked with permanent “NO PARKING – FIRE LANE” signs complying with Figure D103.6 or Figure D103.6.1. Signs shall have a minimum dimension of 12 inches (305 mm) wide by 18 inches (457 mm) high and have red letters on a white reflective background. Signs shall be posted on one or both sides of the fire apparatus road as required by Section D103.6.1 or D103.6.2.

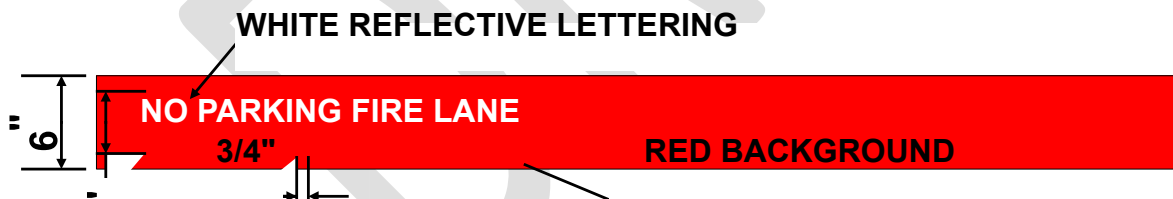
Add a new Figure D103.6.1 to read as follows:



Section D103.6.3 Striping. Add a new section D103.6.3 to read as follows:

D103.6.3 Striping. The curb or edge of the fire apparatus access roads shall be marked by painted lines of red traffic paint six (6) inches in width to show the boundaries of the lane. Where a posted fire lane sign is not used by the approval of the fire code official. The words "NO PARKING FIRE LANE" shall appear in four (4) inch white reflective letters at thirty (30) feet intervals on the red border marking complying with Figure D103.6.3.1. Where a curb is available, the striping shall be on the vertical face of the curb.

Add a new Figure D103.6.3.1 to read as follows:



SECTION D104 COMMERCIAL AND INDUSTRIAL DEVELOPMENTS

Section D104.3 Remoteness. Amend Section D104.3 to read as follows:

D104.3 Remoteness. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses.

Exception: The fire code official is authorized to modify this requirement when the required remoteness is not possible due to the location on property, topography, waterways, non-negotiable grades or similar.

SECTION D106 MULTIPLE-FAMILY RESIDENTIAL DEVELOPMENTS

D106.3 Remoteness. Amend Section D106.3 to read as follows:

D106.3 Remoteness. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses.

Exception: The fire code official is authorized to modify this requirement when the required remoteness is not possible due to the location on property, topography, waterways, non-negotiable grades or similar.

SECTION D107 ONE- OR TWO-FAMILY RESIDENTIAL DEVELOPMENTS

Section D107.1 One- or two-family dwelling residential developments. Amend D107.1 to read as follows:

D107.1 One- or two-family dwelling residential developments. Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads.

Exceptions:

1. Where there are more than 30 dwelling units on accessed from a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.
2. The number of dwelling units on accessed from a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.
3. The fire code official is authorized to modify the requirement of two separate and approved fire apparatus access roads, when they are not possible due to location on property, topography, waterways, non-negotiable grades, or similar.

Section D107.2 Remoteness. Amend Section D107.2 to read as follows:

D107.2 Remoteness. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses.

Exception: The fire code official is authorized to modify this requirement when the required remoteness is not possible due to the location on property, topography, waterways, non-negotiable grades or similar.

APPENDIX E – HAZARD CATEGORIES

Appendix E is adopted for informational purposes only.

APPENDIX F – HAZARD RANKING

Appendix F is adopted for informational purposes only.

APPENDIX G – CRYOGENIC FLUIDS – WEIGHT AND VOLUME EQUIVALENTS

Appendix G is adopted for informational purposes only.

APPENDIX H – HAZARDOUS MATERIALS MANAGEMENT PLAN (HMMP) AND HAZARDOUS MATERIALS INVENTORY STATEMENT (HMIS) INSTRUCTIONS

Appendix H is adopted for informational purposes and details the required information and format for submittal of a Hazardous Material Management Plan.

APPENDIX I – FIRE PROTECTION SYSTEMS – NONCOMPLIANT CONDITIONS

Appendix I is adopted for informational purposes only.

APPENDIX J – BUILDING INFORMATION SIGN

Appendix J is adopted for informational purposes only.

APPENDIX K – CONSTRUCTION REQUIREMENTS FOR EXISTING AMBULATORY CARE FACILITIES

Appendix K is adopted for informational purposes only.

APPENDIX L – REQUIREMENTS FOR FIRE FIGHTER AIR REPLENISHMENT SYSTEMS

Appendix L is adopted for informational purposes only.

APPENDIX M – HIGH-RISE BUILDINGS – RETROACTIVE AUTOMATIC SPRINKLER REQUIREMENT

Appendix M is adopted for informational purposes only.

APPENDIX N – INDOOR TRADE SHOWS AND EXHIBITIONS

Appendix N is adopted for informational purposes only.

APPENDIX O – COLORADO WILDFIRE RESILIENCY CODE

Appendix O The CWRC with Appendices A, B, and C is an entirely separate code that is adopted for reference purposes only.

1. **Appendix A: Permits** – is adopted in its entirety.
2. **Appendix B: Construction Documents** – is adopted in its entirety.
3. **Appendix C: Inspection and Enforcement** – is adopted in its entirety.

If any article, section, paragraph, sentence, clause or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

Section 4: This ordinance is deemed necessary for the protection of the health, welfare and safety of the community.

Passed on first reading and ordered published this ____ day of _____, 2026.

City Clerk, Elena Krebs

A Public Hearing on this ordinance will be held at the _____, 2026, City Council meeting. The Council Meeting will be held at 6:00 P.M. at City Hall, 606 Manitou Avenue, Manitou Springs, Colorado.

Ordinance Published: _____, 2026 (in full)

City's Official Website and City Hall

Passed on second reading and adopted by Council this ____ day of _____, 2026.

Mayor

Attest: _____
City Clerk, Elena Krebs

Published: _____, 2026 _____ (in full)

City's Official Website and City Hall