Wildfire Hazard Areas - 11

Residential Structures and Landscaping

One and Two Family Residential Dwellings

- **Information related to permit and inspection requirements**

In the Pacific Northwest, fires have historically been a natural part of the changing landscape. As homeowners continue to build directly adjacent to fire-prone natural areas, they must take special precautions to protect their lives, homes and property. One way to do this is to create a defensible space around your home by modifying, reducing or clearing potential wildfire fuel materials or vegetation to create a barrier that will slow the spread of wildfire toward your home. A defensible space also allows room for firefighters to fight the fire safely. Three critical steps in creating a defensible space include:

- using fire resistant building materials
- landscaping with fire resistant plants
- reducing flammable materials or fuels, such as invasive trees and shrubs, plant trimmings, firewood, fiberglass boats, and recreational vehicles around the home

These actions **do not** ensure that your home will survive a wildfire, but they will make your landscape and home more wildfire resistant, or at least able to slow the advance of a wildfire. Several factors affect the chances of your home surviving a wildfire: the expanse of an approaching fire, the number of homes threatened, and the number of fire engines deployed to each neighborhood. The chance that homes will survive the fire are based on the performance of the fire-resistant characteristics of the building structure itself. By using fire resistant materials when building or remodeling, the chances of your home surviving a wildfire are greatly increased.

Fire Resistant Construction Recommendations

Roof coverings and design

Studies show that the portion of a home most vulnerable to wildfire is the roof.

- Roof your home with nonflammable roofing materials; it's the strongest line of defense in wildfire protection. A treated wood shake roof provides the least protection.
- Use a simple hip or straight gable roof design when building in a wildfire area. Roofs with intersecting planes and valleys form dead air pockets and eddy currents that help fan the flames of a fire.

Aluminum	Steel	Concrete
Clay	Slate	Composition Asphalt

Exterior walls

Non-combustibility is the key. There are many siding products made from cement and gypsum that will not ignite. Stucco, stone, masonry and other exterior materials are better than wood at preventing fire from intruding into the walls. They are the most expensive materials, but they give walls a higher fire resistance rating. Another thing to consider is that when you use redwood or cedar siding, these products are made from trees that are harvested from mature forests. You can save habitat by buying nonflammable materials.

- Back the siding that you use with gypsum board that is rated for exterior use, particularly if you use exterior siding made of wood, vinyl, steel or aluminum. It will provide a nonflammable membrane, because gypsum breaks the heat conduction that can be transmitted by steel and aluminum.

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Windows

- Consider installing dual- or triple-glazed windows. The exterior panes of energy-efficient, dual-glazed windows can crack when exposed to the heat of a wildfire, but the interior panes might stay intact.
- Increase heat resistance by using tempered glass. Tempered glass costs approximately 50% more than regular glass.
- Use glass block where only natural lighting is needed, where views are not a factor, and the window faces a very high fire hazard area.
- Choose functional metal shutters over decorative ones. This can add another 10 to 20 minutes of protection to a window, which is all that may be necessary for a window to withstand a fire. To be effective they must be shut before the fire reaches the home.

Eaves, fascias, soffits and vents

- Protect the underside of eaves and overhang areas with nonflammable siding.
- Construct fascias of nonflammable material or, at a minimum, two-inch nominal dimensional lumber.
- Do not locate attic ventilation openings in soffits, fascias, or anywhere in the eave overhang.
- Screen attic ventilation openings, foundation or underfloor vents, and vents through roofs with wire mesh screen. Openings should be less than ¼ inch to stop airborne embers. Ventilation openings provide a natural air flow into the structure and can allow embers, flames, and fire gases to enter the building and start a fire.

Decks

The typical deck design is a highly flammable structure. The components of a deck, such as joists, decking and railings are made of two-inch thick wood, giving the structure a high surface-to-volume ratio. As a fire approaches, hot gases can get trapped underneath and ignite the deck structure.

- Choose fire resistant materials or larger heavy timber components for deck construction.
- Create fire barriers by wrapping decks that are higher than 24 inches from the ground with nonflammable siding.
- Screen all vents and crawl space openings to ward off burning embers.

Exterior doors

Fire-rated doors are available, but often are not used because of appearance.

Best choice	Fire-rated door
	Metal door (these can be embossed to look like wood)
	Solid wood door
	AVOID - Hollow wood door
Worst	AVOID - Plastic composite door

- Check for adequate weather stripping. A good seal can prevent hot gases or burning embers from entering your home.
- Choose overhead garage doors made of metal.
- Make sure that windows in entry and garage doors are multi-paned or made using tempered glass.

Detached structures

Detached structures, such as tool sheds and garages, that are located less than 30 feet from the home should have exterior walls and roofs made of nonflammable materials.

Interior walls, ceilings, and floors

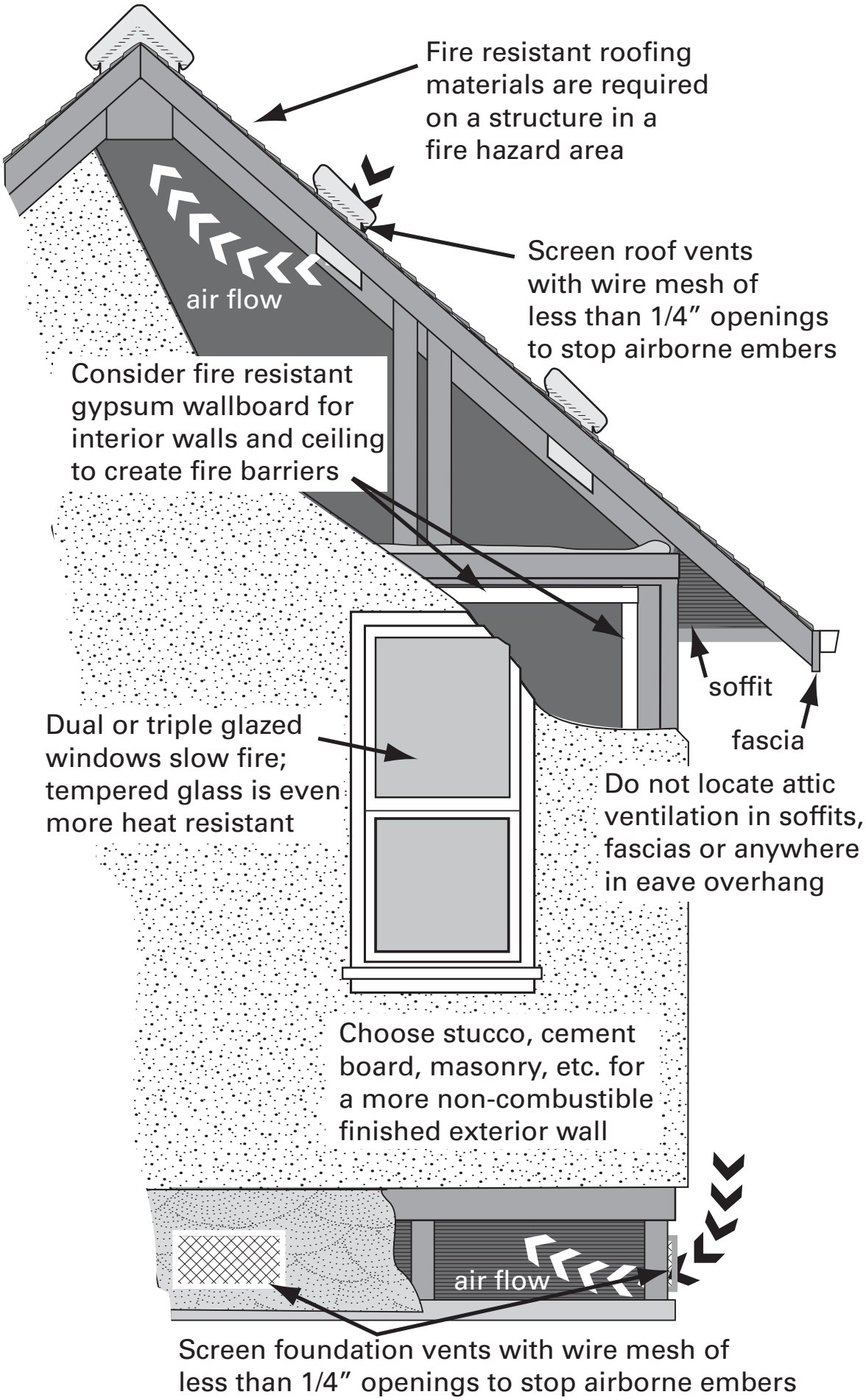
Building codes typically require fire resistant gypsum wallboard in certain locations in a home, including between a garage and the main house.

- Consider using fire resistant gypsum wallboard in walls, floors and ceilings to create fire barriers.

Interior automatic fire sprinklers

Residential fire sprinklers have become much more affordable in recent years. Although they are installed to protect the interior of the home, and may have little effect in stopping a wildfire that has broken through your home's exterior protection, they can greatly reduce the chances of a significant fire originating from your structure and catching nearby trees and plants ablaze. Best of all, sprinklers reduce the risk of fire deaths by 75 percent when combined with a smoke alarm.

Making structures more fire resistant



Wildfire Resistant Landscape Planning

How to manage your landscape

The most important action a homeowner can take is to create a wildfire resistant landscape through proper plant placement, plant spacing, and ongoing plant maintenance. Most of the following wildfire resistant landscaping activities are allowed in the City of Portland without a permit, however, some may require a permit.

Prior to trimming trees or removing native vegetation, property owners should check with the Planning and Zoning staff in the Development Services Center (DSC) to see if a permit is required.

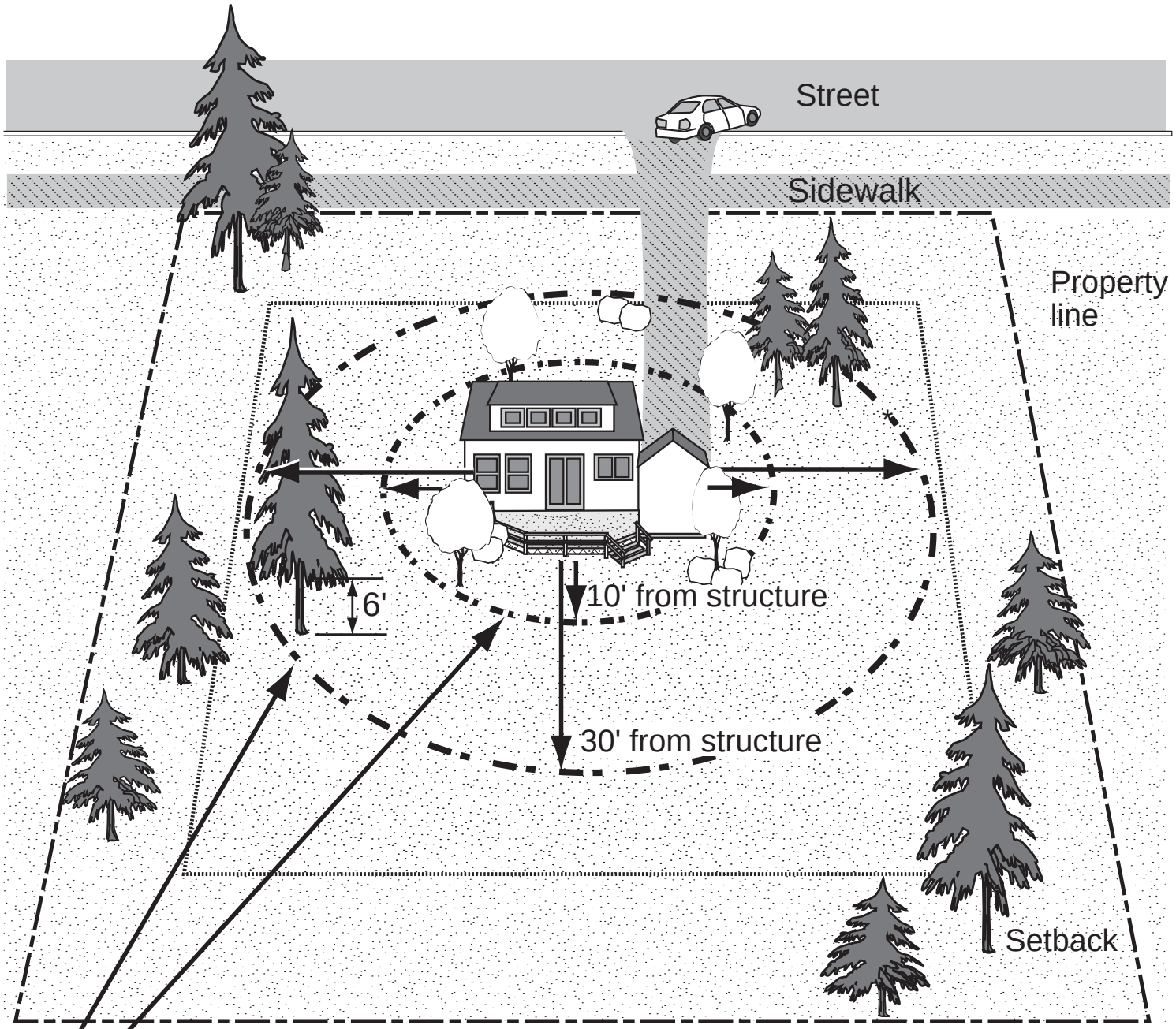
- ☐ Space groupings of plants so that at their expected mature height, the crowns of the groupings provide at least 10 feet of clear space from each other and from structures. This will prevent fire from spreading across planting groups.
- ☐ Prune back tree branches within 10 feet of walls and roofs. If your property is in an environmental zone, check with Planning and Zoning at 503-823-7526.
- ☐ Trim limbs of coniferous trees within 30 feet of structures so that none of the limbs are closer than 6 feet from the ground. This reduces the chances that a ground fire can "ladder" up into the tree.
- ☐ Water the vegetation near the house to keep moisture levels high and reduce fuel.
- ☐ Cut grasses and other ground covers to a height of less than four inches within established disturbance areas or within landscaped perimeter areas.
- ☐ Rake ground covers such as bark mulch, wood chips, compost, and tree litter away from flammable structural components of your home (decks, siding). Even though ground covers generally only smolder, homes can be damaged by a creeping fire which can ignite structural components.
- ☐ Remove invasive, nuisance plants or prohibited plants from your landscape because they can be highly flammable and can serve as "ladder" fuels. This includes European hawthorn, Himalayan blackberry, Scot's broom, English holly and English ivy. A full list of invasive, nuisance and prohibited plants that can be removed without a permit can be found online in the Portland Plant List at *www.portlandonline.com/planning.*
- ☐ Maintain plants so that they are free of deadwood and litter. Remove plants that are diseased or infested.
- ☐ Dispose of yard debris away from structures. Yard debris can be composted or placed in curbside yard debris containers to be picked up and recycled. Do not dump yard debris into natural areas as these debris piles can provide fuel to an approaching wildfire.
- ☐ Refuel garden equipment carefully. Never refill a gas tank in tall grass or other tall vegetation.
- ☐ If you do not water the lawn through the summer season, or if seasonal water shortages call for a temporary end to irrigation, let your lawn turn brown and then cut your grass as low to the ground as possible.
- ☐ Insure that driveways over 100 feet in length are maintained to allow access by emergency vehicles. Access improvements may require a permit from the Bureau of Development Services (BDS), 1900 SW 4th, first floor. Note: Homes accessed by long driveways should have the address posted near the street.

Generally, the less vegetation that is directly adjacent to your home, the safer your home is from a wildfire.

Only native plant species should be installed in environmental and greenway zones.

Portland Native Plant List is available online at *www.portlandlonline.com/planning*.

Landscape maintenance in wildfire areas



- prune trees and shrubs within 10 feet of structures
- prune conifers within 30 feet of structures to remove branches up to 6 feet above the ground
- choose fire resistant native plants for landscaping
- remove any plant listed on the City's Nuisance or Prohibited Plant List
- keep area near structures irrigated and moist, avoid using bark mulch and if you do, keep it moist
- maintain landscaped areas
- see the Portland Zoning Code, Ch. 33.430.080, Zoning Code Environmental Zone Exemptions or call 503-823-7526 for more information. The Zoning Code is online at www.portlandonline.com/bds | select Codes tab | City Codes | Title 33 Zoning Code

Characteristics of fire resistant plants

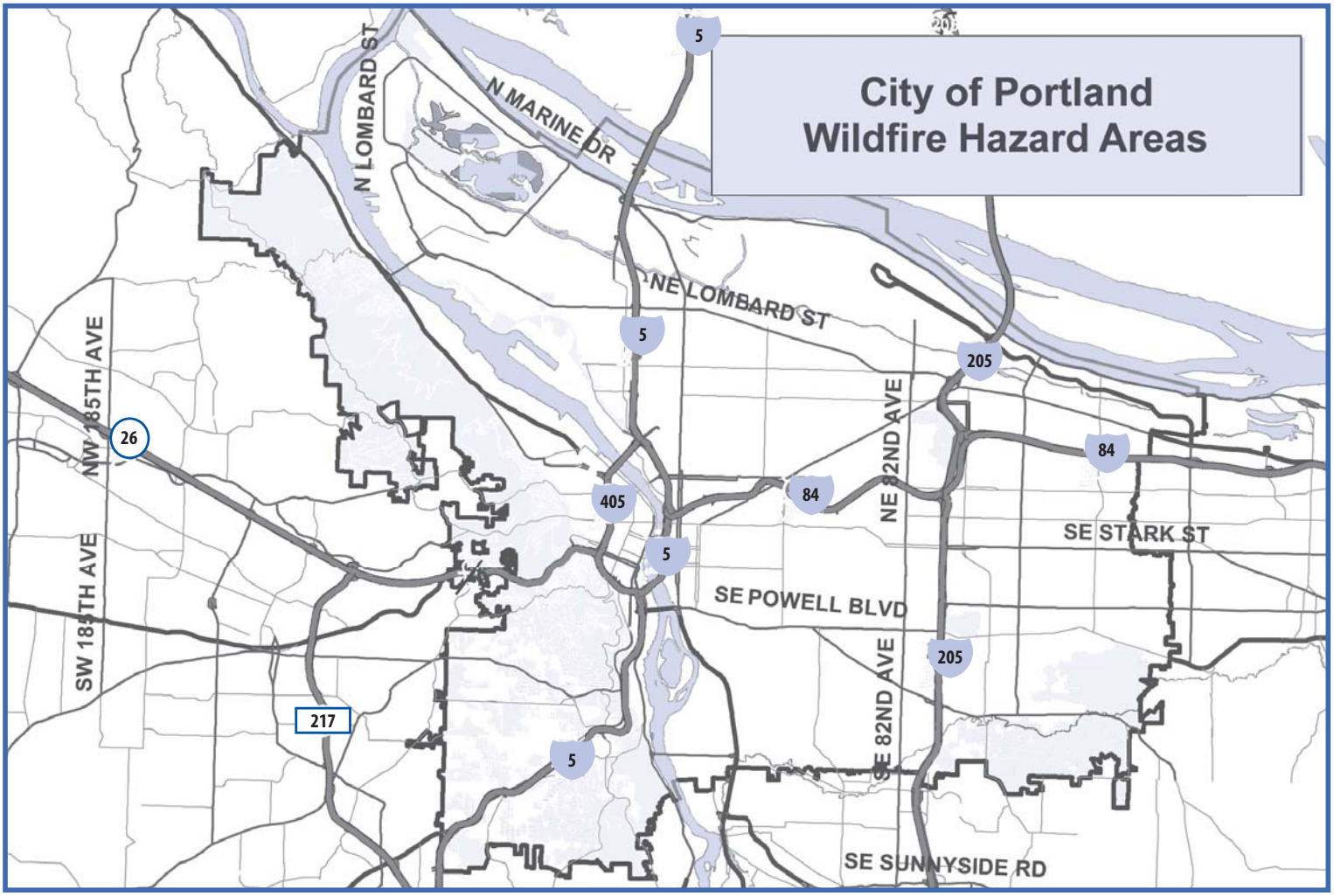
Most plants will burn. The degree of flammability depends upon the characteristics of the plants and how dry the season is. Fire resistant plants are those that do not readily ignite from a flame or other ignition sources. These plants can be damaged or even killed by fire. However, their foliage and stems do not significantly contribute to the fuel, and therefore, don't add to the wildfire's intensity.

Fire Resistant	Not Fire Resistant / Highly Flammable
Moist, supple leaves	Leaves, twigs and stems contain volatile waxes or oils
Little dead wood and tend not to accumulate dry / dead material within the plant	Traps fine, dry or dead materials (twigs, needles and leaves) within the plant and may have papery or loose bark
Water-like sap without a strong odor	Gummy, resinous sap with strong odor
Low levels of sap or resin materials	Aromatic leaves or leaves that have a strong odor when crushed

Most deciduous trees and shrubs are fire resistant. However, both native and ornamental plants can be highly flammable. An example of a highly flammable shrub often planted in Portland landscapes, is spreading or upright juniper.

Select native plant species that are naturally fire resistant. These plants require little maintenance and provide a relatively low volume of total vegetative fuel load. Choose plants that have:

- low aromatic oil content
- high moisture content
- deep roots and drought tolerance



Wildfire Emergency Planning

In the neighborhood

1. ☐ Develop a neighborhood emergency plan that includes a notification and alert system, a carpool plan, and the identification of neighbors with special needs.
2. ☐ Practice at least two escape routes from your home/neighborhood by car and by foot (remember that evacuation by foot can be extremely hazardous).
3. ☐ Identify zones in your neighborhood, such as schoolyards, which are safe from wildfire. These open areas can serve as a default evacuation center if roads are blocked and escape from the neighborhood is not possible.
4. ☐ Prune street trees to allow passage of emergency vehicles. A no-cost permit is issued by City of Portland Urban Forestry and includes a tree inspection. Call 503-823-4489 for more information.

In your home

5. ☐ Develop a family evacuation plan.
6. ☐ Prepare a small "grab and go" kit of essentials that you may need, such as cash, personal items, and medicines – plus items you may need for the care and transportation of pets.
7. ☐ Use non-combustible siding and roofing materials.
8. ☐ Enclose eaves with non-combustible materials.
9. ☐ Do not place attic vents under the eaves or overhangs.
10. ☐ Wrap decks with non-combustible siding.
11. ☐ Screen foundation vents and locate them as close to grade as practical.
12. ☐ Keep gutters and roof free of leaves, fir needles or debris. (Firebrands can travel on air currents for up to a half-mile.)
13. ☐ Store firewood, picnic tables, recreational vehicles, and other burnable items away from buildings.
14. ☐ Be mindful when cooking outdoors.
15. ☐ Avoid using fireworks near vegetated areas. Do not purchase or use illegal fireworks!

After a fire starts

16. ☐ Implement your family evacuation plan.
17. ☐ Implement your neighborhood emergency plan.
18. ☐ Keep roads clear for emergency vehicle access.
19. ☐ And if you are positive you have enough time…
    - Close all windows and doors.
    - Remove lightweight curtains and drapes from your windows; they may catch fire from the radiant heat of an approaching wildfire.
    - Shut off natural gas at the home meter.

You can find more wildfire safety tips at *www.firewise.org*.

Resources

Web Sites

Building, Land Use, and Permit Information
www.portlandonline.com/bds

Portland Plant List
www.portlandonline.com/planning

FEMA Wildfire Risk Reduction Project
www.portlandonline.com/parks | select Conservation Tab > Wildfire Risk Reduction

Chapter 24.51 Wildfire Hazard Zones
www.portlandonline.com/auditor | select Charter, Code and Policies Tab

Disaster Preparedness
www.portlandonline.com/fire | select Safety Info Tab

Portland Hazard Mitigation Plan
www.portlandonline.com/oem | select Mitigation Tab | select Wildfire

Is your property vulnerable to wildfire?
Enter your address in *www.portlandmaps.com*

Oregon Department of Forestry
www.egov.oregon.gov/ODF/

Firewise Communities, part of National Wildland/Urban Interface Fire Program
www.firewise.org

BDS Residential Handouts

- Guide to Permits and Inspections
- Do I Need a Permit for My Project?
- Fences, Decks and Outdoor Projects
- Wood Stoves, Fireplace Inserts and Chimneys
- What Plans Do I Need for A Building Permit?
- Stairs
- Converting Attics, Basements and Garages to Living Space
- Windows

Scheduling an inspection

- Call 503-823-7000, the BDS 24 hour inspection request line
- Enter your IVR or permit number
- Enter the three-digit inspection code for the type of inspection you are requesting
- Enter a phone number where you can be reached during weekdays and if you want the inspection in the morning or afternoon
- There must be an adult over age 18 to allow the inspector entry

Helpful Information

Bureau of Development Services
City of Portland, Oregon
1900 SW 4th Avenue, Portland, OR 97201
www.portlandoregon.gov/bds

General Office Hours:

Monday through Friday, 8:00 am to 5:00 pm
BDS main number: 503-823-7300

Permit Information is available at the following location:

Development Services Center (First Floor)
For Hours Call 503-823-7310 | Select option 1

Permitting Services (Second Floor)
For Hours Call 503-823-7310 | Select option 4

Important Telephone Numbers

Fire and Rescue general information	503-823-3700
Reporting non-emergency fire risks	503-823-3333
BDS main number	503-823-7300
DSC automated information line	503-823-7310
Building code information	503-823-1456
Zoning code information	503-823-7526
Urban Forester	503-823-4489
City of Portland TTY	503-823-6868

- ✔ Be safe, keep your landscaping under control.
- ✔ Consult Portland plant lists of prohibited and nuisance plants to make sure the fire resistant plants you select are acceptable in the City of Portland.
- ✔ Depending on your location and the specifications of your project, building and/or zoning permits may be required.
- ✔ Some zones have special requirements which could affect your project or landscape maintenance.
- ✔ Choose building materials with fire resistance and safety in mind.
- ✔ Maintain accessibility for fire trucks to your home.
- ✔ Be prepared, have a family safety plan in place and a disaster preparedness kit on hand.

Visit our Web site
www.portlandoregon.gov/bds

All information is subject to change.

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