## Montana Department of Natural Resources and Conservation Structure Assessment Form

Date:	
Property Owner:	
Address:	
	Phone:
Type of Structure: Primary Seasonal Outbuilding	Care Facility Hotel/Lodge/Camp Public Facility Other
Number of Occupants: # of Additional St	ructures & type:
Responding Fire Department:	Phone:
Assessor:	
Email:	

Wildfire mitigation is intended to reduce wildfire risk, not eliminate the risk of wildfire. It is important to note that wildfire is a natural and inevitable phenomenon in Montana. It is a dynamic event influenced by several factors including weather (winds, temperature, relative humidity), topography (steepness of a slope, the direction that slope faces, and terrain features such as canyons and saddles), and fuels (light or heavy loading, height, continuity, and volatility) as well as human activity, response times, and seasonal trends. *There will always be some risk of wildfire regardless of mitigation efforts and structural characteristics.* 

This assessment is designed to identify vulnerabilities around the home and offer recommendations for improvement.

In a wildfire situation, home ignitions can occur in multiple ways including:

- Firebrands or ember-wash This is the most common way that homes ignite during a wildfire. Wildfires may produce high winds that loft firebrands up to a mile ahead of a fire. This often explains how fires grow so quickly. Closer to the fire, small embers swirl around like a blizzard and accumulate in corners and crevices. These may ignite combustible materials such as needles, leaves, wooden decks, siding, or enter through gaps, cracks, or vents in an attic, soffit, or crawlspace to ignite combustible materials within.
- 2) Radiant & convective heat When intense enough, heat produced by a fire will ignite the home or preheat siding and other materials which then ignite more readily when in direct contact with flame or embers.
- 3) **Direct flame** Vegetation or fuels near the home ignite, subsequently igniting the home.

Provide a sketch or photo of the home and property. Include distinguishing features, topography, and predominant wind direction:

Topography and terrain	Why does this matter?	What can be done?
Slope within 150 feet of structure: 0-8% 9-20% 20-30% > 30% Is the structure setback from the edge of the slope: Adequate > 150 feet Inadequate < 150 feet	Fire moves faster upslope than across flat ground, especially when slope and wind are in alignment.	<ul> <li>✓ Be more aggressive with fuel mitigation measures by increasing the spacing between trees and shrubs, especially those downslope from the structure.</li> <li>(See recommendations in the vegetation section)</li> </ul>
Aspect: N NE E SE S SW W NW	South-facing slopes generally receive more direct sunlight resulting in drier vegetation and a more combustible environment.	
Position of structure on the slope: Valley bottom or lower slope Mid-slope Upper-slope Ridge top/chimney	Position on slope may influence fire behavior, equipment access, response times, or safe evacuation.	
Features present: Steep slopes Canyons Chutes or chimneys Saddles	Topographic features such as steep slopes, canyons, chutes, chimneys, and saddles can funnel winds, affect fuel conditions, and dramatically increase fire behavior around your home.	
Weather	Why does this matter?	What can be done?
Local weather and prevailing winds: N NE E SE S SW W NW	The common occurrence of dry weather and strong winds increases probability of wildfire starts and aggressive fire spread in your area.	<ul> <li>✓ Take action to prevent wildfires.</li> <li>✓ Be more aggressive with fuels mitigation around your home, especially those from the prevailing wind and weather side.</li> </ul>
<b>Periods of severe dry weather:</b> Y or N	High winds will cause a fire to move faster and the increase in oxygen will cause a fire to burn more intensely. Flame lengths will be	<ul> <li>✓ Keep your roof, decks, and perimeter of your home clean of any needle and leaf debris.</li> </ul>
<i>#</i> of days/month with strong dry winds:	longer and a shower of embers will blow ahead of the fire.	<ul> <li>✓ Stay updated on fire weather and conditions during the fire season. Include:</li> <li>Weather Internet Sites</li> <li>Fire Danger and Fire Wx</li> </ul>

Roof Assembly	Why does this matter?	What can be done?
Material: Metal or tile Asphalt/composition shingles Other noncombustible material Untreated wood shakes	The roof is most vulnerable because it has the largest surface area for leaf and needle debris to accumulate and for embers to land on. It is often the starting point for home ignition.	<ul> <li>✓ Replace combustible or wood shake roof with noncombustible roofing material.</li> <li>✓ Remove tree branches overhanging or within ten feet of the roof to reduce annual</li> </ul>
Cleanliness: No combustible material Scattered combustible material < .5 in. depth Clogged gutter, combustible material > .5 in. depth Dormers or gullies: Y or N	Dormers and gullies are primary areas where leaf and needle debris accumulate and provide a fuel-bed for windblown embers. Once ignited, adjacent combustible siding may ignite as well.	<ul> <li>accumulation of needles or leaves.</li> <li>✓ Keep the roof, gullies, and gutters clean, especially during wildfire season.</li> <li>✓ Near dormers, install metal step flashing from under the roof covering and up the exposed wall, a minimum of 2 inches.</li> </ul>
Condition: Good Poor Gaps in roof covering: Y or N	Embers can also enter small gaps and cracks in the roof assembly and the roof edge.	✓ Repair any damage, replace missing shingles, and seal all gaps or cracks larger than 1/8 inch.
Is the roof edge covered with metal flashing: Y or N	If gutters are present and an ember lands in the debris, metal flashing may help keep the roof edge from igniting.	<ul> <li>✓ Protect openings at the roof edge by installing metal angle flashing.</li> </ul>
Is there evidence of nesting rodents or birds: Y or N	If nesting material is present, embers can also easily enter. Nesting material will also provide light fuel for fast ignition.	✓ Plug gaps between the roof covering and roof deck with "bird stop," mortar mix, or foam inserts specially designed for metal roofs.
<b>Skylights:</b> None Plastic Glass	Plastic skylights are vulnerable to burning embers & may melt in a fire situation, allowing an opening for additional embers or burning material to enter the home.	✓ Replace plastic or dome skylights with flat tempered-glass skylights. Keep roof clean and remove overhanging branches.
Chimney	Why does this matter?	What can be done?
Present: Y or N Screened: Y or N	If you stand outside your home on a winter's night and look up at your chimney, you would likely see embers from your fire in the night sky. Nights are often cool in the	<ul> <li>✓ Install a spark arrestor that has 1/2 –inch mesh. These are available at lumber yards, hardware stores, or fire place specialty stores.</li> <li>✓ Remove overhanging branches</li> </ul>
<b>Vegetation nearby:</b> Y or N	mountains so fireplaces and woodstoves are used throughout the year.	and trees that are within 10 feet of your chimney.

	Spark arrestors are required to prevent large embers from escaping through your chimney.	
Gutters	Why does this matter?	What can be done?
Type: None Metal Plastic or vinyl Clean of litter: Y or N	Needles & leaves accumulate in gutters, bake in the sun, and provide a fuel bed for windblown embers. A small fire in a gutter may grow to ignite wood fascia or the roof assembly. During a wildfire, plastic or vinyl gutters melt, detach, and fall to the ground igniting combustible materials below, including combustible siding.	<ul> <li>✓ Replace plastic or vinyl gutters with metal or remove gutters where most prone to collecting debris and replace with a noncombustible drip-line.</li> <li>✓ Remove gutters entirely and install rock mulch under the drip line to create a noncombustible perimeter around the home.</li> <li>✓ Clean gutters of all debris before and during each fire season.</li> <li>✓ Install a solid cover or mesh arouse to be a pattern from</li> </ul>
		screen to keep gutters from collecting debris. These will also require maintenance to keep clean.
Eaves	Why does this matter?	What can be done?
Type: Boxed-in or fire-treated Non-boxed and not treated	During a wildfire, high winds cause embers to swirl around like snowflakes in a blizzard. They can gather in crevices of open eaves or enter small spaces through gaps and cracks. Without boxed-in eaves your attic is very susceptible to ignition from windblown embers.	<ul> <li>✓ Box in eaves to eliminate the possibility of embers blowing in.</li> <li>✓ Place soffit vents near the roof edge, not near the exterior wall.</li> <li>✓ Inject sealant (caulking) in any gaps.</li> <li>✓ Remove all vegetation within 5-feet of home.</li> </ul>
Exterior walls & siding	Why does this matter?	What can be done?
Siding material: Noncombustible or metal Log or heavy timber Smooth wood or vinyl siding Wood shake or ember Receptive siding Condition: good or poor	Some siding materials are more resistant to radiant heat and direct flame impingement than others. Log structures resist ignition better than other wood siding of smaller material, but it is vulnerable to embers between the log joints.	<ul> <li>✓ Replace wood siding with noncombustible material or treat wood with fire-resistant treatment.</li> <li>✓ Inspect and replace any broken or missing chinking between logs with fire-resistant material.</li> </ul>

Structures distance from slope if slope is >25%: Skirting material:	Upon exposure to low levels of radiant heat, vinyl siding may be damaged and fall off leaving openings for embers to enter the interior of the home. Radiant heat can pre-heat wood siding that may ignite later with direct flame contact. If siding is too close to ground, < 2-inches, even ground fuels may ignite the siding.	<ul> <li>✓ Caulk and seal any gaps in siding and where the siding meets the trim.</li> <li>✓ Maintain a noncombustible zone around the perimeter of your home and remove any highly combustible vegetation (junipers, pine shrubs) that may ignite and be in direct contact with the siding.</li> <li>✓ Consider installing noncombustible skirting around the building.</li> </ul>
Windows	Why does this matter?	What can be done?
<b>Type of windows:</b> Single-paned Double-paned Tempered glass	Windows may break after 1 to 3 minutes of exposure to intense heat or flame, subsequently exposing window coverings and home interior to embers and firebrands. Single-pane windows are more vulnerable than dual-paned, multi- paned, or tempered glass windows. Larger windows are more vulnerable to breaking than smaller windows.	<ul> <li>✓ Build shutters of ½-inch plywood or thin metal and make installation a step in your evacuation plan. Be sure all hardware is present and that they are easy to install in a short amount of time.</li> <li>✓ Even the best windows will not protect if they are left open. Close all windows upon evacuation.</li> </ul>
Window screens: None Plastic Metal	If windows do break, metal screens may still keep firebrands and embers from entering the home, while plastic screen can melt.	✓ Replace plastic screens with metal screens.
<b>Vegetation near windows:</b> Y or N	Planting combustible vegetation near windows increases the chances of intense heat coming into direct contact with the windows.	✓ Remove highly combustible vegetation in front of windows and replace with something high- moisture or low growing.
Vents	Why does this matter?	What can be done?
All structure vents have: Noncombustible ¼ - 1/8 inch protective screen Noncombustible screen > ¼ inch No screens	In the event of a wildfire, embers can enter small spaces to ignite combustible materials within. Post-fire surveys have found that embers large enough to cause ignitions can pass through $\frac{1}{4}$ inch and even 1/8 inch mesh screening.	✓ Install 1/8 inch metal mesh screens on all vents. Until recently, minimum screen size allowed was ¼ inch. If 1/8-inch screening is installed, it will take maintenance to keep it clean of debris, allowing air to circulate so moisture does not build-up in enclosed space.

Circle the below vents if they are NOT screened with noncombustible ¼ - 1/8 material: Attic Crawl space Eaves Soffit Roof turbine Dryer	So while screening will help reduce the risk of ember entry, it is not a perfect solution (IBHS).	<ul> <li>✓ Consider preparing vent covers of plywood or thin metal to install as part of a pre-evacuation preparedness plan.</li> <li>✓ Install a louver-type vent that stays closed unless the dryer is operating.</li> </ul>
Attached Structures	Why does this matter?	What can be done?
Overall, are attached combustibles: None, clear of receptive fuel Receptive fuel adjacent Receptive fuel below Decks and Balcony: Not applicable Clear of receptive fuel? Y or N Have receptive fuel adjacent? Y or N Have receptive fuel below? Y or N Patio covers: Not applicable Clear of receptive fuel adjacent? Y or N Have receptive fuel adjacent? Y or N Have receptive fuel above? Y or N Have receptive fuel above? Y or N Have receptive fuel adjacent? Y or N	Decks are often constructed of combustible materials. Items are left on decks and often stored underneath. Grass, leaves, needles and yard debris accumulate under decks. Carports may be storage for fuel, oil, or other flammable automotive liquids. Fences tend to collect debris and may act like a wick to bring fire to a building. This area between the home and the surrounding wildland is often the place where combustible yard items (brooms, lawn furniture & cushions, children's toys, swing sets, door mats) are stored or accumulate.	<ul> <li>✓ Keep areas clean and clear of debris.</li> <li>✓ Never store combustible materials under or on top of decks or porches attached to your home.</li> <li>✓ If interested in using the area for storage, considering enclosing and maintaining vegetation out to 30 feet.</li> <li>✓ Replace any rotten wood.</li> <li>✓ Keep areas under low patios clear of wood mulch and yard debris.</li> <li>✓ Install a metal flashing strip to separate attachment from the home.</li> <li>✓ Replace wood fence-ends with noncombustible material (masonry or metal) like a gate or heavy timber to keep fire from spreading.</li> </ul>

Garage: Not applicable Have receptive fuel adjacent? Y or N Storage Building/Shed: Not applicable Have receptive fuel adjacent? Y or N Vegetation: 0-5 feet	Why does this matter?	What can be done?
Ember resistant zone within 3 feet of structure? Y or N Ground cover around structure: Wood Rock Gravel Grass Other Grass: None Short and maintained Native and tall Shrubs: None Light and no dead Heavy with dead material Trees: Y or N Ladder fuels:	Planting combustible vegetation adjacent to your structure increases the chances of intense heat coming into direct contact with the home. Juniper bushes and trees are extremely flammable. Trees and shrubs within the 0-5 foot home ignition zone can cause a significant amount of radiant and convective heat on your home causing it to ignite.	<ul> <li>✓ Use nonflammable mulches, rock and noncombustible hard surfaces.</li> <li>✓ Remove trees located 0-5 feet from the structure. If removing the tree is not an option, prune lower limbs of trees to reduce the chance of a fire spreading to the tree top than moving to the roof. (10-15 feet or 1/3 the trees height, whichever is less is a standard rule of thumb for pruning)</li> <li>✓ Shrubs adjacent to trees need to be removed to eliminate them from spreading fire into the trees tops.</li> <li>✓ Consider low growing herbaceous (non-woody) or succulent plants near structure.</li> <li>✓ Pick up dead and downed vegetation sticks and logs where they have heavy accumulation.</li> </ul>
Y or N Vegetation: 5-30 feet	Why does this matter?	What can be done?
Overall, are combustibles 5-30 feet from structure are: None Light Moderate Heavy Grass: None	Deciduous plants tend to be more fire resistant, because leave have high moisture content. Trees and shrubs within the 5-30 foot home ignition zone can cause a significant amount of radiant and convective heat on your home.	<ul> <li>✓ Break up continuous vegetation.</li> <li>✓ Consider broadleaf/deciduous trees because they are less flammable then conifer trees.</li> <li>✓ Keep 10 feet spacing between trees tops or create small groupings of trees and/or shrubs.</li> </ul>
Short and maintained Native and tall	Grass which is burnable will cause a fire to spread rapidly toward your	✓Lower limbs of trees need pruned to reduce the chance of a

	home. The greater the amount	fire spreading to the canopy. (10-15
Shrubs:	(height and volume) the greater the	feet or 1/3 the tree height,
None	flame length and heat intensity, and	whichever is less is a standard rule
Light and no dead	the harder it is to control.	of thumb for pruning)
Heavy with dead material		
	Heavy ground fuels will cause a fire	✓ Shrubs and tall grass adjacent
Trees:	have high flame length, high fire	and under to trees needs to be
None	5 5 5	removed to eliminate them from
Deciduous - good separation	intensity and long duration of heat.	being ladder fuel to tree canopies.
Deciduous – continuous		
Mixed – good separation	Ladder fuels will cause a surface	$\checkmark$ Maintain grass so it is short and
Mixed – continuous	fire to climb into the canopy of the	green (non-burnable).
Coniferous – good separation	trees.	green (non burnable).
Coniferous - continuous		✓ Eliminate areas of heavy fuels on
connerous continuous		the ground.
Tree canopy spacing:		the ground.
< 10 feet		✓Walkways and paths can be
> 10 feet		effective for breaking up fuel
		continuity so that it is difficult for a
Ladder Fuels:		fire to carry.
Absent		line to carry.
Scattered		
Abundant		
Abandant		
Heavy fuels on the ground:		
Y or N		
Vegetation: 30-100 feet	Why does this matter?	What can be done?
Grass:	Isolated or small grouping of trees	✓ Consider broadleaf/deciduous
Grass: None	Isolated or small grouping of trees or shrubs are best. Treat groups as	<ul> <li>✓ Consider broadleaf/deciduous trees because they are less</li> </ul>
<b>Grass:</b> None Short and maintained	Isolated or small grouping of trees or shrubs are best. Treat groups as individual units.	✓ Consider broadleaf/deciduous
<b>Grass:</b> None Short and maintained Native and tall	Isolated or small grouping of trees or shrubs are best. Treat groups as individual units. Trees within the 30-100 foot home	✓ Consider broadleaf/deciduous trees because they are less flammable then conifer trees.
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Ladder Fuels:		
Absent		✓ Native grass lawns and
Scattered		recreated meadows are also
Abundant		possibilities for this zone. Use
Abdildalit		drought resistant and low water
Heavy fuels on the ground:		use species.
Y or N		use species.
Vegetation: 100-200 feet	Why does this matter?	What can be done?
		What can be done.
Heavy and/or continuous	Du thinning sugarting on has ding un	✓Keep 10 feet spacing between
conifer trees 100-200 feet from	By thinning, grouping or breaking up	tree tops or create small
structure:	the continuous vegetation in this	groupings of trees. This can
Y or N	area you are reducing the amount of	depend on the tree species.
I OI N	embers that will threaten your	depend on the tree species.
Grace	home and intensity of a fire that	$\checkmark$ Lower limbs of trees need
Grass:	may be nearing your home.	
None		pruned to reduce the chance of a
Short and maintained	Reducing ladder fuels helps keep a	fire spreading to the canopy (10-15
Native and tall	fire on the ground. This could be a	feet or 1/3 the tree height,
	fire that started away from your	whichever is less is a standard rule
Shrubs:	home or a fire that started in your	of thumb for pruning)
None	yard from spreading to the	
Light and no dead	neighboring area.	
Heavy with dead material		
<b>T</b>		
Trees:		
None		
Deciduous - good separation		
Deciduous – continuous		
Mixed – good separation		
Mixed – continuous		
Coniferous – good separation		
Coniferous - continuous		
Tree canopy spacing:		
< 10 feet		
> 10 feet		
Ladder Fuels:		
Absent		
Scattered		
Abundant		
Henry field on the stream de		
Heavy fuels on the ground: Y or N		
Heat Source	Why does this matter?	What can be done?
	,,	
Structure is heated by:	As previously mentioned, it is	✓ Store fire wood 30 feet from
Wood	important chimneys have a spark	structure or in an enclosed
Propane	arrestor.	structure.
Electric		
Natural gas	The next important factor when	✓ Clear vegetation away from
ũ	The next important factor when	

	heating with wood is stanged. If	propane tanks.
	heating with wood is storage. If	
Wood storage:	wood piles are kept next to the	✓ Ensure propane tanks are not
Not applicable	home or within 30 feet are ignited	moved or altered so they will vent
Adjacent to structure	by embers they increase the	properly if heated.
< 30 feet away	chances of intense heat coming into	property if fleated.
> 30 feet away	direct contact with the home.	× Encura vagatativa claaranca
		✓ Ensure vegetative clearance above, below and adjacent to
Enclosed storage	Propane tanks when heated by	
Drenene tenk le setient	nearby vegetation or combustible	power lines.
Propane tank location:	materials can explode if they don't	
Not applicable	vent properly.	✓ Have power line structures
Above ground with clearance		inspected and replaced if needed.
Above ground no clearance	Overhead electric power lines when	
Underground	in contact with vegetation can cause	
	a fire (tree falling into a power line	
Electric:	or power line structures falling into	
Not applicable	a tree).	
Above ground powerlines		
Buried powerlines		
Ignition Sources	Why does this matter?	What can be done?
Devile a succe		
Barbecue:	Ignition sources can escape and	✓ Insure a minimum of 10-15 feet
Y or N	start a wildfire. It is important to	clearance of burnable vegetation
	ensure ignition sources are never	above and around ignition source.
If yes:	left unattended and always	
Propane	extinguished properly.	$\checkmark$ Remain with fire and/or ignition
Charcoal		sources at all times.
<b></b> .	Barbecues, fire pits, debris burning	
Fire pit:	and many other ignition sources can	✓ Keep fires small.
Y or N	cause wildfires if left unattended;	
16	ashes are disposed of improperly;	✓ Always have plenty of water
If yes:	on windy dry days; or when burnable	nearby.
< 10 feet clearance	vegetation is to close.	
> 10 feet clearance		✓ Check weather forecast. Don't
	The last thing anyone wants to	burn on windy dry days.
Burn barrel:	happen is to be the cause of a	
Y or N	wildfire where property is lost and	$\checkmark$ Check on the burned area the
	danger to human life is at risk.	following day to ensure it is not
If yes:		holding any heat.
< 15 feet clearance		
-		
> 15 feet clearance		✓ Keep fire extinguisher's
> 15 feet clearance		✓ Keep fire extinguisher's available.
> 15 feet clearance Screen on barrel:		available.
> 15 feet clearance		<ul><li>available.</li><li>✓ Dispose of ashes in a safe manor</li></ul>
> 15 feet clearance Screen on barrel: Y or N		<ul> <li>available.</li> <li>✓ Dispose of ashes in a safe manor (mix with water in metal</li> </ul>
<ul> <li>&gt; 15 feet clearance</li> <li>Screen on barrel:</li> <li>Y or N</li> <li>Other ignition sources:</li> </ul>		<ul><li>available.</li><li>✓ Dispose of ashes in a safe manor</li></ul>
<ul> <li>&gt; 15 feet clearance</li> <li>Screen on barrel: Y or N</li> <li>Other ignition sources: Lawn equipment</li> </ul>		<ul> <li>available.</li> <li>✓ Dispose of ashes in a safe manor (mix with water in metal container).</li> </ul>
<ul> <li>&gt; 15 feet clearance</li> <li>Screen on barrel: Y or N</li> <li>Other ignition sources: Lawn equipment Off road vehicles</li> </ul>		<ul> <li>available.</li> <li>✓ Dispose of ashes in a safe manor (mix with water in metal container).</li> <li>✓ Consider alternatives to burning</li> </ul>
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	Appendix A	
Water Sources	Why does this matter?	What can be done?
<b>Circle available water sources:</b> Hydrants Outside faucets Pond or creek	Water sources are important when you have a wildfire or are trying to prevent a wildfire.	<ul> <li>✓ Have multiple garden hoses available to reach areas 200 feet from your home.</li> <li>✓ If you have ponds, a pool, creek,</li> </ul>
Outside sprinkler system None	Being able to apply water to areas 200 feet from your home is important.	or irrigation ditches, consider having a pump and hose available to apply water if needed.
Notes:	Water supplies can also assist emergency response vehicles and personal if they are available and can safely work in the area.	<ul> <li>✓ Consider how to apply water if the electric power is turned off. (Generator, pump with gas motor).</li> </ul>
	APPENDIX B	
Access	Why does this matter?	What can be done?
Address visible, reflective and noncombustible: Y or NLocked gate blocking access: Y or NIf yes, does fire department have access: Y or NCommunity access: Two or more roads in/outCommunity access: Two or more roads in/outWidth of driveway: 12 feet or less 13 feet or moreLength of driveway: < 50 feet 50 to 150 feet	If emergency service vehicles cannot find you property it can be difficult for them to assist if they are available and can safely work in the area. Providing gate access to emergency service is important so they can assist. By having two evacuation routes it increase the chances of a safe evacuation. One route could be blocked by downed power line, emergency vehicles, fire, or a downed tree. The length of your driveway, adequate turnaround and bridge weight limits are helpful for emergency personnel to know so they can determine if it is safe for	<ul> <li>Ensure your property is clearly marked will reflective and noncombustible material and can be seen from the road.</li> <li>Provide local fire department and/or emergency responders with gate access.</li> <li>Create an alternative evacuation route out of your property and/or community.</li> <li>Make sure driveway is clear of overhanging trees and vegetation is cleared at least 5 feet on each side of driveway.</li> <li>Consider creating a turnaround route for emergency vehicles.</li> </ul>
150 to 500 feet 500 feet or more Adequate turnaround: Y or N Bridge weight limits: Y or N Unknown Not applicable	them to enter.	

## Notes and Comments