Roof Permit Checklist

For contractors / homeowners

Roof permits are applied for online through the Permit Portal. All applicants will need a portal account. Fees can be estimated using the Fee estimator tool.

Eagle County does not require a contractor's licence specific to the county.

An ice and water shield is to be installed 3ft from all edges and valleys.

Applicants should request a Wildfire Hazard Rating from Mitigation & Wildfire Protection before purchasing materials. Depending on the property's wildfire hazard rating, a specific roof assembly may be required.

Roof Permits require 1 final inspection. Ensure the property is free of all dumpsters and port-o-potty's. A ladder is not required to be onsite. Our inspector will not get on the roof.

Roof permits are reviewed in 3-5 business days.

Included in this checklist packet:

- Request for Wildfire Hazard Rating Form
- Construction Guidelines for the Wildland Urban Interface

Submittal Requirements through portal:

❒ - Wildfire Hazard Rating (pdf)

❒ - Specifications from the manufacturers showing Fire Rating

I have read and understand the requirements of this Roof Permit Checklist

_____ _____/_____/_____

Contractor or Owner Signature Date

Wildfire Mitigation Specialist
Community Development Department
(970) 328-8730
Fax (970) 328-7185
TDD (970) 328-8797
eric.lovgren@eaglecounty.us

Eagle County Building
P.O. Box 179
500 Broadway
Eagle, Colorado 81631-0179

REQUEST FOR WILDFIRE HAZARD RATING

Date: _____

Physical Address: _____

Parcel Number (12 digits): _____ Section: ____ Township: ____ Range: ____

Subdivision: _____ Lot: ____ Block: ____ Filing: ____

Contact Name: _____

Owner(s) Name: _____

Contact Numbers: Work: _____
Cell: _____
Home: _____
Fax: _____

Email Addresses: _____

Have you recently submitted a Building Permit? ☐ Yes ☐ No

If yes, what is your Building Permit number? _____

Other Comments: _____
_____
_____
_____
_____
_____

Photo: Christie's International Real Estate

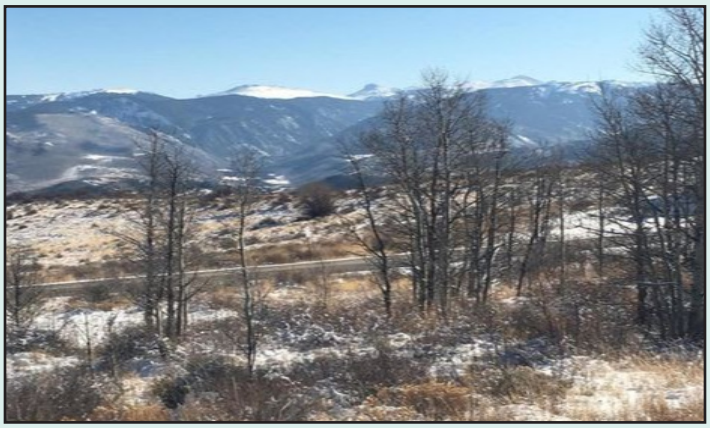
Construction Guidelines for the Wildland Urban Interface

This comprehesive guide illustrates current Eagle County Wildland Urban Interface Building code requirements as well as wildfire mitigation practices that are recommended in all construction projects. This guide is to be used by builders, architects, and homeowners who are required or who wish to utilize construction techniques that are proven to decrease the likelihood of ignition during a wildland fire event.

Wildfire Hazard Rating

Hazard ratings are required for all new construction projects or those that change an existing structure's square footage in all of unincorporated Eagle County. They are dependent upon an extensive list of factors that exist within the property boundary, including vegetation, proximity to a water source or hydrant, ease of ingress and egress, and location of power lines. They can be influenced by construction materials used for previously existing structures and range from low to extremely high.

Low> hazard ratings may be assigned to parcels with little to no vegetative fuels, on flat ground, with ample access for emergency vehicles and access to a water source. Low hazard rated parcels are common in riparian areas with wetland grasses or lowgrowing native grasses and shrubs as well as parcels surrounded by golf course fairways or other large fuel breaks.



<**Moderate** hazard ratings may be assigned to parcels with somewhat-dense vegetative fuels, on slopes between 8% and 20%, and in locations that have a water source and are easily accessible to emergency vehicles. Common vegetation in these areas might look like dispersed and healthy aspen stands with isolated conifers, short forbs, and dryland native grasses.

High> hazard ratings may be assigned to parcels with dense vegetative fuels, on slopes of greater than 20%, in remote locations with little emergency access, and with little access to water resources. Common vegetation in these areas might look like uniformly dispersed coniferous stands, excessive deadfall and surface fuels, and a mixture of continuous desert shrubs.

** **Extremely High** ratings may occur in areas of exceedingly dense fuel loading, steep topography, remoteness, and lack of egress/ingress. Extremely high ratings do not alter building material parameters, however, the Wildfire Mitigation Specialist may require an expanded area for vegetation management and defensible space.

Existing Building Codes for Wildfire Hazard Areas

Low Hazard

No limitation, any material allowed by the Building Code

Moderate Hazard

- **Roofing**
  - Assembly - must have **Class B** fire rating at minimum
  - Roof venting - any roof venting in the soffit shall be in the outer ⅓ of the soffit, with non-combustible vent covers and metal screening with openings no greater than ¼"
- **Decking**
  - Must use fire resistive construction for beams, posts, joists, and decking (trim, fascia, guards and handrails are exempt). Materials shall be rated Class B or better (ASTM E-84 flame spread ratio of **26-75**) and listed for exterior use.
- **Soffits/Eaves**
  - Any soffit, eave, or roof extension projecting over 48" from the structure shall be of fire resistive construction
- **Siding**
  - No limitations, any material allowed by the building code

High Hazard

- **Roofing**
  - Assembly must have a **Class A** fire rating at minimum.
  - Roof venting - any roof venting in the soffit shall be in the outer ⅓ of the soffit, with non-combustible vent covers and metal screening with openings no greater than ¼"
- **Decking**
  - Must use fire resistive construction for beams, posts, joists, and decking (trim, fascia, guard and handrails are exempt). Materials shall be rated Class A or better (ATSM E-84 flame spread ratio of **0-25**) and listed for exterior use.
- **Soffits/Eaves**
  - Any soffit, eave, or roof-extension projecting from the structure shall be of fire resistive construction.
- **Siding**
  - The exterior of the structure shall be of non-combustible or fire resistive material (excluding trim).

DECKS

Eagle County Building Codes

Deck assemblies that will satisfy Eagle County Wildland Urban Interface Building codes correspond to the Wildfire Hazard rating that has been assigned to the property on which the new construction is taking place. Standard requirements for deck construction is ASTM E84 and listed for exterior use.

Existing Building Codes For Wildfire Hazard

Low: No limitation, any material allowed by the building code

Moderate: Must use fire resistive construction for beams, posts, joists, and decking (excluding trim, fascia, guards, and handrails). Materials must be rated **Class B** (ASTM E-84 flame spread ratio of 26-75) or better and listed for exterior use.

High: Must use fire resistive construction for beams, posts, joists, and decking (excluding trim, fascia, guards, and handrails). Materials must be rated Class A (ASTM E-84 flame spread ratio of 0-25) and listed for exterior use.

Photo: IBHS.org

Properties with Low hazard ratings do not have building material limitations, however, due to the everchaning weather patterns and extreme drought conditions it is highly recommended to construct the deck and attached structures with fire resistive features. Please see the **Decks Best Practices** section of this document for guidence.

Ponderosa Pine	55
Port Orford Cedar	60
Sitka Spruce	74
Sugar Pine	45
Redwood	45
West Coast Hemlock	73
Western Larch	45
Western Red Cedar	65

Class B Deck Assembly

For **Class B** deck construction for use in **moderate** or **low** hazard areas, all beams, posts, and joists must have a flame spread of **26-75**. Some accepted and popular materials include Douglas Fir (minimum 1" nominal thickness), EnDeck Composite decking, Trex Transcends and Advantage Ipe.

Douglas Fir
Photo: J&W Lumber

Trex Transcend Decking
Photo: Parr Lumber

** There will be situations and scenarios in which your building materials may not fit into these categories or these specific assemblies. Please consult with the Wildfire Mitigation Specialist to determine whether they will satisfy Eagle County wildfire building codes.

DECKS
Eagle County
Building Codes

Class A Deck Assembly

There are a number of ways to assemble a fire resistive Class A deck that will satisfy Eagle County building code requirements for HIGH hazard areas. Please see accepted examples below to get ideas about how to proceed with your project.


Non-combustible Deck
Photo: DiSabatino Landscaping

Option Above: Constructing a deck completely with noncombustible materials is considered a Class A assembly and will satisfy building code requirements for High Hazard areas. Some examples of non-combustible materials include stone, brick, cement, and aerated concrete blocks.

Option Below: Assembling a waterproof deck and then protecting the underside with 5/8" Type X Gypsum Board is considered a Class A Assembly. Type X Gypsum board has a flame spread of 15, which adds a protective layer to the deck. Decking materials can be anything allowed by building code with this method.

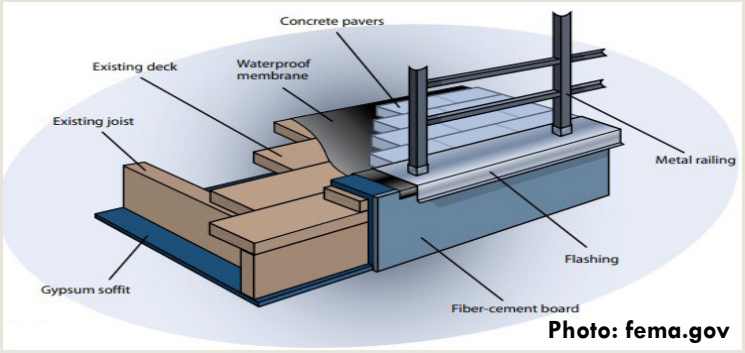
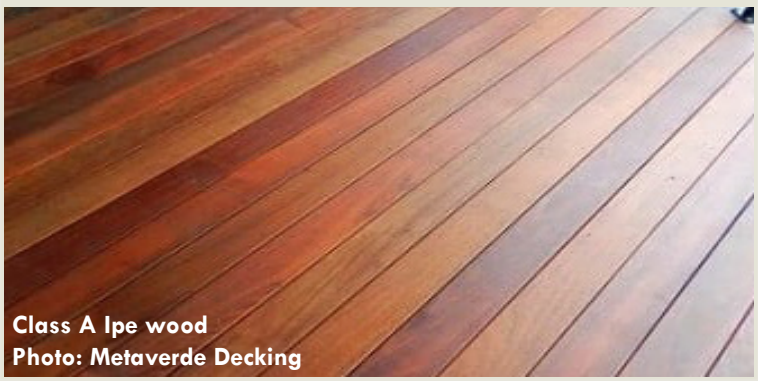


Photo: fema.gov

Option Below: Using materials with a flame spread of less than 25 for decking and structural members will also satisfy building code requirements. Some accepted materials include Ipe, Brazilian Walnut, and Brazilian Koa, FRX Exterior fire-retardant treated wood, and Exterior FireX by Hoover Manufacturing.


Class A Ipe wood
Photo: Metaverde Decking


Type IV Heavy Timber Deck
Photo: ucanr.edu

Option Above: Type IV Heavy Timber can be assembled as a Class A deck if the joists and beams are a minimum of 6" x 10", the decking itself is a minimum of 4" depth and the posts are a minimum 8"x 8". Heavy timber has a small surface area to volume ratio, meaning that it takes more time to dry out and heat up to combustion temperatures.

** There will be situations and scenarios in which your building materials may not fit into these categories or these specific assemblies. Please consult with the Wildfire Mitigation Specialist to determine whether they will satisfy Eagle County wildfire building codes.

DECKS
Best Practices

Ignition of decks, balconies, and porches can lead to the combustion of external features on a home. Thoughtful construction of these vulnerable and often highly combustible areas can prevent extensive damage and total loss of a building. This section will provide guidence on how to create a fire-resistive deck that will protect against ember intrusion and igntion.

What Lies Beneath?

Photo: farmfoodfamily.com

Vegetative growth around and below a deck acts as fuel and can bring fire to a home. Creating a non-combustible area around the deck will act as a barrier and prevent vegetation from growing beneath. Concrete or pavers are suitable materials. Embers also have the potential to accumulate under decks and ignite from beneath. Enclosing the underside with non-combustible skirting will help prevent this.

Choosing a Location

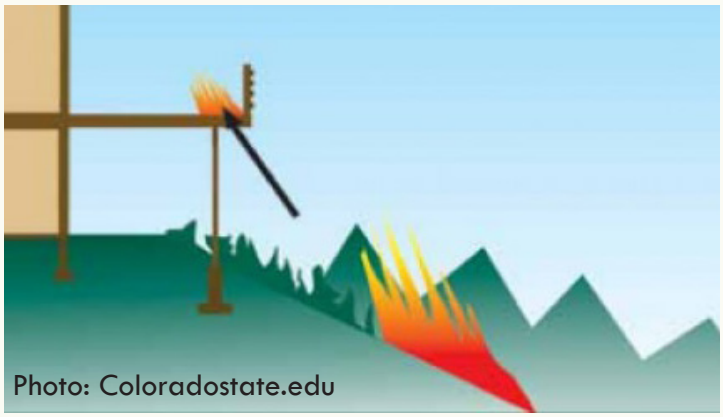


Photo: Coloradostate.edu

When designing a home or structure, it is important to orient the deck away from the potential path of a wildfire. Topographical features such as steep slopes, ridgelines, canyons, and gullies can focus surface winds and force convective heat to move upslope, putting deck features at risk. Choosing a space away from excessive vegetation and compromising topographical features will decrease the threat of ignition.

FLASHING

Photo: Jim Rominger

Embers have the potential to accumulate in the gaps between deck boards on top of joists, which can lead to the ignition of these pieces. Cap-flashing joists with metal will create a non-combustible barrier for embers, preventing this igntion.

Photo: Wildfire Partners

Embers may also accumulate at the junction of the deck and siding. To prevent an ignition of combustible siding, install metal flashing on top of ledger boards. Angled metal flashing can also wick moisture away from the foundation.

Photo: Wildfire Partners

In order for flashing at the deck-to-siding junction to have its desired effects, the flashing should extend no less than two inches up the siding. A layer of caulk behind the metal will prevent moisture from seeping in.

Eaves + Soffits

Eagle County
Building Codes

The wildfire hazard rating assigned to a property will dictate the required construction parameters of the intended structure's eaves and soffits.

Existing Building Codes For Wildfire Hazard

Low: No Limitations

Moderate: Any soffit, eave, or roof extension projecting over **48"** from the structure shall be of fire resistive construction

High: Any soffit, eave, or roof extension projecting from the structure shall be of fire resistive construction

Soffit Vents: Structures with vents in both **moderate** and **high** hazard areas must be in the outer 1/3 of the soffit with noncombustible covers and 1/8" metal screening

Fire Resistive Construction of Soffits

Heavy Timber (Type IV) may be used in roof extensions and open soffit construction if the rafters are 4" x 6" minimum and sheathing is composed of 2" x minimum Tongue and Groove material.

Soffit protection materials must comply with the Wildfire Hazard rating of the property (Class A, B, C etc.). If the protection materials do not meet the required Class rating, 5/8" Type X Gypsum board must be installed under the material to ensure proper protection.

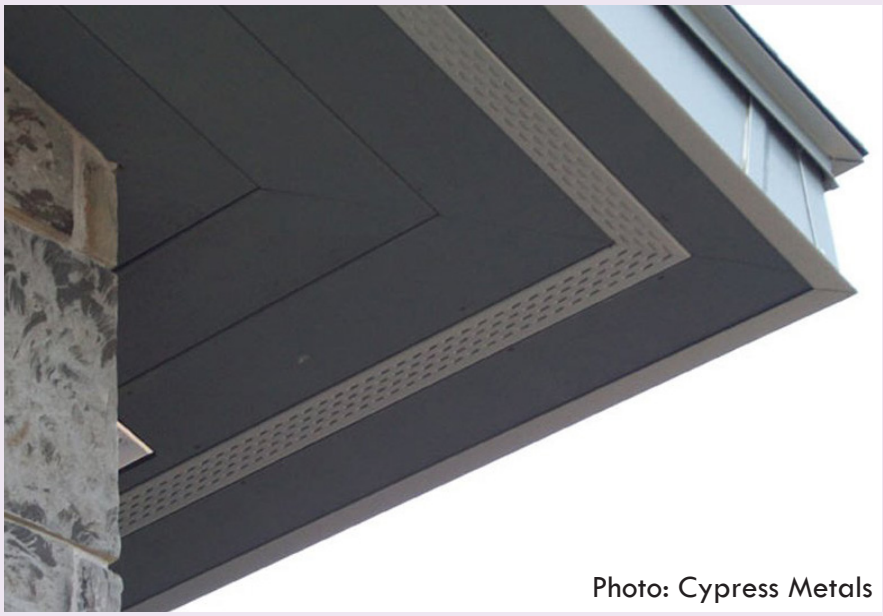


Photo: Cypress Metals

If your soffit construction implements the installation of roof vents, the vents must be located in the outer 1/3 of the soffit, be composed of noncombustible materials. and have 1/8" metal screening. Installing non-combustible soffit vents or adding metal screening over existing vents not only protects a structure from ember entry and ignition, it also keeps birds and other small animals from building nests in the attic space.

EAVES + SOFFITS
Best Practices

Designing homes with overhangs requires special care to be taken in the areas where hot gasses and embers will likely accumulate during a wildfire. Fire resistive construction of eaves, soffits and overhangs can prohobit the buildup of radiant and convective heat in the upper portion of exterior walls as well as prevent the entry of embers into buildings.

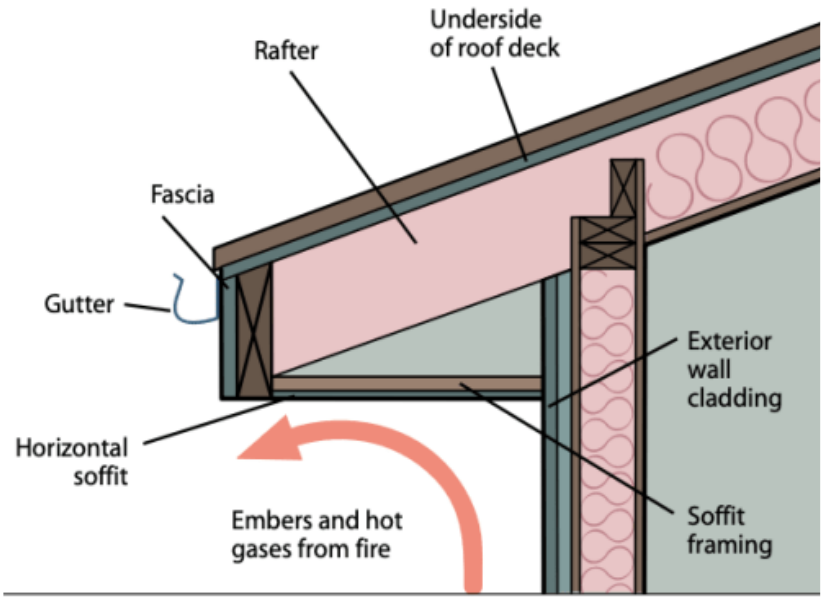


Figure: An enclosed overhang with a horizontal soffit can keep embers and hot gasses from igniting vulnerable areas.
Photo: FEMA.gov

The junction of the roof and exterior walls can work as a trap for both hot gasses and flying embers. When building a home with extensive overhangs, consider minimizing this space as much as possible in order to prevent this buildup and potential for ignition. If overhangs are necessary for keeping walls safe from rainfall or for aesthetic purposes, one option is to enclose open soffits with a 1-hour rated fire resistant material to keep embers and gasses from reaching the structural roofing materials. Attaching the soffits so that they lay horizontal as opposed to sloped is ideal as it decreases the potential for embers and gasses to accumulate.

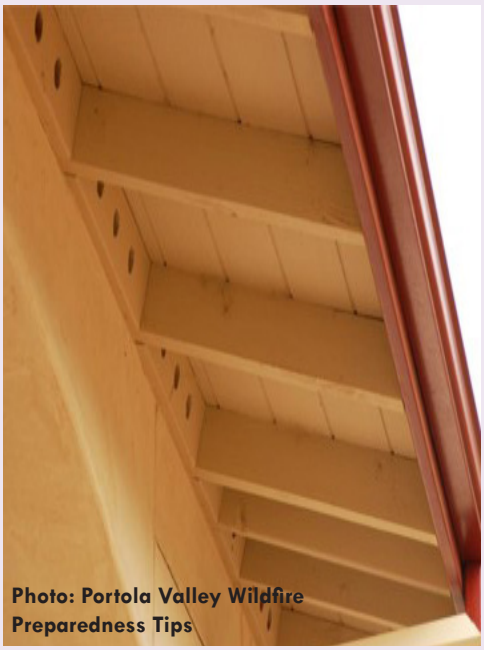
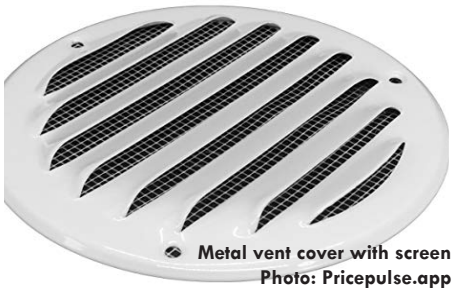


Photo: Portola Valley Wildfire Preparedness Tips

Left: If open soffits are essential for your construction project, consider using Type IV Heavy Timber for rafters and other exposed components. Heavy Timber has a smaller surface area to volume ratio than other materials, making it more difficult to dry out and heat up to combustion temperature.



Metal vent cover with screen
Photo: Pricepulse.app

Right: Hot gasses and embers can be pulled into unprotected soffit vents, leading to ignition of attic spaces and roofing materials. Installing non-combustible vent covers as well as metal screening over theses openings is recommended.

Vulcan Soffit vents
Photo: vulcanvents.com

** Enclosed soffits may develop gaps and holes as they age and are exposed to weather. These gaps can act as a trap for flying embers, which may lead to an ignition. Be sure to keep soffits secure by replacing loose nails or sealing them with a high-quality caulk.

ROOFS

Eagle County Building Codes

The wildfire hazard rating will dictate the required fire rating for roof coverings. Fire ratings for roof coverings are classified as either A, B, C or nonrated, and the required standard for roof construction is ASTM E108.

Existing Wildfire Building Codes

Low: No limitations, any material allowed by the building code

Moderate: Roof covering must have a Class B fire rating at minimum

High: Roof covering must have a Class A fire rating at minimum

Vents: Soffit vents in structures in both **moderate** and **high** hazard areas must be in the outer 1/3 of the soffit with noncombustible covers and 1/8" metal screening

Class A Slate Roof

Class A DaVinci Composite
Photo: davinciroofscapes.com

Asphalt Shingle roof coverings can be considered Class A with a layer of 5/8" Type X Gypsum board underneath the shingles.

ROOFS

Best Practices

Roof coverings are often the first place that fire brands have contact with a structure. For this reason, the components of the roof can dictate whether a home will survive a wildland fire event. This section will provide guidance on designing a roof assembly that will withstand the threat of flying embers and approaching wildfire.

Tips for Common Roof Coverings

Metal: Metal panels are considered noncombustible, however, they can transfer heat very well. 5/8" Gypsum board is recommended to be installed on the roof deck if the metal panels are being placed directly over wooden decking. This gives the roof an extra layer of fire resistance.

Tile: Eaves of tile roofs can act as ember traps, allowing fire brands to enter and make contact with the roof deck. Birds and other creatures can also use this space to create combustible nests.It's important to plug these openings with noncombustible material to prevent ember entry and ignition of roofing features.

Asphalt Shingle: Asphalt shingles are a less-expensive roofing option and are rated Class A with 5/8" Gypsum board on the decking underneath. Replacing these shingles when they show wear and tear is also an easier and less expensive task than other roofing materials.

Complex Features

Complex features such as dormers or differing shapes in the roof design give leaf litter and embers an area to accumulate near siding and overhangs (left). It is important to add protective flashing at these junctions to prevent the ignition of combustible siding and other features. Metal flashing is common and cement fiber board allows you to match the color of the home. Flashing should extend at least two or more inches up the siding in order to be effective (right).

Note: Replace non-rated or aging roofs as soon as possible to reduce the vulnerability of the roof to wildfire.

SIDING

Eagle County
Building Codes

The Wildfire Hazard rating for a specific property will dictate whether fire resistive construction of siding is needed for

Existing Building Codes For Wildfire Hazard Areas

Low: No limitations; any material allowed by the building code

Moderate: No limitations; any material allowed by the building code

High: The exterior of the structure shall be of non-combustible or **fire resistive** material (excluding trim)

Photo: haleystone.net

Photo: Christie's International Real Estate

Acceptable Fire-Resistive Siding Assemblies

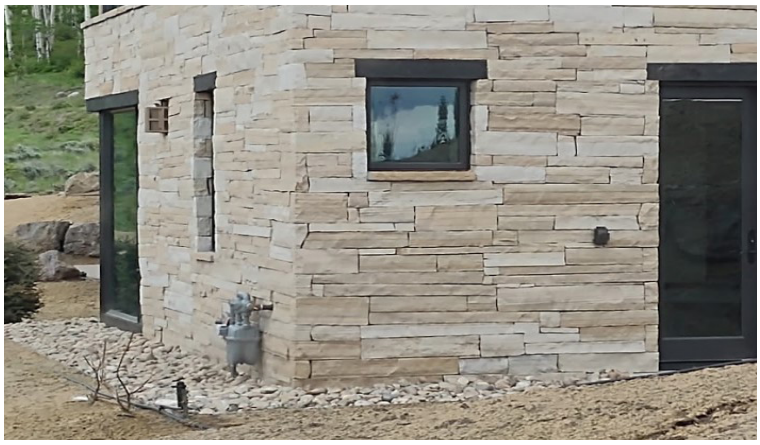
Option: You may use non-combustible materials such as stone, concrete, brick, etc.

Option: You may create a 1-hour listed assembly by installing 5/8" Type X Gypsum board under combustible siding

Option: You may install cement stucco with a 1/2" minimum thickness

Option: You may use logs that are 6+ inches in diameter

Option: You may apply noncombustible siding materials (ie. stone wainscot or similar) on the first story (7.5 feet up from the base of structure) in conjunction with the application of a noncombustible zone extending 5 feet out from the base of all exterior walls and decks.



Note: Field applications of fireproofing stains are not satisfactory for Eagle County WUI building codes.

SIDING
Best Practices

Exterior siding is one of the first lines of defense on a home or structure because it acts as a direct line between the convective and radiant heat of a wildfire and the interior. Fire brands also have the potential to get lodged inside of holes in exisiting siding and cause an ignition. It's important to assemble a fire resistent or non-combustible exterior without holes and gaps to prevent ignition of siding and the potential for fire spread to other combustible features.

Filling Gaps and Holes

Embers traveling ahead of a wildfire can become lodged in gaps and holes in siding created by old age and birds. It's important to fill these holes to keep embers from accumulating and causing an ignition. Consider filing these gaps and holes with chink or caulk and replacing combustible siding that is showing age.

Photo: ucanr.edu
Before installing chink

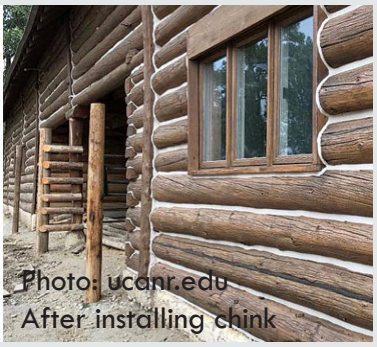


Photo: ucanr.edu
After installing chink

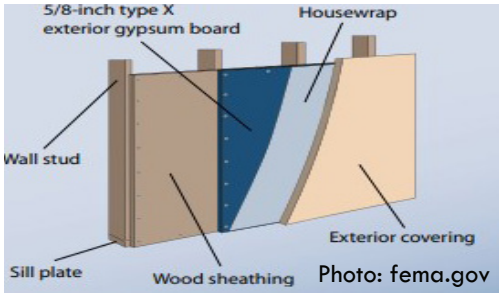
Non-Combustible vs. Combustible Siding

In the event that a flame ignites combustible siding, fire can now potentially spread to other components of a house, including eaves, soffits and windows. If these components fail, total loss of the home can occur. Combustible siding is also an invitation for fire to burn through to the stud cavity and then into the interior. It is a best practice to use non-combustible or fire resistant siding materials that aren't going to melt or allow flame penetration. It is highly recommended that these materials are non-combustible such as concrete, cement fiber board, stucco, brick, or metal with a non-combustible layer beneath. Siding covers that aren't recommended are vinyl, non-treated wood siding, and metal susceptible to warping. Wood has the potential to ignite and vinyl and warped metal have the potential to expose combustible framing components beneath.

Stone is considered a non-combustible siding cover and will not burn under wildfire conditions. Consider using this material to give your structure a rustic appearance and to maintain a strict level of fire resistiveness.

Photo: ucanr.edu

Vinyl and some metal assemblies can melt and warp under wildfire conditions, which may expose other combustible components. It is important to avoid materials such as these or install a fire resistive layer beneath to provide some protection.



Installing 5/8" Type X Gypsum board under combustible siding will provide some protection to the chosen assembly. If the siding materials melt or warp during a fire, the Gypsum board will serve as a fire resistive layer.