



Wildland Fire Assessment Program Toolkit

THIRD EDITION

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Wildland Fire Assessment Program



American communities face unprecedented risk from wildfires. More structures are being built in the wildland urban interface (WUI) even as changes in climate and fuel load make the nation more vulnerable than ever to wildland fire. In many WUI communities, homeowners are not taking steps to mitigate their risk or make their communities more fire-adapted.

To combat this risk, the National Volunteer Fire Council (NVFC) in partnership with the U.S. Forest Service (USFS) created the Wildland Fire Assessment Program (WFAP) for local volunteer and combination departments to help educate communities about the dangers posed by wildland fire and work with homeowners to conduct property assessments. The goal of the WFAP is to provide the tools and materials to assess a home, perform pre-fire planning activities, and report on the assessments.

The WFAP program can play a pivotal role in your community by increasing local knowledge and skills that are necessary to influence wildfire mitigation and resilience.

Disclaimer

The NVFC's WFAP Toolkit and curriculum has been developed to assist departments in performing home assessments and educating community members to be proactive in protecting their property from wildfire. Its creation is based on current, established mitigation practices. This guide is not a directive nor does enforce any codes or standards, but was created to provide guidance, support, and resources to those wishing to start and/or enhance a home assessment program. Departments should verify that the program's policies, procedures, and activities are compliant and practice accepted standards or laws of the authority having jurisdiction – local, state, and federal.

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Acknowledgements

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Toolkit Overview

This toolkit provides information and resources that can be used to teach the fundamentals of performing home assessments with and for residents living in communities that are susceptible to wildfires.

Toolkit Components

Introduction

- Getting Started
- Training Considerations
- Instructor Suggestions
- Course Evaluation

Modules One through Four Session Curricula that each include:

- Instructor Guide
- Participant Manual (included on your flash drive)
- Quiz
- Quiz Key

Resources

- Marketing Your Program
- Liability
- Frequently Asked Questions
- Certificate Template
- Checklist

Supplemental Documents Flash Drive contains all WFAP resources customizable for your audience.

NCR Checklist is a no carbon required checklist that assessors can use on-site that will allow them to have one copy of the assessment for their department and another copy to leave with the homeowner.

Instructor Elements

Throughout the curriculum, you will notice several elements to help you instruct this course.

These include:



Talking Points: information that should be communicated to the audience.



Recommended Discussion Questions: optional, learner-centered questions you can use to engage your audience.



Instructor Notes: ideas for communicating key concepts, getting your audience engaged, or instructor-only information pertaining to the curriculum delivery.



Resource Reference: highlights resources or cites sources of information.



Quiz Question: pinpoints quiz questions and answers.



Getting Started

The information provided in this Toolkit is set up in a train-the-trainer format so students will be able to teach the curriculum to their department members who can in-turn perform the assessments. It is important for students to have a clear understanding of all Toolkit components so they feel comfortable teaching. Before starting the presentation, break the ice and get to know your audience. This will allow participants to feel like they can engage in discussion throughout the presentation and ask questions or request clarity about information with which they may be unfamiliar.

Here are some helpful hints to start off the workshop:

- Introduce yourself, and share your background in the fire service and, if applicable, with wildfires.
- Allow for introduction of participants (what type of department or organization they are with and what they expect to get out of the class).
- Review housekeeping items, including breaks, restrooms, exits, etc.
- Encourage questions and feedback.
- Inform participants there will be a quiz at the end of each module. Reassure them that you will be covering questions and answers throughout the presentation.

Training Considerations

Audience: This curriculum was designed as a train-the-trainer series for departments in high-risk areas prone to wildland fire. Members participating in the training can take this curriculum back to their respective agencies and train their members to perform home assessments to help residents proactively pre-plan and to mitigate the potential risks in the WUI.

Room set-up: The optimal arrangement for this general training session is classroom style with an open end for the trainer. A laptop, LCD projector, and screen are required for viewing the PowerPoint presentation. Hyperlinks and other web resources are included in the curriculum. Access to internet will allow you to view these resources first-hand with students but is not mandatory.

Print and online resources: Every student that is being trained should receive a participant manual and home assessment checklist at a minimum. These resources, in addition to other tools, are available at www.nvfc.org/wfap and on your Toolkit's Supplemental Document's Flashdrive.

Training quiz: Participants should be left enough time at the end of each session to complete the quiz and return it to the instructor. Students who achieve a 70 percent or higher on all four quizzes combined will be issued a certificate.

Training evaluation: Participants should be left enough time at the end of the course to complete a course evaluation and return it to the instructor. All evaluations are anonymous.



Instructor Suggestions

1. **Know the facility.** Get to know the facility where you're teaching. Arrive early enough to do a test run. Depending on your environment, you may need to make some last minute adjustments.
2. **Know your resources.** If you are using technology to teach an electronic resource, be sure you know both the resource that you are teaching and the program with which you are teaching, such as PowerPoint, as well as any handouts.
3. **Be prepared.** Instructors are much more effective when they have prepared a plan and are focused on the material they are presenting. Participants appreciate well-organized lectures. Being prepared also helps you anticipate possible questions, difficult concepts that may need additional examples, and points in a presentation or lecture which may require a change of content delivery or pause.
4. **Know your audience.** Train to their needs in addition to covering the curriculum objectives. Try to ascertain what the course can offer them as individuals. What is their interest? What is their motivation?
5. **State your goals.** This ensures that everyone knows what they're there for. You'd be surprised at some people's misconceptions of what they are there to learn.
6. **Be adaptable.** The Instructor's Guide is a guide, not a directive. Adapt the discussion to meet the needs of the participants.
7. **Don't panic.** They may not know exactly what you're going to teach, so if you miss something small, they won't know unless you panic about it. Be aware that mistakes will happen; it's how you handle them that counts.
8. **Show respect.** Use titles/ranks – Chief, Captain, Mr., Mrs., Ms., etc.
9. **Strike a balance.** Find the balance between the attention being focused on you and the attention being focused on something else (the screen, whiteboard, etc.) in a classroom setting. At the same time, be sure you make eye contact with your participants, especially those who seem to be drifting away.
10. **Be engaging.** Make your audience want to listen to you by being an effective public speaker. Inflections, intonations, and voice emphasis are key engagers.
11. **Engage your audience.** Encourage them to share stories and provide feedback.
12. **Share your experience.** Build your anecdotal stories into the curriculum as you are teaching.
13. **Be truthful.** Do not guess at answers or proclaim to know something that you do not have the knowledge about. Be completely honest in your responses to questions. If someone asks a question you cannot answer, write it down along with their contact information. Send it to the NVFC national office and a staff member will respond to them.
14. **Watch your timing.** Be sure not to go over or under your allotted time and allow room for discussion, quiz, and evaluation.
15. **Participant Management.** Manage disruptive participants at an individual level. Attempts to block, monopolize, or dominate the group require facilitator intervention if the group does not deal with them.



Wildland Fire Assessment Program Class Evaluation

Date: _____ Location: _____

Instructor: _____

On a scale of one to five, with ONE BEING POOR and FIVE BEING EXCELLENT, circle the response that best describes your experience at the workshop.

1 = Poor

2 = Fair

3 = Satisfactory

4 = Good

5 = Excellent

- | | | | | | |
|---|---|---|---|---|---|
| 1. The topic was well-organized: | 1 | 2 | 3 | 4 | 5 |
| 2. The depth of the topic coverage was excellent: | 1 | 2 | 3 | 4 | 5 |
| 3. In general, the presenter was effective (e.g., knowledgeable, responsive, interesting, and used appropriate instructional techniques): | 1 | 2 | 3 | 4 | 5 |
| 4. Overall the program was of high quality: | 1 | 2 | 3 | 4 | 5 |
| 5. The PowerPoints and/or handouts were helpful: | 1 | 2 | 3 | 4 | 5 |
| 6. Overall, I would recommend this workshop to others: | 1 | 2 | 3 | 4 | 5 |
| 7. My knowledge of the subject matter improved: | 1 | 2 | 3 | 4 | 5 |
| 8. I feel ready to teach this material to others: | 1 | 2 | 3 | 4 | 5 |

Please write brief answers to the following questions:

9. Was there anything about the workshop that you particularly liked?
10. If you were responsible for the workshop, what would you do differently?
11. Do you have any additional comments?

Thank you for your participation!



WFAP Instructor Guide

Module 1





Slide 1



Talking Points

American communities face unprecedented risk from wildland fire. More structures are being built in the wildland-urban interface (WUI) even as changes in climate and fuel load make the nation more vulnerable than ever to wildland fire.

Wildfire mitigation efforts can mean improved survivability chances for homes in the WUI. However, the National Fire Protection Association (NFPA) reported that residents in the WUI tend to rate the risk of wildfire lower than professionals or experts. Fire departments can help change this perception. In a two-county survey in Colorado, it was found that one of the most important sources of information for WUI residents that spurred action was guidance from local fire departments and county wildfire specialists.

The National Volunteer Fire Council (NVFC) partnered with the U.S. Forest Service to create the Wildland Fire Assessment Program (WFAP) to help fire departments conduct home safety assessments in the WUI and communicate to residents and homeowners the importance of personal property wildfire mitigation efforts. WFAP was formed to:

- Identify existing resource material for wildland fire pre-planning
- Develop training materials and delivery systems (such as outreach materials) designed for volunteer and combination fire departments
- Train firefighters or department personnel in wildfire high-risk areas to conduct home assessments in their communities
- Create a tracking mechanism to enable data collection and statistical analysis regarding the impact of assessments

The overall goal of WFAP is to provide the tools and materials to teach fire departments how to assess a home, perform pre-fire planning activities, and report on the assessments. The end result is to work towards creating a more fire-adapted community – meaning a community that takes responsibility for its wildfire risk. We'll talk about **Fire Adapted Communities** later on in this module.

Local volunteer and combination fire departments are a key component in combating wildland fire, from engaging in fire suppression or helping educate community leaders about the dangers posed by wildland fire, to working with homeowners to conduct property assessments. That is where this training and the supplemental resources provided will assist both departments and the communities they serve. It is not a question of if but **when**, so it is imperative that homeowners and communities take personal responsibility to prepare their homes for wildfires. Your department can help them do this.



Slide 1 *continued from page 6*



Discussion Question

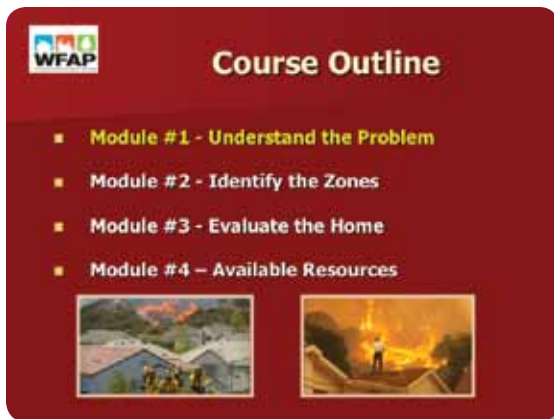
Does your department currently participate in any wildfire mitigation programs? What are they and how do you think WFAP can be incorporated into those existing efforts?



Resource Reference

- NFPA report: *Wildland/Urban Interface: Fire Department Wildfire Preparedness and Readiness Capabilities*, November 2015

- Colorado survey: USDA/USFS Science You Can Use, Bulletin; September/October 2013, Issue 7



Slide 2



Talking Points

This four-part course is designed to give participants a basic understanding of the WUI fire problem and how to best mitigate the risk of wildland fires in their communities by performing home assessments. The class is presented in a train-the-trainer format so you can take the information back to your respective departments and train other members to perform assessments.

After completing all four modules in this course, fire department personnel and/or non-operational volunteers will be able to perform home assessments which can help prepare your community for wildfire.

- Module #1 focuses on understanding what constitutes the WUI area and describes the characteristics of a WUI fire. It also identifies myths about the WUI and their impact on understanding the WUI fire problem, as well as provides information on steps that can be taken to work towards creating a more fire-adapted community.
- Module #2 focuses on identifying the Home Ignition Zone (HIZ) and its characteristics. It provides an overview of the zones around the home — 5 feet, 30 feet, 100 feet, beyond 100 feet — and why this defensible space is at-risk during a wildfire.
- Module #3 provides details on evaluating the home and doing a step-by-step home hazard assessment. It also offers information on hazard reduction options in the HIZ.
- Module #4 provides various outreach materials to advertise this free service to the public. You'll also learn about resources that are available to you for follow-up information and details regarding how to participate in current community programs that extend beyond just the home hazard assessment.

So let's get started with Module 1 – Understanding the Problem.



The Problem...

"Wildland fire kills our firefighters and citizens, threatens our communities, destroys our natural resources, and costs too much."

IAFC Wildland Fire Policy Committee

Slide 3



Talking Points

The International Association of Fire Chiefs (IAFC) worked to frame the wildland fire issue and developed the problem statement, "Wildland fire kills our firefighters and citizens, threatens our communities, destroys our natural resources, and costs too much." It is difficult to tackle solutions until you identify the problem.

Wildland fires are a serious threat to lives and property in the U.S. The combination of drought, warmer temperatures, high winds, and an excess of dried vegetation in forests and grasslands has made fire seasons progressively worse over the past 50 years.

- In 2014, more than 1,900 primary structures were lost due to wildfire and attributed to house-to-house ignitions (NFPA)
- In 2014, over 1.5 billion federal dollars were spent on wildfire suppression (NIFC)
- In 2015, over 10 million acres were burned, the worst fire season in decades (NIFC)
- More than 72 thousand communities are now at risk from wildfire (NASF)

While wildland fires are a problem for those living in the WUI, we must understand that they are a natural occurrence.

"Wildfire is a naturally occurring part of the environment. While we often think of wildfires as being 'bad,' it is just one way of nature eliminating dead vegetation - sort of an environmental house-cleaning. However, as humans settled this country and began clearing land and building homes, roads, railroads, and campgrounds, new artificial causes of wildfire arrived on the scene." Causes may include vehicle exhaust, sparks from trains and heavy equipment, camping, smoking, arson and lightning.

No matter what the cause, residents need to be prepared for their ramifications.



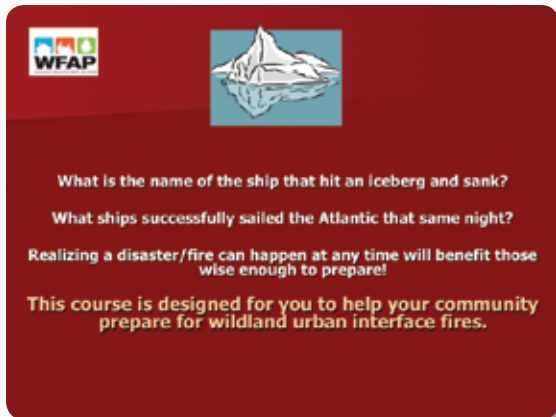
Instructor Note

Find out what the main causes of wildfires are in your area or state. This may be an impactful statistic to communicate to residents when performing an assessment on their home. For example: most wildfires in Michigan are caused by people burning debris; however, in Florida, approximately half of all wildfires are ignited by lightning.



Resource Reference

- Wildfire causes and quote: http://firewise.msu.edu/wildfire_causes.
- Facts and figures taken from the National Fire Protection Association (NFPA), the National Interagency Fire Center (NIFC), and the National Association of State Foresters (NASF).



Slide 4



Talking Points

Think about this...

Most people can quickly recall the name of the ship that hit an iceberg and sank over one hundred years ago!

- The **RMS Titanic** was a British passenger liner that sank in the North Atlantic Ocean on April 15, 1912 after colliding with an iceberg during her maiden voyage from England to the United States. The sinking of the Titanic caused the deaths of 1,502 people in one of the deadliest peacetime maritime disasters in modern history.
- The **RMS Carpathia** and the **SS Californian** were two ships that successfully sailed the Atlantic that same night.

Unfortunately, history always records and remembers the disasters...the tragedies, not the successes. Understanding that a disaster (specifically for this course – a fire-caused disaster) can occur at anytime is a concept that assessors must convey as they conduct assessments.

If it's predictable, it's preventable. Don't be the Titanic!



Slide 5



Talking Points

So we've mentioned the wildland-urban interface (WUI). What exactly is the WUI?

The National Wildfire Coordinating Group defines the WUI as “the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.”

What is the issue? Over the last five decades, an ever-increasing number of people have either built second homes or moved permanently to wildland areas in an effort to get away from city life. In doing so, they often assume that they will automatically have the same community services they had before (for example, the fire department being there within minutes). Residents need to understand that there will never be enough firefighting equipment, firefighters, or emergency vehicles to protect every house during severe wildland fires.

Individual efforts do make a difference even in the face of a catastrophic wildfire, as reducing the ignitability of a home reduces the wildfire exposure to the community and improves firefighter and personal safety. Firefighters are trained to safely and efficiently suppress wildland fires, but their effectiveness is reduced when they must sweep decks and move wood piles and patio furniture.

The challenge in a home assessment is to help WUI residents understand these issues and take action to reduce the ignitability of their homes before a wildfire starts. By identifying fuel hazards, assessing and reducing ignition risks, and developing realistic evacuation options (which will be discussed in Modules 2 and 3), the losses of lives and homes to wildfires can be significantly reduced.



Discussion Question

What geographical areas would you consider wildland-urban interface?



Quiz Question

True or False: The wildland-urban interface (WUI) is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Answer: True



Slide 6



Talking Points

In order to comprehend the significance of a wildfire, assessors must understand how a wildfire works. Let's start with the basics.

Fire must have three elements in order to burn:

- Fuel
- Oxygen
- Heat

If you remove one of these elements, the fire will go out or diminish. For example, if you have a burning candle and you put a jar over the top of it, it eventually goes out. Why? Because you have removed the oxygen from the fire, and it cannot burn without it.

Firefighters extinguish fire by taking away one or two elements of the fire triangle. For example, when firefighters spray fire with water, it goes out because they have removed the heat element of the fire triangle. When firefighters dig containment lines around a wildfire, the fire is extinguished once it reaches the line because firefighters have removed the fuel element from the fire triangle.

By retrofitting the home or altering certain areas in and around the home, residents can eliminate particular elements that 'fuel the fire' in a wildfire.



Resource Reference

Information taken from Firewise, <http://www.firewise.org>.

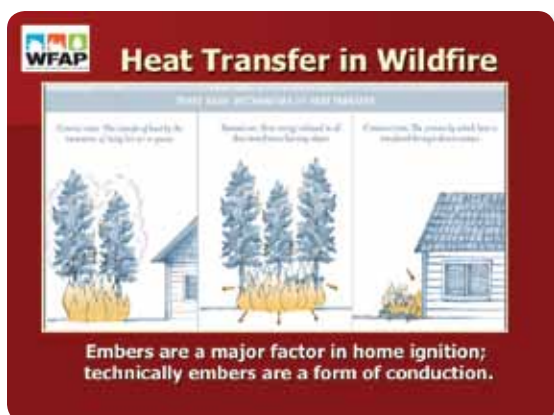


Quiz Question

Fire must have three elements in order to burn. Which is not one of these three?

Choices: Fuel, Embers, Oxygen, Heat

Answer: Embers



Slide 7



Talking Points

Three basic mechanisms of heat transfer include:

- Convection: the transfer of heat by movement of rising hot air gases
- Radiation: heat energy released in all directions from a burning effect
- Conduction: the process by which heat is transferred through direct contact

There are three threats or exposures that a building can experience during a wildfire, grassfire, or brushfire:

- Windborne embers
- Radiant heat
- Direct flame contact

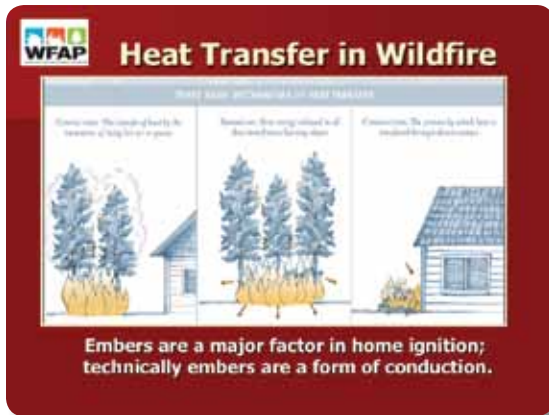
When considering the vulnerability of the home to wildfire, you need to evaluate and address all three potential exposures.

Ember exposure is considered the most important, because most building ignitions have been attributed to them. Embers can ignite building components and contents directly, or ignite vegetation and other combustible items adjacent to or near a building; this then can result in a radiant heat and/or direct flame contact exposure. For example, embers may land on and ignite debris that has accumulated in your gutter. The burning debris then causes direct flame contact on the edge of the roof. Or, embers that ignite nearby vegetation could result in a radiant heat exposure to the side of a building, potentially igniting combustible siding or breaking the glass in a window. The opening from broken glass then would allow embers to enter the building and ignite combustible materials, such as carpeting or furniture.



Resource Reference

Information taken from IBHS Wildfire; The Institute of Food and Agricultural Sciences (IFAS), U.S. Department of Agriculture, Cooperative Extension Service; University of Florida, IFAS, Florida A&M University Cooperative Extension Program, and Boards of County Commissioners Cooperating; picture: "Understanding Fire Behavior" by Cotton K. Randall



Slide 7 *continued from page 13*



Quiz Question

Which of the following are part of the three threats or exposures that a building can experience during a wildfire, grassfire, or brushfire?

Choices: Windborne embers, Radiant heat, Direct flame contact, All of the above

Answer: All of the above

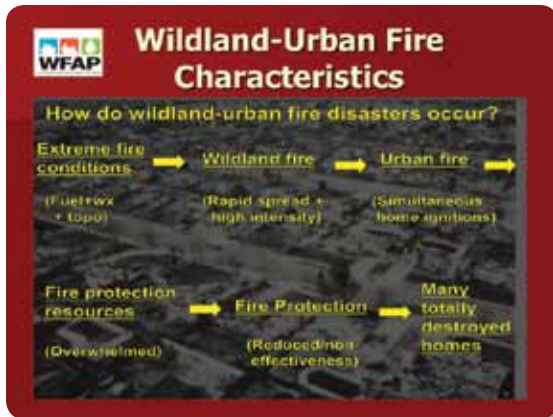


Quiz Question

Which is not a basic mechanism of heat transfer?

Choices: Convection, Radiation, Oxygen, Conduction

Answer: Oxygen



Slide 8



Talking Points

This slide is used to show the characteristics and the sequence of events leading up to a WUI fire disaster.

The cycle of fire:

- Fuel, weather (wx), and topography/terrain create extreme fire conditions which result in a wildland fire of rapid spread and high intensity.
- The wildland fire moves into an urban setting and changes its fuel from wildland fuel to urban fuel (homes and property).
- Because fire protection resources are sometimes limited in large-scale disasters and thus overwhelmed, the fire protection is reduced and minimally effective.

This devastating cycle results in many destroyed homes.

WUI fire disasters are frequently preceded by extreme weather conditions such as high temperatures, high wind speed and low humidity. The specifics of such extreme weather conditions vary from region to region and are often reflected in the issuance of “Red Flag Warnings” by the National Weather Service in conjunction with local wildland fire agencies. An extreme weather or climate condition is the first element of a WUI fire disaster.



Resource Reference

The National Fire Danger Rating System is quite effective at predicting when such disastrous wildfires are likely to occur. However, fires destroying really large numbers (e.g. dozens or hundreds) of homes happen much less often and have not been reported or been associated with “extreme” Fire Danger Rating. Access the *National Fire Danger Rating System: Basic Equations* at http://www.fs.fed.us/psw/publications/documents/psw_gtr082/psw_gtr082.pdf.



Slide 9



Talking Points

The WUI is not a geographic location, but rather a set of conditions that can exist in many communities. The term “wildland-urban interface” can distort the perception of the primary issue. It can direct attention to “where” structures are located (for example at the edge of communities near the wildland) rather than if they are highly ignitable.

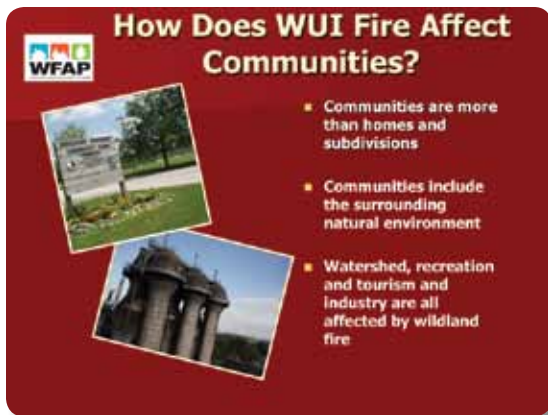
And if so, the focus on “where” can result in a concern about things that might not make a big difference in reducing structure loss (such as how firefighters and equipment get there, what type of fire equipment is needed, and the location of fire hydrants and water sources). How wide the roads are and where the fire hydrants are located become of little value if there are more structures at risk than equipment to protect them, or if it’s too dangerous to safely be there with firefighting forces.

The essence of this issue is not where structures and domestic landscapes adjoin wildland, but the location, density, and availability of ignitable structures.



Discussion Question

Which structures do you believe are at the greatest risk – ignition-resistant homes bordering the wildland or a dense subdivision with wood shingle roofs several miles away from wildland fuels?



Slide 10

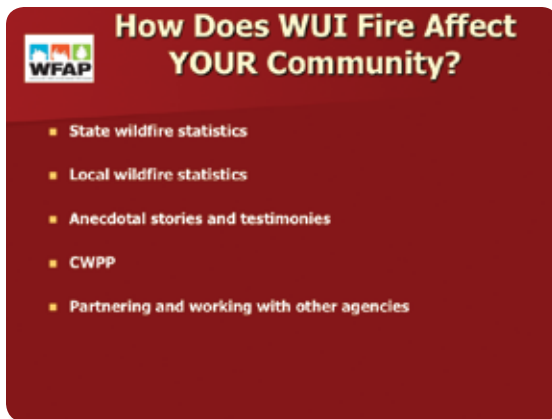


Talking Points

There is more to the modern issue of wildfire disaster than just the economic impact of homes burning. **Communities are more than homes and subdivisions.** These communities include the surrounding natural environment, which allows and supports the economic, ecological, and social mechanics of a functioning community.

Sustaining desirable living conditions and providing economic benefit cannot continue to exist without major elements like functional watersheds and productive and pleasing natural systems that provide the necessary amenities for living, recreation, tourism, and also the essential industry for communities to take root and grow.

Remember, while specifically focusing on the problem of residential fire losses during wildland fires, it must also be recognized that sustaining ecosystems and the many values derived from those ecosystems remains a principle concern.



Slide 11

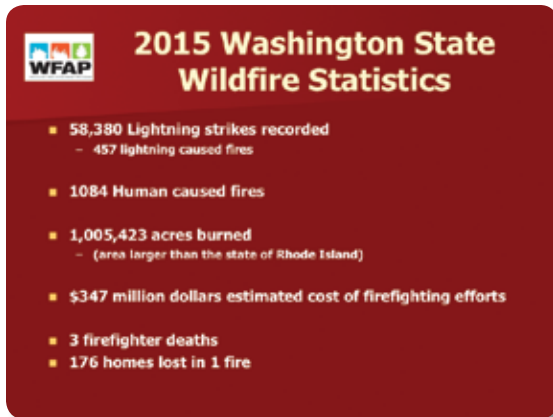


Instructor Note

This slide is to discuss the wildfire problem as it relates to your state and local community. Prior to the presentation, fill in the following bullet points with area-specific information and other pertinent information students will need to know about why it is important to perform home assessments. Be sure to update this slide in the Participant Manual that you will hand out to students. The Participant Manual is found on your Supplemental Documents Flash Drive in your toolkit.

Information should contain but is not limited to the following:

- Add in your state and local wildfire statistics. How many have occurred in the past year? What are the costs to the department, community, or federal government if it was declared a natural disaster?
- Discuss recent anecdotal stories if any exist. Add in photos from local wildfires or other area-specific pictures.
- When is your peak wildfire season?
- Does your community have a Community Wildfire Protection Plan (CWPP)? If so, briefly cover the main points of the CWPP and how it relates to your home assessments. Let participants know how they can obtain a copy of their CWPP or provide a copy during the presentation. CWPPs will be discussed in Module 4.
- What other agencies can help perform these assessments or should you involve in your Wildland Fire Assessment Program? While the people you are training may not be responsible for partnerships or getting other agencies on board, they should still be informed of what other organizations are helping to mitigate the wildfire problem. These agencies may include your state and local forest service, other departments near your jurisdiction, your emergency management agency, and even other organizations outside of the fire service, such as building professionals or contractors. Let students know this is a team effort, and everyone plays a part.



Slide 12



Instructor Note

This slide is an example of state statistics.



Resource Reference

Washington State Department of Natural Resources



Slide 13



Talking Points

This slide depicts an overall picture of the wildland-urban interface, which includes homes on slopes overlooking trees and tall shrubs or homes nestled close to one another with trees, shrubs, and tall grasses intermingled among them.

- The photo on the top left (northeast area in the New Jersey Pine Barrens) has a low potential for high intensity fires. Torching of trees in the area of the home could cause some brands.
- The photo in the center (a home in Virginia) shows that sometimes homes are hard to recognize with all the vegetation around them. Under the right seasonal weather conditions this area is prone to high intensity fires.
- The photo on the right (Southern California) shows a buffer that has been created by thinning and spacing fuels to reduce continuity for fire spread in the development.
- Photo on bottom: as can be seen in this photo taken after the Oakland Hills Fire in 1991, homes in the WUI are almost always unrecognizable after a disaster that leaves the homes as smoldering foundations. Note that even after a high intensity fire in the area, there is still green vegetation remaining on some of the trees.



Slide 14



Talking Points

So we have seen that....

- Wildland-urban communities exist nearly everywhere.
- Wildland-urban communities do not look the same.
- And finally.....we know that seasonal variations keep fires on the land year round.

This slide depicts the locations in the United States where the fire season is at peak during three sample months in a typical year. The slide should assist in emphasizing that wildfires are a problem not only in the western part of the U.S., but virtually every part of the country has an annual fire season – some regions have two fire seasons per year.

For example:

- The typical fire season in Alaska runs from April through September with a peak in July.
- Fires in Hawaii occur generally during the summer months, after the trade winds die down and the islands heat up, particularly but not limited to the leeward sides of the islands.

The last decade or so has seen larger fires and micro-changes in frequency and times of occurrence.

For example:

- The number of fires has been decreasing over the last 10 years while the fires have grown larger.
- Larger fires (tens of thousands of acres) are becoming more common.
- In addition, fire seasons in several states seem to be starting earlier (in Texas, Arkansas, and Oklahoma and some western states) while others seem to be delayed (Florida, Georgia) due to heavy rains.



Quiz Question

True or False: Wildfires are a problem not only in the western part of the U.S., but virtually every part of the country has an annual fire season.

Answer: True



Slide 15



Talking Points

It's important to know the four phases of emergency management in dealing with wildland-urban interface fires. All processes in a successful disaster preparedness program focus on the four cyclical phases of emergency management – **mitigation, preparation, response, and recovery**.

- The **mitigation** phase takes place BEFORE and AFTER emergencies. It includes activities that prevent an emergency or reduce the damaging effects of unavoidable emergencies. Some specific mitigation activities can include: clearing brush from around homes; strengthening building codes; purchasing fire insurance; and identifying grant dollars to support facilities, training, and needed equipment. This is where WFAP fits.
- The **preparation** phase takes place BEFORE an emergency. Activities include ensuring that there is an understanding of the steps that need to be taken to protect homes, property, and most importantly...lives. Other preparation activities could include providing training on the Incident Command System (ICS), the National Incident Management System (NIMS), and conducting exercises and drills that range from "table top" to "full scale" events.
- The **response** phase takes place DURING an emergency. It includes actions taken to save lives (such as orderly evacuations) and also actions to protect property and prevent further damage. The most critical factor is putting preparation plans into ACTION.
- The **recovery** phase takes place AFTER an emergency. It includes actions taken to return to a normal or even safer situation after an emergency. The first goal should be to help get individuals and the community back on their feet as quickly as possible. And finally, it is important to make sure there is time to critique the response actions so that it can be determined how to do it even better the next time...which leads back to mitigation activities.



Quiz Question

Which is not one of the four phases of emergency management?

Choices: Mitigation, Preparation, Education, Recovery

Answer: Education



Slide 16



Talking Points

So we've identified the problems and discussed the basics of WUI fires. One of the solutions to the wildland fire problem is to work towards creating a more fire-adapted community.

The USDA Forest Service developed the Fire Adapted Communities (FAC) program in 2009. It is based on the Quadrennial Fire Review's recommendation that creating fire adapted communities is the best alternative to escalating wildfire in the WUI. The strategy promotes multi-jurisdictional use of a suite of mitigation tools focused on helping communities live successfully with wildfire through mitigation and preparation, rather than depending upon suppression and protection resources that are not always available.

While no single action will make a community fully fire adapted, every action that is taken helps that community become more fire adapted. A FAC takes responsibility for its wildfire risk. Actions address resident safety, homes, neighborhoods, businesses and infrastructure, forests, parks, open spaces, and other community assets. The more actions a community takes, the more resilient it becomes to wildfire threats.



Resource Reference

The FAC Coalition created the Guide to Fire Adapted Communities. This guide is designed to help leaders, planners, emergency professionals, and citizens learn the best approaches and programs to help their community become more fire adapted. Information taken from <http://fireadapted.org>.



Slide 17



Talking Points

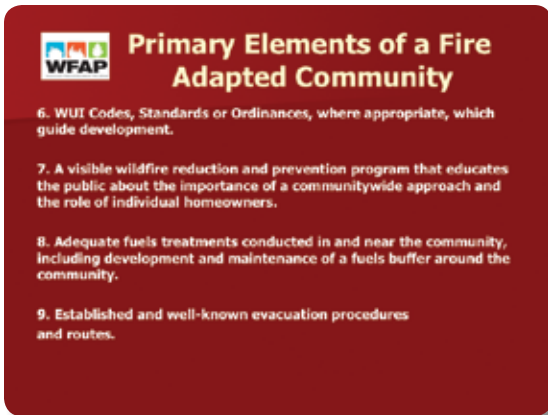
The primary elements of a fire adapted community are:

1. An informed and active community that shares responsibility for mitigation practices.
 - Educate your community. Provide handouts, flyers, and informational brochures. Post articles or tips on your social media pages and web site.
2. A collaboratively developed and implemented Community Wildfire Protection Plan (CWPP).
 - Work with your forest service, emergency management agency, and other stakeholders to see if you have a CWPP or one needs to be created. This is a collaborative effort.
3. Structures are hardened to fire and include adequate defensible space practices, as advocated by Firewise Communities, Insurance Institute for Business & Home Safety (IBHS), and others.
 - This is where the home assessment is critical. Informing residents about how to create a defensible home and overall community that is protected against wildfire will help them mitigate the damage of loss and/or spreading of wildfire.
4. Local response organizations have the capability to help the community prepare and the ability to respond to wildfire, as advocated by Ready, Set, Go!
 - This refers to your department. Are you trained and educated on how to respond to wildfire? Also, you're expected to respond, but there can also be much more done to help prepare.
5. Local response organizations that have up-to-date agreements with other stakeholders who play a role in mitigation and response.
 - Do you have memorandums of understanding or other types of agreements with agencies in your community? Preparing for and fighting a wildfire takes a holistic, hands-on approach from all stakeholders.



Discussion Question

What other organizations outside of the fire and emergency services can play a critical role in helping to prepare for wildfire? Think outside the box. These could be home owners associations, insurance providers, hardware stores, etc.



Slide 18



Talking Points

6. WUI codes and standards or ordinances, where appropriate, that guide development.

- You'll need to work with your fire marshal's office or other agency responsible for implementing state and local codes and ordinances to find the most up-to-date information.

7. A visible wildfire reduction and prevention program that educates the public about the importance of a community-wide approach and the role of individual homeowners.

- Firewise, Ready, Set, Go!, and a host of other agencies have community and resident-specific information that you can utilize. Collaborate with other agencies in your community to come up with essential elements specific to your area that you can use as a basis for reduction and prevention.

8. Adequate fuel treatments conducted in and near the community, including development and maintenance of a fuel buffer around the community.

- Helping residents create a fire-adapted home is great; however, you must also look outside of individual residencies to ensure that the whole community is prepared. These may include parks and recreational facilities, businesses, etc.

9. Established and well-known evacuation procedures and routes.

- Work with your emergency management agency and be sure to include this information in your prevention program that you share with residents.



Quiz Question

Which of the following are primary elements of a Fire Adapted Community?

Choices: An informed and active community that shares responsibility for mitigation practices; Structures hardened to fire and including adequate defensible space practices; Established and well-known evacuation procedures and routes; All of the above

Answer: All of the above



Slide 19



Talking Points

Just in the last few years we have seen how wildfires have affected U.S. populations. For example:

California

In September of 2015, three major fires raged simultaneously. The Valley Fire burned through 73,000 acres, killed one person, destroyed 600 houses, and forced thousands of people to evacuate. The Butte Fire destroyed more than 450 buildings and made its way through 70,000 acres. Meanwhile, the Rough Fire, the largest of the three fires, burned more than 140,000 acres and threatened to destroy some of the biggest and oldest trees in the world.

Washington

The 2015 wildfire season was the largest in Washington state history, with more than one million acres burning across the state from June to September. As many as 3,000 firefighters including 800 WA National Guard members were deployed to fight the fires, along with 200 U.S. Army soldiers. On August 21, the fires were declared a federal emergency. Because of the enormous extent of the fire activity, for the first time in Washington state history, officials asked residents to volunteer to assist in fighting the wildfires.

Arizona

The Yarnell Hill Fire was ignited by lightning on June 28, 2013. On June 30, it overran and killed 19 City of Prescott firefighters, members of the Granite Mountain Hotshots. The wildfire was fully contained by July 10, 2013. This event resulted in the highest wildland firefighter death toll in the U.S. since 1993 and the highest death toll from any U.S. wildfire since 1991.

Colorado

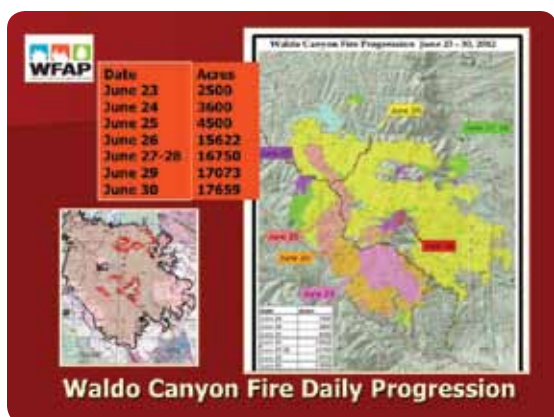
The 2012 Waldo Canyon Fire forced more than 30,000 people to evacuate, scorched 18,247 acres, killed two residents, destroyed 346 homes, and took firefighters 18 days to fully contain. This fire presented the first opportunity for partners in the national FAC Coalition to collectively assess the performance of mitigation practices in a post-fire environment and compare the results to the mitigation strategy recommended by FAC.

The mitigation work conducted in the high-risk areas of the community was credited with helping the fire department achieve an 82 percent save rate. According to estimates provided by the Colorado Springs Mitigation Section and FEMA, the cost benefit ratio for the mitigation efforts for the Cedar Heights neighborhood was 1/257; \$300,000 was spent on mitigation work and \$77.25 million in losses were avoided. The combined cost benefit ratio was 1/517 for the three neighborhoods with the highest impacts. However, it should be noted that changes in fire weather behavior such as wind shifts could have resulted in significantly higher fire losses.



Resource Reference

Information taken from Lessons Learned from Waldo Canyon Executive Summary, <http://fireadapted.org>.



Slide 20



Talking Points

The FAC Mitigation Assessment Team for the Waldo Canyon CO Fire also found that building design and material improvements and maintenance could have reduced losses:

- Ember ignition via ignition of combustible materials on, in, or near the home was confirmed by the surveys. This reaffirms the serious risk posed by ember ignitions to properties during wildfires. This reinforces the importance of maintaining an effective defensible space and regularly removing debris from areas on and near the home.
- Home-to-home fire spread was again a major issue, as it has been in previous WUI fires. When it occurred, it was dependent on at least one wildland fire-to-home ignition and then home spacing and slope/terrain. Home-to-home fire spread was attributed to a relatively large number of home losses in this survey.
- Wildland fire-to-home ignition was influenced by location of the home on a slope and fuels treatment(s), or lack of, on the slope leading to the home.
- A building can be hardened with noncombustible materials, but it is also necessary to incorporate appropriate construction details, which will help ensure that the protections offered by those materials is not bypassed.
- **Individual homeowners must take responsibility for fortifying their property against wildfire damage by taking appropriate measures to incorporate noncombustible building materials and construction details.**



Resource Reference

Instructor can show Waldo Canyon Fire Video at this point if there is time/availability. Video is available at http://www.youtube.com/watch?feature=player_embedded&v=4p9VYKoq3qE.


Information taken from Lessons Learned from Waldo Canyon Executive Summary, <http://fireadapted.org>.



Quiz Question


True or False: Individual homeowners must take responsibility for fortifying their property against wildfire damage by taking appropriate measures to incorporate noncombustible building materials and construction details.

Answer: True



Public Perception Hinders Understanding

- Most people do not understand wildfire behavior
- Popular knowledge about wildfires is based on myth or lack of understanding
- Dispelling common myths is necessary to learn how risk assessment and hazard mitigation can prevent wildfire disasters



Slide 21

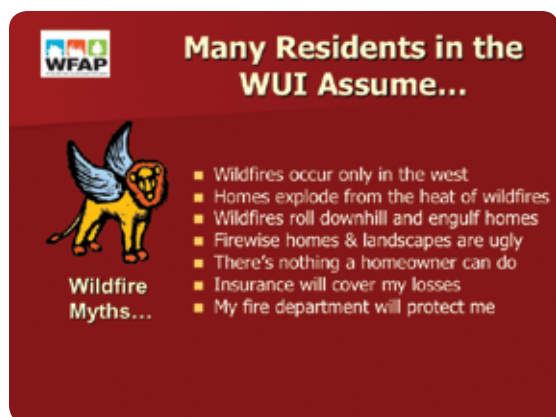


Talking Points

The general populace of the U.S. does not understand the phenomenon of fire. In essence, the physical/chemical reality of fire remains a mystery to millions of people – how it works, what are flames, why it burns, what it burns.

It should be of little surprise, then, that a typical reaction to seeing news reports on wildfire destroying homes is that it is an unfortunate and random event. Fire seems to be descending upon homes with such tremendous force and heat that nothing can survive. The fire appears to indiscriminately select homes while passing through the community, destroying some, while leaving others intact. Those homes unfortunate enough to be targeted have been reported to “explode” because of the incredible heat from the advancing flames.

These huge flames engulf the homes regardless of what any of the public fire agencies can do. Residents and firefighters appear helpless in the face of such an angry foe.



Slide 22



Talking Points

Just like the griffin – a mythical creature that is part eagle, part lion – there are many “myths” about wildfire. And many of these myths can have serious consequences if we do not help residents understand their role in mitigation and preparation for a wildfire.

- MYTH: Wildfires occur only in the west.
- FACT: We have already seen the map and reviewed the information that shows that every area of the United States has WUI zones.
- MYTH: Homes explode from the heat of wildfires.
- FACT: More details on home ignition zones will be covered in Module #3, but it is not true that homes explode from the heat of wildfires.
- MYTH: Wildfires roll downhill and engulf homes.
- FACT: More details on home ignition zones will be covered in Module #3, but it is not true that fire rolls down hills and engulfs homes.
- MYTH: Firewise homes and landscapes are unattractive.
- FACT: Firewise homes and landscapes can be extremely aesthetically pleasing as well as cost saving.
- MYTH: There's nothing a homeowner can do.
- FACT: There are many, many things a homeowner can do, and the details will be discussed in Module #2 and Module #3.
- MYTH: Insurance will cover my losses.
- FACT: Not all of them, even monetarily. And there is no way insurance could ever replace family heirlooms, pictures, antiques.... and nothing would ever compensate for loss of life.
- MYTH: My fire department will protect me.
- FACT: There are often not enough firefighters or equipment to ensure that every home is protected. That is why it is imperative to educate residents to be proactive and prepare themselves for wildfire.



Firefighting Resources are Limited



- Wildfires have grown in size in the last decade
- 10,125, 149 acres burned in 2015, highest amount this century
- There are not enough firefighting resources to protect every home during severe wildfires
- Wildfire is the easiest natural peril to mitigate

Slide 23



Talking Points

This information is self-explanatory. Wildfires continue to grow in size and severity. In 2015, over 10 million acres burned – the highest amount this century. Fire crews in the WUI have not significantly increased and the number of available air tankers has been halved due to retirement and crashes. There are not enough firefighting resources to protect every house during severe wildfires. However, wildfire is the easiest natural peril to mitigate.

That is why it is important to offer home assessments to communities, so that we can eliminate some of these myths and educate our residents so they can be proactive and take the necessary steps to prepare. This is one major step towards creating a more Fire Adapted Community.



Resource Reference

Wildfire Today



Quiz Question

True or False: Fire protection agencies are adequately staffed and equipped to prevent home ignitions during today's most catastrophic wildfire events.

Answer: False



Slide 24



Talking Points

Getting residents engaged in the process can be a challenge, but starting with the home assessment is one significant way to mitigate loss. Details about various resources will be discussed at length in Module #4, but the Fire Adapted Communities web site (www.fireadapted.org) has information regarding the following programs and processes:

- Ready, Set, Go!
- Firewise
- Community Wildfire Protection Plan
- Public education programs
- Thinning projects and prescribed burning
- Community fuel breaks
- Prescribed burning associations

By working together to design, build, and maintain communities compatible with nature and by reducing the risk of ignitions by maintaining the ignition zone around each house, significant impacts can be made to lessen the danger of WUI fires.



Quiz Question

True or False: Fire and emergency service departments can help mitigate life and property loss in their communities by performing home assessments for residents in the wildland-urban interface.

Answer: True



Module 1 - Summary

- Overview of the WFAP program and goals
- Discussion of "The Problem"
- Definition and characteristics of WUI Fire
- Effects of WUI Fire
- Being part of "The Solution" through Fire Adapted Communities
- Examples
- Public perception and "myths" hinder understanding and participation
- There will never be enough fire fighting resources, so...
- Getting resident involved through home assessments is critical!

Slide 25



Talking Points

To recap, this module provided the following information:

- Overview of the WFAP program and its goals
- Discussion of "The Problem"
- Definition and characteristics of WUI Fire
- Effects of WUI Fire
- Being part of "The Solution" through Fire Adapted Communities
- Examples
- Public perception and "myths" hinder understanding and participation
- There will never be enough fire fighting resources, so...
- Getting resident involved through home assessments is critical!



Slide 26



Instructor Note

Address any questions from the class.

Issue the Module 1 quiz.



WFAP: Module 1 Quiz

(Passing Score: 7 out of 10)

Name: _____

Email: _____ Phone: _____

1. The wildland-urban interface (WUI) is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

- a. True
- b. False

2. Which of the following are parts of the three threats or exposures that a building can experience during a wildfire, grassfire, or brushfire?

- a. Windborne embers
- b. Radiant heat
- c. Direct flame contact
- d. All of the above

3. Which is not one of the four phases of emergency management?

- a. Mitigation
- b. Preparation
- c. Education
- d. Recovery

4. Fire protection agencies are adequately staffed and equipped to prevent home ignitions during today's most catastrophic wildfire events.

- a. True
- b. False

5. Individual homeowners must take responsibility for fortifying their property against wildfire damage by taking appropriate measures to incorporate noncombustible building materials and construction details.

- a. True
- b. False

6. Wildfires are a problem not only in the western part of the U.S., but virtually every part of the country has an annual fire season.

- a. True
- b. False

7. Which is not a basic mechanism of heat transfer?

- a. Convection
- b. Radiation
- c. Oxygen
- d. Conduction

8. Fire must have three elements in order to burn. Which is not one of these three?

- a. Fuel
- b. Embers
- c. Oxygen
- d. Heat

9. Which of the following are primary elements of a Fire Adapted Community?

- a. An informed and active community that shares responsibility for mitigation practices
- b. Structures hardened to fire and including adequate defensible space practices
- c. Established and well-known evacuation procedures and routes
- d. All of the above

10. Fire and emergency service departments can help mitigate life and property loss in their communities by performing home assessments for residents in the wildland-urban interface.

- a. True
- b. False



WFAP: Module 1 Quiz - Instructor Key

(answers in red are correct)

1. The wildland-urban interface (WUI) is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

a. True

b. False

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a. Windborne embers

b. Radiant heat

c. Direct flame contact

d. All of the above

3. Which is not one of the four phases of emergency management?

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b. Preparation

c. Education

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d. All of the above

10. Fire and emergency service departments can help mitigate life and property loss in their communities by performing home assessments for residents in the wildland-urban interface.

a. True

b. False

WFAP: Module 1 - Quick Reference

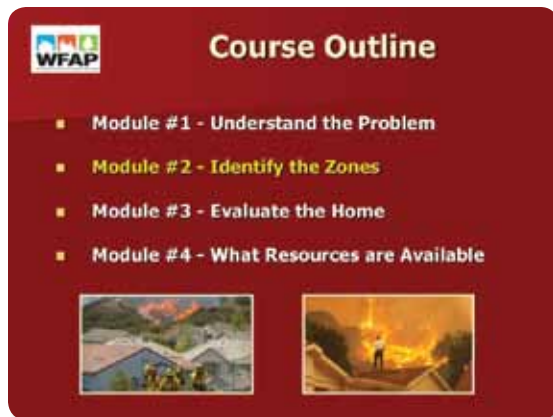
- 1. A**
- 2. D**
- 3. C**
- 4. B**
- 5. A**
- 6. A**
- 7. C**
- 8. B**
- 9. D**
- 10. A**



WFAP Instructor Guide

Module 2





Slide 1



Instructor Note

Module #1 is a prerequisite to Module #2. Let students know it is recommended to take all four modules in sequential order.



Talking Points

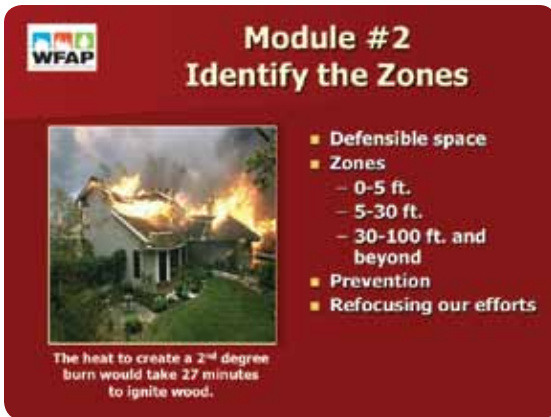
The concept of the home ignition zone (HIZ) was developed by USDA Forest Service fire scientist Jack Cohen in the late 1990s, following some breakthrough experimental research into how homes ignite due to the effects of radiant heat. For more than 15 years, NFPA's wildfire safety recommendations have been shaped by this fire science and because of it, is able to provide actionable guidance for homeowners to help them prepare homes/home landscapes to resist wildfire.

Module 2 focuses on identifying the HIZ and its characteristics. It will provide you with an overview of the zones around the home — 0-5 feet, 5-30 feet, 30-100 feet, and beyond 100 feet — and why this defensible space is at-risk during a wildfire.



Resource Reference

Much of the HIZ information in this module is provided by the National Fire Protection Association's Firewise program.



Slide 2



Talking Points

“In order for people to adapt, they must first recognize there is a threat and then take action to combat that threat. People adapt by changing their behavior, so that it is easier (and perhaps safer) to live in a particular place or situation. It implies that a modification has been made in recognition of and acceptance of changing circumstances.” Elwood Miller, Ph. D., Coordinator, Nevada Network of Fire Adapted Communities

This module kick starts the specifics about what assessors are looking for. Assessors must learn these characteristics and be able to communicate those to the homeowner.

Communities exist and homeowners live within many zones. As public safety representatives, we should concern ourselves with all of the zones discussed in this module in order to create a more fire adapted community.

These zones are defensible space where residents can be proactive to mitigate property damage and loss with preventative measures. Also, keep in mind that when you are preparing for an assessment, it is important to size up the lot of where the home is standing and its neighbors. Some homes are on small lots where their neighbor’s defensible space will have a greater impact on their home than residencies that are on large lots.

Defensible space will be discussed and explained throughout the module.



Quiz Question

True or False: When preparing for an assessment, it is important to size up the lot of where the home is standing and its neighbors.

Answer: True



Slide 3



Talking Points

Six Steps to Creating Effective Defensible Space

The term “defensible space” refers to the area around a structure where the vegetation is managed to reduce the intensity and spread of wildfire. Defensible space also provides firefighters a safer space to defend the house. If firefighters are not available, defensible space improves the likelihood a structure will survive without assistance. Creating a defensible space protects the public and firefighters.

Unfortunately, some homeowners associate defensible space with a large expanse of bare ground surrounding their home. While bare ground is certainly fire-resistant, it is unacceptable for aesthetic reasons and can contribute to soil erosion. Homeowners can have both an attractive landscape and an effective defensible space.

Step 1: Measure and mark out a defensible space zone.

The size of the defensible space zone is usually expressed as a distance extending outward from the house in all directions.

County regulations generally require 100 feet of defensible space around a structure; however, local fire authorities may require greater distances in some higher risk situations. Homeowners insurance companies may also require greater distances to qualify for coverage. Exceptions for a defensible zone less than 100 feet can be officially granted by local fire authorities if a structure complies with enhanced fire-resistant construction standards.

If the defensible space zone exceeds the property boundaries, homeowners should seek permission before doing work on another property or ask neighbors to also join in creating defensible space. They should also check to ensure the property is not located in a protected area with special land management regulations. The effectiveness of a defensible space zone improves when entire neighborhoods participate.

Here are some helpful tips:

- Have plants low-growing and free of substances that burn easily.
- Use irrigated, herbaceous plants (such as lawn, ground covers, and flowers), rock mulches, or hard surfaces (such as concrete, brick, and pavers) within 0-5 feet of the home.
- Create a “noncombustible area” 0-5 feet wide around the base of the home that has a low potential to ignite from flying embers.
- Keep this area free of woodpiles, wood mulches, dead plants, dried leaves and needles, flammable shrubs (such as juniper), and debris.
- Utilize patio furniture made with fire-resistant material.



Slide 3 *continued from page 39*

- Remove firewood stacks and propane tanks.
- Consider xeriscaping if you are affected by water-use restrictions. Xeriscaping is landscaping and gardening in ways that reduce or eliminate the need for supplemental water from irrigation.

The next five steps apply to the vegetation growing within this area.



Resource Reference

Image taken from www.fire.ca.gov.



Quiz Questions

The term "defensible space" refers to the area around a structure where the vegetation is managed to reduce the intensity and spread of wildfire. Defensible space also:

Choices: Serves as a meeting place during an evacuation, Provides firefighters a safer space to defend the house, Provides an ideal area to install a pool, All of the above

Answer: Provides firefighters a safer space to defend the house

To help reduce the risk in the defensible space of a home, create a "noncombustible area" of _____ feet wide around the base of the home that has a low potential to ignite from flying embers.

Choices: 0-5, 15-20, 30-50, It is not necessary to create a noncombustible area at the base of the home.

Answer: 0-5



Slide 4



Talking Points

Step 2: Remove dead vegetation.

Dead vegetation includes:

- Dead and dying trees or parts of trees
- Dead native and ornamental shrubs
- Dead grass, weeds, and flowers
- Dead leaves, needles, and twigs that are still attached to plants, draped on live plants, or lying on the ground

The Three R's of Defensible Space:

- **REMOVE** dead and dying grass, shrubs, and trees.
- **REDUCE** the density of vegetation — prune, mow, and thin.
- **REPLACE** hazardous vegetation with less flammable plants or irrigated landscape.

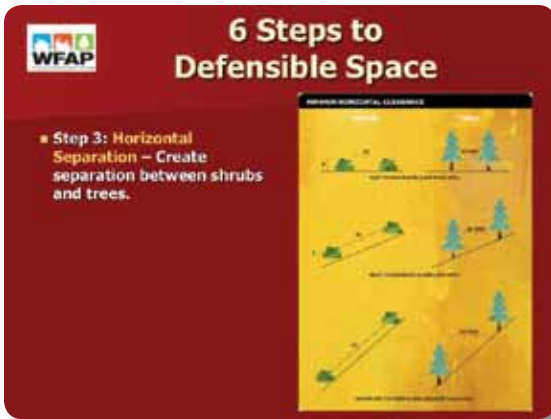


Quiz Question

Which is NOT one of the three R's of defensible space:

Choices: REMOVE dead and dying grass, shrubs, and trees; REDUCE the density of vegetation — prune, mow, and thin; REPLACE hazardous vegetation with less flammable plants or irrigated landscape; REROUTE evacuation roads to be sure you have more than one way out

Answer: REROUTE evacuation roads to be sure you have more than one way out



Slide 5



Talking Points

The spacing between grass, shrubs, and trees is crucial to reduce the spread of wildfires. The spacing needed is determined by the type and size of brush and trees, as well as the slope of the land. For example, a property on a steep slope with larger vegetation requires greater spacing between trees and shrubs than a level property that has small, sparse vegetation.

Step 3: Horizontal Separation – Create a separation between shrubs and trees.

Check the chart on the slide to determine spacing distance.

Within the defensible space zone, check if native trees and shrubs are widely spaced or occur in a dense stand. Dense stands of trees and shrubs pose a significant wildfire threat.

On flat to gently sloping terrain, pine and fir trees should be thinned to provide an average separation between canopies of at least 10 feet. For homes located on steeper slopes, the separation distance should be greater. When selecting trees for removal, consider cutting unhealthy, damaged, or weak trees.

On flat to gently sloping terrain, individual shrubs or small clumps of shrubs should be separated from one another by at least twice the height of the average shrub. For homes located on steeper slopes, the separation distance should be greater.

For example, if the typical shrub height is 2 feet, create a separation between shrub branches of at least 4 feet by removing shrubs or pruning to reduce their height and/or diameter.



Resource Reference

Information and graphics taken from Cal Fire at

http://www.readyforwildfire.org/defensible_space/#sthash.7x6rJrFl.dpu.



Slide 6



Talking Points

Step 4: Vertical Separation – Create a separation between tree branches and lower growing plants.

Vegetation often grows at different heights or layers, like the rungs on a ladder. For example, dried grass may be the lowest rung, shrubs the middle rung, and tree branches the upper rung. Lack of vertical space can allow a fire to move from the ground to the brush to the tree tops like a ladder. Vegetation that can carry a fire burning in low growing plants to taller plants is called ladder fuel.

Be sure when analyzing the vertical separation from the house that you take into account the top of the house as well as all the way from the roof to the foundation.

Remove all tree branches at least 6 feet from the ground. Allow extra vertical space between shrubs and trees. To determine the proper vertical spacing between shrubs and the lowest branches of trees, use the formula provided on the slide.

Example: A five foot shrub is growing near a tree. $3 \times 5 = 15$ feet of clearance needed between the top of the shrub and the lowest tree branch.



Resource Reference

Information and graphics taken from Cal Fire at

http://www.readyforwildfire.org/defensible_space/#sthash.7x6rJrFl.dpu.



Slide 7



Talking Points

Step 5: Create a lean, clean, and green area.

Create a lean, clean, and green area in the first 50 feet of the total 100 feet required for defensible space around the home. In the remaining 50 feet, prune the lower third of native vegetation that you keep and make sure there are 18 feet of spacing. If the plant is over 18 feet tall, prune the lower 6 feet. For most homeowners, the lean, clean, and green area is their residential landscape – often planted with ornamental vegetation and regularly irrigated and maintained. (L.A. fuel modification guidelines)

A lean, clean, and green area has two goals:

1. to eliminate combustible materials and vegetation near the house that can ignite from flying embers, and
2. if a fire does ignite, fire intensity should remain low and likely unable to generate enough heat to ignite the home

Consider these fire-smart tips for creating a lean, clean, and green area within 50 feet of the home:

- For the first 0-5 feet around the home, create a non-combustible area for maximum protection.
- Burning embers may pile up next to the house during a wildfire and ignite any combustible materials, such as wood mulches.
- Emphasize the use of irrigated herbaceous plants, such as lawn, ground covers, and flowers in this area.
- Rock mulches and hard surfaces are another excellent choice.
- Lawns are good for this area; plant a variety that does not require frequent watering or mowing to remain healthy and maintained.
- Highly flammable wildland plants should be removed or replaced. If you wish to retain a few, keep them free of dead wood and leaves, prune to reduce the amount of fuel, and separate from other wildland vegetation.
- Clear all flammable vegetation from within 10 feet of firewood stacks, propane and other fuel tanks, and water tanks.
- Trim tree limbs encroaching on the house, deck, roof, power lines, and from within 10 feet of the chimney.
- Flowers, including perennials, annuals, succulents, and bulbs, are good choices as long as they are actively growing. When they start to dry out and turn yellow, dead leaves and flowers should be removed.
- Deciduous is better than evergreen. Many evergreens contain flammable oils and resins that burn very hot when ignited.
- Keep deciduous trees well-maintained. Plant deciduous trees to allow at least a 10-foot separation between branch tips at maturity.



Quiz Question

What is one goal of a “lean, clean, and green area?”

Choices: To preserve the ecosystem, To allow for minimal upkeep of vegetation in the home ignition zone, To eliminate combustible materials and vegetation near the house that can ignite from flying embers, All of the above

Answer: To eliminate combustible materials and vegetation near the house that can ignite from flying embers



Slide 8



Talking Points

Step 6: Maintain the defensible space zone.

Maintaining a defensible space is an ongoing activity. Plants grow back and flammable vegetation needs to be routinely removed and properly disposed. Before each fire season, residents should check the property using the previous five steps and implement the necessary defensible space recommendations.

Additional notes:

- To help reduce the risk in the Defense Zone, homeowners should create a “noncombustible area” 0-5 feet wide around the base of the home that has a low potential to ignite from flying embers.
- Use irrigated, herbaceous plants (such as lawn, ground covers, and flowers), rock mulches, or hard surfaces (such as concrete, brick, and pavers) within 0-5 feet of the home.
- Keep this area free of woodpiles, wood mulches, dead plants, dried leaves and needles, flammable shrubs (such as juniper), and debris.



Resource Reference

U.S. Forest Service – *Homeowners Need to Prepare for Wildfire: Six Steps to Creating and Effective Defensible Space.*
www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev3_003999.pdf.



Slide 9



Talking Points

The structural ignition zone primarily determines ignition potential. This zone includes the home and immediate surroundings up to 200 feet. We focus on 100 feet or less around homes and other structures; however, intense fire potential in heavier fuels may require the surroundings to extend to 200 feet from the home or structure. In this case, the homeowner should place low-growing plants and well-spaced trees in this area, remembering to keep the volume of vegetation (fuel) low. You can find out more about the area extending beyond the 100 foot zone from www.firewise.org.

Homes have a better chance of survival if we apply a basic understanding of the dynamics of the Ignition Zone. This same knowledge is applicable to existing and planned homes and developments. Think smarter not harder.



Resource Reference

Firewise Toolkit - A Guide to Firewise Principles, page 1.

http://firewise.org/~media/Firewise/Files/Pdfs/Toolkit/FW_TK_Principles.pdf.



Slide 10



Talking Points

All of the homes pictured here are in the Ignition Zone.

Once we know how structural and vegetative fuels readily ignite and how close is close enough for heat transfer to occur, we have a basic scientific understanding of how homes and communities can survive a wildland fire's flames and firebrands by a judicious use of standard residential building materials and landscape designs.

We can use this knowledge to determine the degree of wildland fire ignitability of a single home or to a residential development, whether existing or planned. The vulnerability of a community to a severe wildland fire event is determined by the condition of its collective home ignition zones.

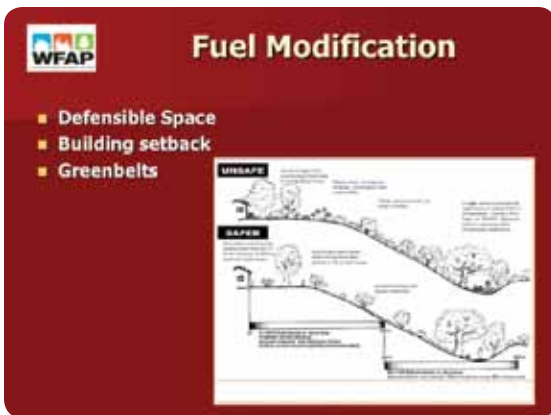
We can also use this information to more effectively plan our mitigation and response strategies. Once we can locate areas that are vulnerable or resistant to ignitions, we can more effectively concentrate our education and mitigation programs. We can also design our fire response strategies to provide more efficient life safety and home protection.



Quiz Question

True or False: The vulnerability of a community to a severe wildland fire event is determined by the condition of its collective home ignition zones.

Answer: True



Slide 11



Talking Points

Fuel modification is a key component of creating a defensible space. Proper fuel modification breaks up the continuous path of fuel that could carry wildfire to a home. You don't have to have dirt or rock yards. The goal is to have a maintained landscape.

Fuel modification options within the zones include:

- Mechanical clearing
- Hand clearing
- Prescribed fire
- Grazing of goats, sheep, or cattle
- Commercial forestry operations, which can reduce fuel continuity and volume

Greenbelts are largely undeveloped, wild, or agricultural land surrounding or neighboring urban areas. In essence, a greenbelt is an invisible line designating a border around a certain area, preventing development of the area and allowing wildlife to return and be established.

Greenbelt development contributes to maintaining a separation between natural vegetation and the community, with options such as:

- Golf courses
- Orchards
- Maintained parks
- Lakes



Resource Reference

Information taken from http://www.wildfirezone.org/assets/images/resource_docs/fuel_mgmt_final.pdf.



Discussion Question

Ask participants if their community or forest service has a fuel modification plan. They can check with their forest service to see if one exists in their area.



Slide 12

Talking Points

0-5 feet around the perimeter of the home is the first zone. Module 3 will focus more on specific details of the home.

The objective of this zone is to reduce the chance of wind-blown embers from a fire landing near the home, igniting combustible debris or materials, and exposing the home to flames.

This zone is closest to the house, so it requires the most careful selection and management of vegetation and other materials.

Like we mentioned earlier with vertical separation, be sure to take into account vertical lines when analyzing Zone 1. You are looking at 0-5 feet from the base of the home all the way to the top of the structure – so your vertical line of separation should be maintained from the foundation of the house, all the way to the roof.



Slide 13



Talking Points

A fireproof home is not feasible; however, following these construction principles will minimize the ignitability of the structure, thus providing the homeowners and the firefighters a higher probability of success in the event of a wildfire. More detail about fire-resistant construction is found in Module 3.

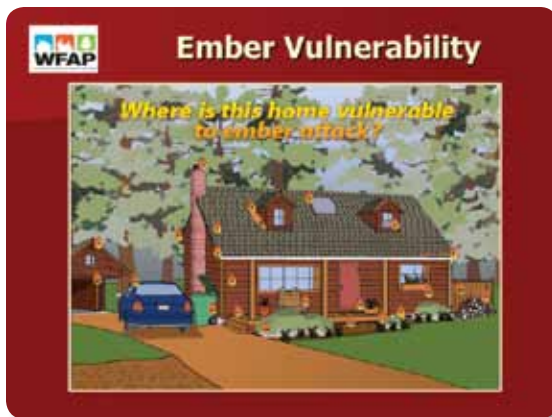
Since you are talking about building construction, you may also want to mention mudslides to the homeowner:

- Wildfires are a disaster that can cause problems for years.
- After the fire, the potential for mudslides exist. Mudslides can destroy homes not involved in the wildfire or homes that survived the fire.
- Mudslides or siltation can reduce the capacity of reservoirs, costing money to clean out.
- Mudslides and debris flows can negatively affect transportation systems, recreational facilities... anything downstream is a target.



Resource Reference

Nine IBHS Wildfire Retrofit Guides were developed to reflect specific guidance based on regional building styles, landscapes, and vegetation patterns. The retrofit guidance is based on the latest wildfire building safety research. Download the guides at <https://disastersafety.org/wildfire/ibhs-regional-wildfire-guides/>.



Slide 14



Talking Points

During a wildfire, thousands of embers can rain down on roofs and pelt the side of homes like hail during a storm. If these embers become lodged in something easily ignited on or near a house, the home will be in jeopardy of burning.

Embers coming into contact with flammable material is the major reason why homes are destroyed during wildfire.

Common materials that become embers during wildfire include pine cones, branches, tree bark, and wooden shingles. Depending on fire intensity, wind speed, and the size of materials that are burning, **embers can be carried more than a mile ahead of the fire.** Consequently, even homes located blocks away from the actual flame front are vulnerable to ignition and complete destruction.

By being ember aware and taking action ahead of time, a homeowner can substantially reduce the ember threat.

THEIR home CAN survive when the embers arrive.



Quiz Question

True or False: Depending on fire intensity, wind speed, and the size of materials that are burning, embers can be carried more than a mile ahead of the fire.

Answer: True



Slide 15



Talking Points

The Insurance Institute for Business & Home Safety (IBHS) Research Center evaluates various residential and commercial construction materials and systems. This video demonstrates ember test highlights from a 2011 study.



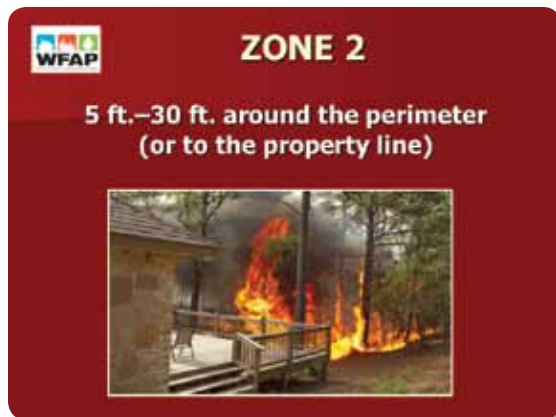
Resource Reference

Video can be accessed from the Supplemental Resources Flashdrive or found on the web at <https://www.youtube.com/watch?v=lvbNOPSyys>.



Instructor Note

Play the video for the class.



Slide 16



Talking Points

The objective of this zone is to create and maintain a landscape that, if ignited, will not readily transmit fire to the home.

Trees and shrubs in this zone should be in well-spaced groupings and well maintained.

Ladder fuels (i.e., shorter vegetation or shrubs under taller trees) should be avoided to prevent the fire from climbing into the crown or upper portions of trees.



Quiz Question

_____ (i.e., shorter vegetation or shrubs under taller trees) should be avoided to prevent the fire from climbing into the crown or upper portions of trees.)

Choices: Spark arresters, Herbaceous plants, Ladder fuels, Embers

Answer: Ladder fuels



Slide 17



Talking Points

Landscaping is often determined by geographical location. Some plants, shrubs, and trees indigenous to the area may be ideal for fire mitigation, while others act as fuels.



Instructor Note

Search out the state you are in for specifics. Add bullets and photos to detail your talking points. Distribute plant guides if available. Firewise, universities, State Foresters, and the United States Forest Service all have information on landscape plants that can improve the looks of a home and not severely contribute to the spread of fire.



Resource Reference

The Firewise Communities Program provides various links to state Cooperative Extension Service plant lists. These sources are science-based, consistent with Firewise principles, and are updated periodically. Find the plant guide applicable to your state and consider providing the link to homeowners while performing assessments.

<http://firewise.org/wildfire-preparedness/firewise-landscaping-and-plant-lists.aspx?sso=0>.



Slide 18



Talking Points

The home inspection is an opportunity to locate water sources and provide information to the homeowner on methods to make the water more accessible to the fire department.

Considerations:

- What and where are the water sources?
- Are they accessible to fire apparatus?
- Are portable pumps required?
- Are the water sources gravity flow or pumped requiring electricity?



Slide 19



Talking Points

The objective of vegetation management in this zone is to reduce the energy and speed of the wildfire.

Tree and brush spacing should force fire in the tops of the tree, brush, or shrub crowns to drop to the ground. Flame length should decrease.



Quiz Question

The objective of vegetation management is to _____ the energy and speed of the wildfire.

Choices: Strengthen, Reduce, Impact, Vegetation management does not affect the energy and speed of wildfire.

Answer: Reduce



Slide 20



Talking Points

In our business, as people rush out to evacuate, the fire service rushes in. These issues are important for all incidents and this is the opportunity to discuss them with the homeowner.

Street Signs: Do they exist? Are they visible? Are they non-combustible? It is critical to find an incident and to direct incoming units to a scene. If street signs are not meeting the correct criteria, you can suggest to the home owner to bring these issues up with the proper municipality responsible for public street signage.

House Numbers: You know the street, now which house? If the house is on fire, no problem. However, during a wildfire, having proper signage will help communicate evacuations and it will also help on other emergency calls, such as medical. Again, the homeowner may be able to help, whether it's marking their own home or advocating for proper signage from the homeowners' association if one exists.

Review the **access routes** for these features; if they don't exist, are they needed? If so, speak up. While the resident may not be able to change these conditions, you should still consider bringing these items to their attention.

- Road Width:** Roads should be wide enough for two vehicles to pass. Are there local ordinances on road width?
- Road Grade:** Will the grade reduce the fire apparatus speed, increasing response times? If so, share this with the property owner.
- Road Surface:** Is the road an all-weather surface or could the surface hinder a response in inclement weather?
- Turn Around:** Is there adequate space for a fire engine to turn around or is a three point turn necessary? This could jeopardize the firefighters getting on-scene during a fast-moving wildfire.
- Turn Outs:** If the road will not allow two vehicles to pass, are there turnouts that will allow one vehicle to yield to responding fire engines?



Slide 21



Talking Points

Open space islands are lands in and around communities that are set aside for wildlife habitat, watershed, recreation, etc. They exist in every county of the United States. The open space islands pose new challenges in fire prevention and fire operations.

Left Map: Traditional WUI communities (in salmon color) are surrounded by or border large tracts of wildland.

Right Map: Open space islands (in green color) are an evolving wildfire threat to municipalities. As population densities increase the pressure on habitat increases and more protection projects will result in more open space islands.

Bottom Photograph: The Good Neighbor Solution – create defensible space between residencies to mitigate the risk of home-to-home fires in the WUI.



Slide 22



Talking Points

Here are some tips you can share with the homeowner about reducing wildland ignitions and what should be observed to prevent wildfire ignitions.

Ignition: Reducing ignitions is as important as improving a home's survivability. The safest and cheapest fire is the one that we prevent.

90 percent of wildfires are caused by humans. Use the inspection as an opportunity to provide fire prevention education on potential ignition sources that are observed in the area. Public contact is also an opportunity to share prevention tips by discussing what causes fires.

Clearing around a home can prevent structure fires from moving into forests and wildland areas. Examples are:

- Mow grass when it is cool and damp, not hot and dry.
- Outdoor cooking must be done away from dry vegetation and have water close by in case of fire.
- Outdoor burning, if legal in the area, must be conducted in a safe manner with clearance, water, and shovel nearby and follow local rules when burning.

Spark arrestors

A spark arrester is any device which prevents the emission of flammable debris from combustion sources, such as internal combustion engines, fireplaces, and wood-burning stoves. Spark arresters play a critical role in the prevention of wildland fire and ignition of explosive atmospheres. As such, their use is required by law in many jurisdictions nationwide.

Laws governing spark arrester use in the United States depend on the jurisdiction. Internal combustion engines operating on USDA Forest Service and most other federally-managed lands must meet the requirements of the Code of Federal Regulations 36 CFR 261.52.5. This mandate requires the operator to have a certified and properly-maintained spark arrester installed at all times. Many state and local land management agencies defer to the federal requirement. Exemptions exist for automobiles legally registered with their state's department of motor vehicles.

During periods of extreme fire danger, land managers may prevent the use of all motorized equipment, even if a properly-functioning spark arrester is installed. Spark arrester inspections are performed by trained agency law enforcement or fire prevention personnel. They may occur on an individual basis or as part of an inspection checkpoint during busy recreation weekends. Operators caught



Slide 22 *continued from page 59*

using unqualified or modified devices could be cited. Penalties for violating spark arrester laws depend on the issuing agency. If it is determined a noncompliant vehicle was responsible for starting a fire, the operator could be held liable in civil or even criminal court.

Power lines

Power lines have caused many large wildfires since ignitions can occur in difficult to reach areas, thus becoming large before firefighters arrive.

When inspecting homes, take the opportunity to observe the power lines in the area for clearance.

- Does the utility company inspect and clear power lines to mitigate ignitions?
- What is required to mitigate power line ignitions?

The drawing on the right is the required clearance of a Subject Pole.



Quiz Question

True or False: Reducing ignitions is as important as improving a home's survivability. The safest and cheapest fire is the one that we prevent.

Answer: True



Slide 23



Talking Points

Wildfires will continue to enter communities, yet homes and adjacent vegetative fuel beds do not have to ignite. To shape successful results in these scenarios, our traditional wildland fire strategies need to be reconsidered.

A community consisting of ignition resistant homes and surrounded by a healthy forest is more likely to survive a wildfire. Vegetation that doesn't combust near homes improves the chances of survival of the home.

Homes built wisely are defensible during an ember storm, thus reducing costs and losses as well as improving the survival of firefighters and citizens during wildfires.



Module 2 - Summary

- Define and understand defensible space
- Discuss the six steps to creating defensible space
- Identify the structural ignition zones and how collectively they can affect a community
- Understand how fuel modification affects defensible space
- Identify each of the three zones surrounding a property and their elements
- Recognize ember vulnerability
- Discuss prevention and how it relates to the resident
- Stopping the transition from the wildland fire to the urban fire!

Slide 24



Talking Points

To recap, we learned how to do the following in this module:

- Define and understand defensible space
- Discuss the six steps to creating defensible space
- Identify the structural ignition zones and how collectively they can affect a community
- Understand how fuel modification affects defensible space
- Identify each of the three zones surrounding a property and their elements
- Recognize ember vulnerability
- Discuss prevention and how it relates to the resident
- **Stopping the transition from the wildland fire to the urban fire!**



Slide 25



Instructor Note

Address any questions from the class.

Issue the Module 2 Quiz.



WFAP: Module 2 Quiz

(Passing Score: 7 out of 10)

Name: _____

Email: _____ Phone: _____

1. The term “defensible space” refers to the area around a structure where the vegetation is managed to reduce the intensity and spread of wildfire. Defensible space also:

- a. Serves as a meeting place during an evacuation
- b. Provides firefighters a safer space to defend the house
- c. Provides an ideal area to install a pool
- d. All of the above

2. What is one goal of a “lean, clean, and green area?”

- a. To preserve the ecosystem
- b. To allow for minimal upkeep of vegetation in the home ignition zone
- c. To eliminate combustible materials and vegetation near the house that can ignite from flying embers
- d. All of the above

3. To help reduce the risk in the defensible space of a home, create a “noncombustible area” of _____ feet wide around the base of the home that has a low potential to ignite from flying embers.

- a. 0-5
- b. 15-20
- c. 30-50
- d. It is not necessary to create a noncombustible area at the base of the home.

4. When preparing for an assessment, it is important to size up the lot of where the home is standing and its neighbors.

- a. True
- b. False

5. The vulnerability of a community to a severe wildland fire event is determined by the condition of its collective home ignition zones.

- a. True
- b. False

6. Which is NOT one of the three R's of defensible space:

- a. REMOVE dead and dying grass, shrubs, and trees.
- b. REDUCE the density of vegetation — prune, mow, and thin.
- c. REPLACE hazardous vegetation with less flammable plants or irrigated landscape.
- d. REROUTE evacuation roads to be sure you have more than one way out.

7. Depending on fire intensity, wind speed, and the size of materials that are burning, embers can be carried more than a mile ahead of the fire.

- a. True
- b. False

8. _____ (i.e., shorter vegetation or shrubs under taller trees) should be avoided to prevent the fire from climbing into the crown or upper portions of trees.

- a. Spark arresters
- b. Herbaceous plants
- c. Ladder fuels
- d. Embers

9. The objective of vegetation management is to _____ the energy and speed of the wildfire.

- a. Strengthen
- b. Reduce
- c. Impact
- d. Vegetation management does not affect the energy and speed of a wildfire.

10. Reducing ignitions is as important as improving a home's survivability. The safest and cheapest fire is the one that we prevent.

- a. True
- b. False



WFAP: Module 2 Quiz - Instructor Key

(answers in red are correct)

1. The term “defensible space” refers to the area around a structure where the vegetation is managed to reduce the intensity and spread of wildfire. Defensible space also:

a. Serves as a meeting place during an evacuation

b. Provides firefighters a safer space to defend the house

c. Provides an ideal area to install a pool

d. All of the above

2. What is one goal of a “lean, clean, and green area?”

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d. It is not necessary to create a noncombustible area at the base of the home.

4. When preparing for an assessment, it is important to size up the lot of where the home is standing and its neighbors.

a. True

b. False

5. The vulnerability of a community to a severe wildland fire event is determined by the condition of its collective home ignition zones.

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b. False

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a. True

b. False

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c. Ladder fuels

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b. Reduce

c. Impact

d. Vegetation management does not affect the energy and speed of a wildfire.

10. Reducing ignitions is as important as improving a home’s survivability. The safest and cheapest fire is the one that we prevent.

a. True

b. False

WFAP: Module 2 - Quick Reference

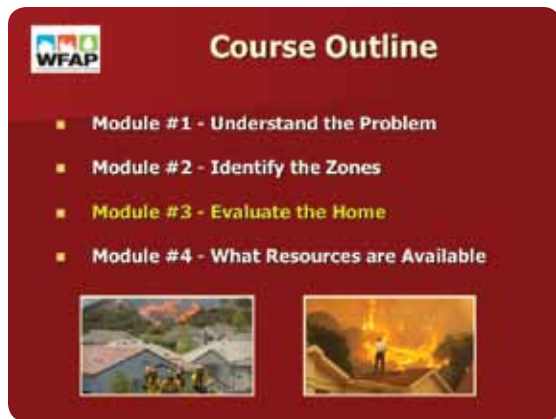
- 1. B**
- 2. C**
- 3. A**
- 4. A**
- 5. A**
- 6. D**
- 7. A**
- 8. C**
- 9. B**
- 10. A**



WFAP Instructor Guide

Module 3





Slide 1



Instructor Note

Modules #1 and #2 are prerequisites to Module 3. Students should take all four modules in sequential order.

Encourage discussion around each of the items included in this module so students are fully prepared to communicate this information to residents whose homes they are assessing.



Talking Points

The primary focus of Module 3 will be on the home itself and the 30 – 100 foot zones immediately surrounding the home. Information about the larger areas around the home was covered in Module 2.

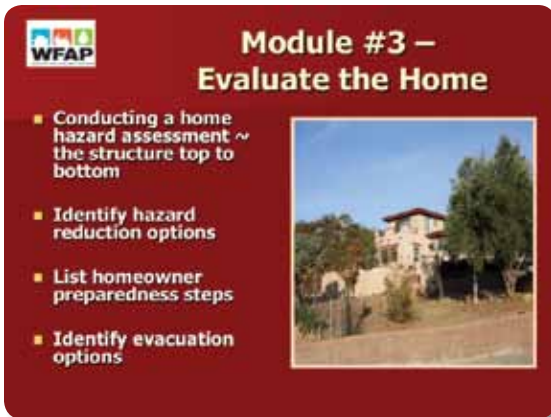
The WFAP Checklist serves as a basis for this module. A copy of the checklist includes a key for estimating retrofitting costs for the resident should there be any. You can find the checklist in the Resources Section of your toolkit and electronically on your Supplemental Resources Flashdrive. You should follow the checklist during this presentation so you are familiar with the items included and can easily go through the checklist with the resident when performing a home assessment.



Resource Reference

Information and resources for this checklist were primarily utilized from, but not endorsed by, the Institute for Business and Home Safety. Other elements from the Ready, Set, Go! Program; Ready.gov; and the Center for Fire Research and Outreach, College of Natural Resources, University of California, Berkley were also included.

The National Wildfire Coordinating Group (NWCG) created a glossary to provide the wildland community with a single source for wildland fire and incident management terminology. Access the glossary at www.nwcg.gov/glossary/a-z.



Slide 2



Talking Points

By the end of this module, you should know how to conduct a home hazard assessment. As was stated in Module 1, WFAP was developed primarily to teach department members in high-risk areas prone to wildland fire how to assess a home, perform pre-fire planning activities, and report on the assessments, which enable their community to become more fire adapted. Utilize the WFAP checklist to perform a thorough walk-through of the property.

Participants will gain an understanding of:

- The qualities of a good home assessment
- How to help homeowners go through a checklist of ways to make their home fire safe
- How to help homeowners identify and implement risk reduction options
- Homeowner disaster preparedness and evacuation information

Assessors should relay this specific information to the homeowner. Create a plan to address issues in the property's Home Ignition Zone/Defensible Space, including:

- Maintaining a “fire-free” area around the perimeter of the home
- Managing vegetation along fences
- Clearing debris from decks and patios, eaves, and porches
- Selecting proper landscaping and plants
- Knowing the local ecology and fire history
- Moving radiant heat sources away from the home (i.e., wood piles, fuel tanks, sheds)
- Thinning trees and ladder fuels around the home

Other tips to provide to residents include:

- Develop a personal and family preparedness plan
- Support land management agencies by learning about wildfire risk reduction efforts, such as using prescribed fire
- Contact the local planning/zoning office to find out if the home is in a high wildfire risk area and if there are specific local or county ordinances you should be following
- Work with homeowners' associations to identify regulations that incorporate proven preparedness landscaping, home design, and building material use, such as Firewise



Slide 3



Talking Points

It's also important to note that some of the recommendations from the assessment may include reconstruction, rebuilding, or remodeling some areas of the home. While these could potentially be costly adaptations and may not fit within the homeowner's budget, it is still the intent of the assessor to educate the homeowner and offer suggestions to ensure the highest risk reduction options.

It's also important to note that some of the recommendations from the assessment may include reconstruction, rebuilding, or remodeling some areas of the home. While these could potentially be costly adaptations and may not fit within the homeowner's budget, it is still the intent of the assessor to educate the homeowner and offer suggestions to ensure the highest risk reduction options.

No specific companies, corporations, or manufactures are endorsed in this curriculum. Also, this is not a code inspection, so no legal action should be taken if the homeowner does not comply with the assessor's recommendations.



Quiz Question

True or False: The assessment you will be providing is a code inspection, so photos should be taken in areas of the home where the homeowner doesn't comply with wildfire mitigation principles.

Answer: False



Slide 4



Talking Points

Before analyzing the defensible space of a home, assessors should start with the inside of the home to ensure the resident is taking the necessary precautions to prevent the home from being a combustible source for a wildfire. Permission to enter the home and inspect the property should be granted from the homeowner prior to the assessment.



Resource Reference

Utilize the liability tips and liability waiver template provided in the WFAP Toolkit to get approval from residents to assess their home. Liability will be discussed in greater detail in Module 4.



Talking Points

These are some of the tools and materials that will help assessors do a thorough inspection:

- Map of the areas to be inspected, with all known buildings identified
- WFAP Checklist with notes
 - Notes should be taken of observed hazards and risks during tour of inspected area
 - Sketches, photos, or maps may also be an aid to future inspections or firefighting operations
- Flashlight for darker or low-lit areas
- Ladder to reach higher areas of the home, such as gutters, skylights, etc.
- Copy of applicable laws and ordinances, if available
- Camera to take photographs for information and education purposes
- Measuring tape to determine adequate clearances
- Prior records where previous inspections have been made; assessors should study these before doing additional assessments

The next several slides will cover the inside of the home, followed by the exterior and defensible space zones. Assessors should go over each of the bullets on the checklist.

Keep in mind that you are not expected to be an expert at landscaping, building construction, etc., so if there is something you are not familiar with, be honest with the resident and provide a reference where they can get answers or more information. Examples – “contact your gas company” or “ask a roofing professional.” Pictures and reference materials are provided on various slides to give assessors a clear understanding of what to look for.



Slide 4 *continued from page 70*

The assessment should take roughly two hours depending on the size of the home; be sure to be thorough but also be efficient. Remember, you aren't doing the work for the resident (e.g. marking utilities, clearing debris, trimming trees); you are simply evaluating current conditions and making recommendations.



Quiz Question

Before analyzing the defensible space of a home, assessors should begin assessing the _____ to ensure the resident is taking the necessary precautions to prevent the home from being a combustible source for a wildfire.

Choices: Community wildfire protection plan, Home ignition zone, Inside of the home, All of the above

Answer: Inside of the home



Slide 5



Talking Points

The items discussed about the inside of the home are specific to wildfires. There are a multitude of other potential hazards that can be addressed, such as fall prevention, pool safety, kitchen safety, etc. that you may wish to look for while having access to the home. However, to keep with the goal of the presentation, those items are not covered here.

The first item on the checklist is to advise the residents to review their homeowner's insurance policy and prepare/update a list of the home's contents. This is not something that you need to do with the resident, rather something you should advise them to do on their own to assess the value of their belongings. Suggest that they contact their insurance provider as some insurance companies may offer discounts for residents who take initiative to mitigate wildfire risks.



Slide 6



Talking Points

Ensure that the family knows where the gas, electric, and water main shut-off controls are located and how to use them. Mark the location of the shut-off valves and post instructions where they can be easily located in an emergency.

If you are unable to locate the shut-off valves or are unsure of how to safely turn off the system, advise the resident to contact their utility company and have them send someone out who can find and demonstrate how to properly shut off the utility in question.

While talking with the residents about utility shut-offs, assessors should also suggest to the resident to check their stove and other major electric or gas appliances to make sure they are in good operating condition and aren't a potential fire hazard or combustible source.

This slide shows examples of electrical shut-offs.

Electrical sparks have the potential of igniting natural gas if it is leaking. Locate the electrical circuit box. For safety, always shut off all the individual circuits before shutting off the main circuit. ([ready.gov](https://www.ready.gov))



Slide 7



Talking Points

Water quickly becomes a precious resource following many disasters. It is vital that all household members learn how to shut off the water at the main house valve.

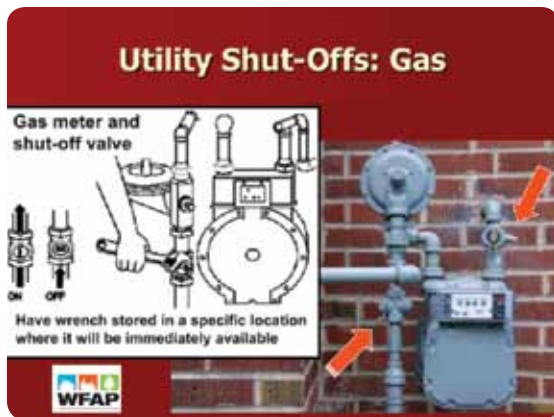
Locate the shut-off valve for the water line that enters the house and label this valve with a tag for easy identification. Make sure all household members know where it is located.

Make sure this valve can be completely shut off. If the valve is rusted or only partially closes, replace it.

Cracked lines may pollute the water supply to the house. It is wise to shut off the water until you hear from authorities that it is safe for drinking.

The effects of gravity may drain the water in the hot water heater and toilet tanks unless you trap it in your house by shutting off the main house valve. Note: this is not the street valve in the cement box at the curb – the street valve is extremely difficult to turn and requires a special tool. (ready.gov)

Here you can see different types of water shut-offs.



Slide 8



Talking Points

Natural gas leaks and explosions are responsible for a significant number of fires following disasters. It is vital that all household members know how to shut off natural gas. Because there are different gas shut-off procedures for different gas meter configurations, it is important for residents to contact the local gas company for any guidance on preparations and response regarding gas appliances and gas service to the home.

Once the resident learns the proper shut-off procedure for their meter, have them share the information with everyone in the household. Be sure not to actually turn off the gas when practicing the proper gas shut-off procedures.

If you smell gas or hear a blowing or hissing noise, open a window and get everyone out quickly. Turn off the gas, using the outside main valve, if you can, and call the gas company from a neighbor's home.

Caution: Notify residents that if they turn off the gas for any reason, a qualified professional must turn it back on. NEVER attempt to turn the gas back on yourself. ([ready.gov](https://www.ready.gov))

Review the photos. The photo on the right has a shut-off before and after the meter.



Slide 9



Talking Points

Some utility shut-offs require special tools. It's important that the resident have these available before an emergency.

The slide shows two examples that can be purchased for under ten dollars each.

If the resident doesn't have the tools, be sure to write that under the notes section on the checklist along with other recommendations found throughout the checklist. For example, if you can't locate a utility, make a comment on the checklist for the resident to contact that utility company for assistance.



Slide 10



Talking Points

Curtains/Drapes

Residents should consider installing heavy, fire-resistant drapes/curtains throughout the home. (Additional information about shutters is available in the HIZ part of this presentation.)

There are no “official” federal regulations regarding flame retardancy of drapery fabrics used in public spaces. However, there is a national standard developed by the National Fire Protection Association (NFPA), titled NFPA 701: Standard Methods of Fire Tests for Flame Propagation of Textiles and Films. Under NFPA 701, drapery fabric is tested by burning a small sample and measuring the flame, char length, and flaming residue. If a fabric meets the NFPA 701 standard in these three areas, the fabric is considered flame retardant and receives a NFPA 701 certification.

Many companies will specify whether or not their products meet this specification. If the resident is considering replacing their window treatments, recommend they look for drapes and curtains that meet the NFPA 701 standard.

Security Bars

Security bars, also known as burglar bars or window bars, can be found on any type of structure – single-family home, apartment building, storefronts. The bars provide a visible sign of security serving as both a deterrent to potential burglars and a reassurance to those who had the bars installed. However, burglar bars can also be dangerous, preventing residents and other occupants from escaping in the event of a fire and leading to fatalities.

If the resident has security bars on the windows or doors, be sure they have a quick-release mechanism.



Resource Reference

Learn more about security bar safety from the United States Fire Administration at www.usfa.fema.gov/downloads/pdf/publications/tr-138.pdf.



Slide 11



Talking Points

NFPA warns about the dangers of having too much stuff in a 2012 NFPA journal article by Stephanie Schorow. “Veteran firefighters have traded stories about homes so packed with furniture, clothing, magazines, newspapers, toys, and other items that they had trouble gaining entry during fires, and that residents could not be found amid their heaps of possessions.”

Accumulating materials not only pose a general threat to safety, but they can also be a fuel source for wildfire embers or radiant heat.

Residents should regularly dispose of newspapers and rubbish at an approved site and follow local burning regulations. This will prove to be beneficial not only during a wildfire, but for all emergency incidents, both medical and fire-related.



Slide 12



Talking Points

Embers can enter the home through fireplaces and wood stoves, so it's important that screens or glass doors are installed on the front of openings. Closing the damper will also add to the protection from embers entering.

Additional information about chimneys and roof openings will be covered during the exterior portion of this module.

Fireplace and wood stove ashes (also applies to outside grill) should be stored in a metal container and placed outside and disposed of only when cold. Residents should never place ashes in a combustible container like a paper sack or cardboard box, and never throw out the ashes unless they are cold to the touch.



Slide 13



Talking Points

Many people often keep combustible materials in their garage, such as gas cans and oily rags. These are extremely flammable and can be a fuel source for wildfire embers or radiant heat. Ideally the resident should keep flammable materials stored in a detached structure (such as a shed) away from the home.

No matter where they are kept, all flammable materials should be stored in approved safety cans. Cans should be placed in a safe location away from the base of buildings. Keep combustibles away from ignition sources such as a water heater.

There are a few other precautions the resident can take in regards to the garage:

- If the resident does not have a garage door, they should consider installing one to help protect combustible materials stored there.
- The garage door and any other doors from the garage leading outside should be weather sealed.
- Doors between the garage and living areas should be fire rated with self-closing hinges. Fire rated doors are used to prevent the passage of fire and smoke between two rooms. Fire rated doors (tested by Underwriters Laboratory) will have a metal plate and stamp as shown in the picture on the slide.



Quiz Question

When assessing the garage attached to the home, which of the following should be addressed?

Choices: Install a solid door with self-closing hinges between living areas and the garage, Weather seal the perimeter of garage doors, If you do not have a garage door, consider installing one to help protect combustible materials stored there, All of the above

Answer: All of the above



Slide 14



Talking Points

Tools should be available for emergencies, such as a shovel, rake, bucket, and hoe.

Residents should also have fire extinguishers on-hand (kitchen, garage, living room); everyone in the home should be trained how to use them.

Finally, talk to the residents about the importance of having a family disaster plan to be prepared for evacuations and the long-term effects of wildfires. This should include a supply kit, pet plans, evacuation routes, and communication methods.

The disaster plan should have a checklist of things to take care of when a wildfire is approaching. The checklist should be posted in a visible and even multiple locations so it is easily accessible. This will allow residents to systematically take care of pertinent tasks in a timely manner, even with heightened emotions where it is easy to forget everything that needs to be done. Checklist items may include:

- Close fireplace damper and screen
- Close foundation vents
- Turn off utilities
- Grab supply kit

Check out the next couple of slides to go over personal preparedness with the resident.



Resource Reference

Refer residents to [ready.gov](https://www.ready.gov) for templates and ideas to create a family disaster plan.



Discussion Question

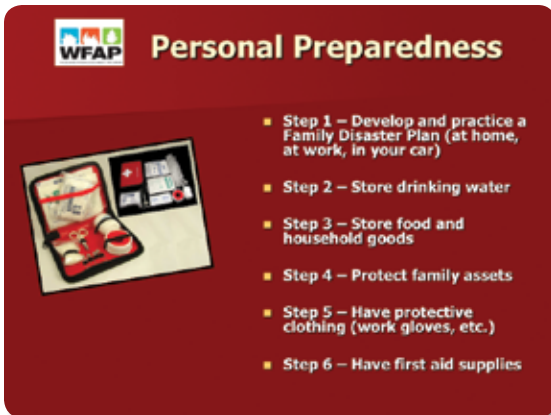
Consider asking for best practices from the group – what other items do they currently look for in their department, or are there other items not included on the list that are a heightened risk in their community or geographic area.



Quiz Question

True or False: You should advise the homeowner to create a family disaster plan to be prepared for evacuations and make a supply kit to be ready should a wildfire strike.

Answer: True



Slide 15



Talking Points

Here are some additional steps assessors may wish to share with homeowners so they can be ready should their home or community be affected by wildfire.

Step 1 –Personal/Family Disaster Plan

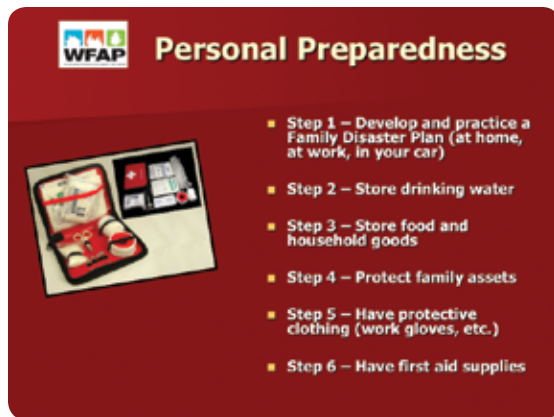
- Identify hazards in and around your home – reduce or eliminate their danger.
- Identify safe spots and danger spots.
- Identify two evacuation routes.
- Identify utility shut-offs and make sure everyone knows how to use them.
- Identify meeting places.
- Establish an out-of-area contact for everyone to call. Most cell phones have an ICE (In Case of Emergency) feature where critical contact numbers can be stored.

Step 2 – Drinking Water

- Store enough water for at least 3-5 days, figuring 1 gallon per, day per person.
- Consider additional water needs for pets, dishwashing, laundry, waste disposal, etc.
- Consider additional water sources such as pools, water heaters, etc.
- Store bottled drinking water out of direct sunlight, away from chemicals which might permeate the container, and in an area not likely to freeze.
- If bottling tap water, buy empty jugs or use well-washed plastic soda bottles. Wash containers and refill.

Step 3 – Food and Household Goods

- Store one week minimum of non-perishable foods for every person.
- Keep in a dry, cool spot – a dark area if possible.
- Inspect all food for signs of spoilage before use.
- Don't forget: pet foods, baby formula, plates, utensils, hand-held can opener, and medicines.
- Periodically check for expiration dates on perishable items and replace as needed.



Slide 15 *continued from page 82*

Step 4 – Protection of Family Assets

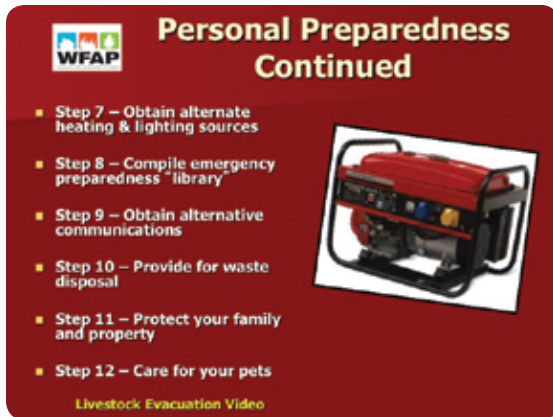
- Maintain hard copies of vital records (birth certificates, driver's license, bank statements, credit card statements, etc.).
- Have cash available - primarily small bills and coins.
- Have copies of prescriptions, etc. on hand.
- Keep medical records, pictures of family, and assets in a waterproof, fire-resistant box.

Step 5 – Clothing for Protection

- Don't donate it – keep for emergencies in a backpack or other bag that is easy to carry.
- Have heavy gloves and boots (in case need to do light search and rescue activities).
- Don't forget children with special needs.

Step 6 – First Aid Supplies

- Learn beginning first aid and CPR.
- Build first aid kits for home, car, school, and work.
- Always keep extra prescriptions on-hand (preferably a 30-day supply).



Slide 16



Talking Points

Step 7 – Alternative Heating and Lighting Sources

- Heating – wood-burning stoves and other fuel-burning heaters used in well-ventilated areas

- Extra blankets, sleeping bags, etc.
- Barbecues and camping stoves – never use inside or on balconies
- Lighting – flashlights with extra batteries, lanterns, generators
- LAST RESORT – Candles (never leave candles burning overnight while sleeping or around children)

Step 8 – Emergency Preparedness Library

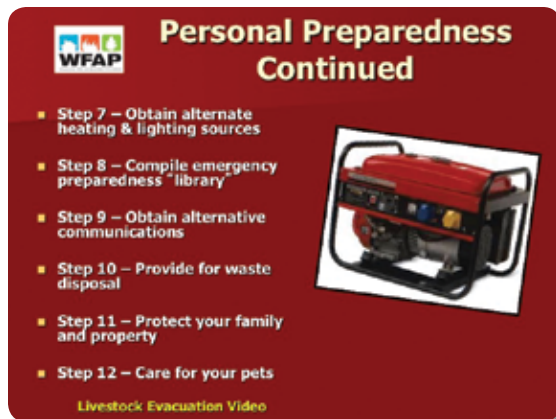
- Earthquake, flooding, fire safety pamphlets
- First Aid and healthcare books
- Basic home repair manuals
- Camping guides

Step 9 – Alternative Communications

- Battery-operated AM/FM radio
- Know local radio stations
- Listen for Emergency Alert System (EAS) messages
- Amateur Radio/Radio Amateur Emergency Services (RACES)

Step 10 – Waste Disposal

- System disruption – water, sewer, and waste disposal soon become health hazards
- Waste pick-up delays
- What to do with human and pet waste
- Trash disposal
- Hazardous materials



Slide 16 *continued from page 84*

Step 11 – Protecting Your Family and Property

- Get to know your neighbors.
- Organize your neighborhood through groups such as “Neighborhood Watch,” “CERT,” etc.
- Learn to defend yourself in a manner which is congruent with your personal values.

Step 12 – Prepare Your Pets

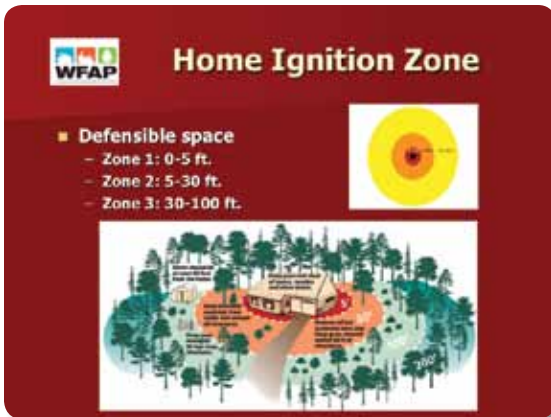
- Consider having a pet evacuation kit that includes:
 - Water and food bowls
 - Leashes and/or collars
 - Medical records and pictures
 - Special medications or foods
- Learn pet first aid.
- Know which shelters allow for animals.
- Have an escape plan for larger animals like livestock and horses.



Resource Reference

A video demonstrating how livestock can affect situations is available on your Flashdrive.

Check out Ready, Set, Go! at www.wildlandfirersg.org for a Fire Action Guide with additional homeowner preparedness tips and an evacuation checklist.



Slide 17



Talking Points

In Module 2, we discussed defensible space in the home ignition zone – the area around the home. Defensible space is comprised of three zones. The selection and maintenance of vegetation and other combustible items in these zones will determine how adequate your defensible space is.

Let's look at these areas again utilizing your checklist. We will walk through various elements that you can evaluate with the homeowner to ensure all areas are protected in the home ignition zone.

ZONE 1: 0 - 5 feet around the perimeter of the home

Install hard surfaces in this zone, such as a concrete walkway, or use noncombustible mulch products, such as rock. Keep the lawn well irrigated and use low-growing herbaceous (non-woody) plants. Shrubs and trees are not recommended in this zone. Remove dead vegetation and implement a maintenance strategy to keep the area clear of dead plant materials.

ZONE 2: 5 feet - 30 feet around the perimeter (or to the property line)

Create islands or groupings of vegetation to form a discontinuous path of vegetation to make it difficult for the fire to burn directly to the home. Remove dead plant material and tree branches. Remove lower tree branches and shrubs positioned under the tree line so that a surface fire cannot reach the tree crown. Trees located within this zone should be maintained with a minimum horizontal spacing of 10 feet between crowns, with the distance increasing with slope. Prune limbs and branches to a height of up to 15 feet. For shorter trees, pruning should not exceed one-third of the tree height. Relocate fill-on-site propane tanks to at least 30 feet from your house or consider underground tanks. Create 10 feet of Zone 1 defensible space around the tank. Consider surrounding three sides with a noncombustible wall to help protect it.

ZONE 3: 30 feet - 100 feet (or to the property line)

Trees located in this zone should be maintained with a minimum horizontal spacing of 10 feet between crowns, with this distance increasing with slope. Ladder fuels under taller trees should be eliminated. Separation between groupings of shrubs and bushes should be created and maintained. Remove dead plant material from all vegetation. Vegetation management beyond 100 feet should be considered if the home is located on a steep slope.

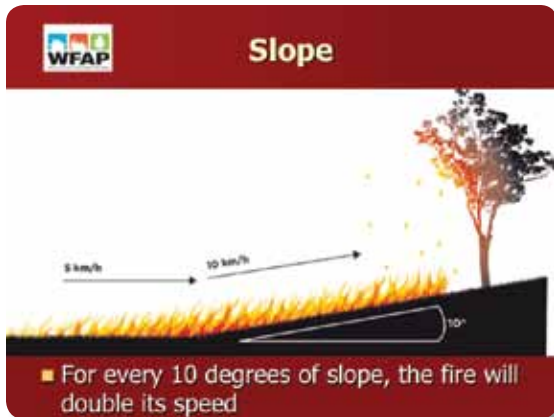


Quiz Question

The resident should install hard surfaces in this zone, such as a concrete walkway, or use noncombustible mulch products, such as rock. Also, shrubs and trees are not recommended in this zone.

Choices: Zone 1: 0-5 feet around the structure, Zone 2: 5-30 feet around the structure, Zone 3: 30-100 feet around the structure, Zone 4: 100 feet and beyond

Answer: Zone 1: 0-5 feet around the structure



Slide 18



Talking Points

The slope of the land around the home is a major consideration in assessing wildfire risk.

A fire will burn faster and more intensely uphill than along flat ground. A steeper slope will result in a faster moving fire with longer flame lengths. This is because the flames can easily reach more unburnt fuel in front of the fire. Radiant heat pre-heats the fuel in front of the fire, making the fuel even more flammable.

For every 10 degrees of slope, the fire will double its speed. For example, if a fire is traveling at five kilometers per hour along flat ground and hits a 10 degree slope, it will double in speed to 10 kilometers per hour up the hill. By increasing in speed, the fire also increases in intensity, making it even hotter.

The opposite applies to a fire traveling downhill. The flames reach less fuel which means less radiant heat to preheat the fuel in front of the fire. For every 10 degrees of downhill slope, the fire will halve its speed – fires will move more slowly as the slope decreases.

To determine the steepness of a slope, select a mark on the slope and walk 10 paces downhill; if your head is below the mark, you have a steep slope.



Instructor Note

Go through the specific items listed under Slope on your checklist. Encourage questions and discussion around this topic so students fully understand the affects of slope and topography in the WUI.

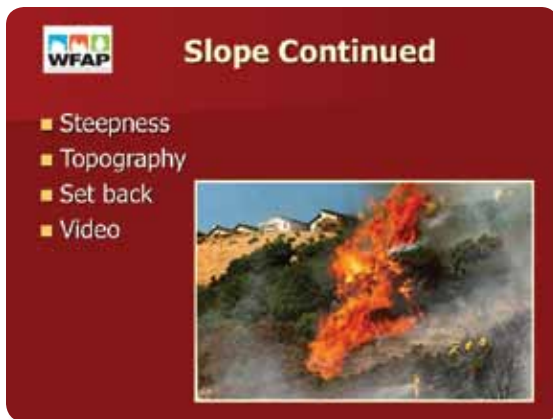


Quiz Question

Fires burn faster and more intensely _____ than along flat ground.

Choices: Downhill; Uphill; Next to a noncombustible wall; None of the above

Answer: Uphill



Slide 19



Talking Points

Depending on the location of the home, defensible space may need to be increased.

Topography

Topography is the arrangement of the natural and artificial physical features of an area. Consider the topography around the home, which includes the slope of the land and the direction the structure faces, when assessing the risk of exposure to wildfire.

Set back

Set back is the distance separating two features (e.g. the distance between the home and the slope). Homes located in the middle or at the top of a slope without set back are generally more vulnerable because of increased flame length and intensity of a fire moving up the slope.

If the home is located at the top of the slope, it should be set back a minimum of 15 feet for one-story buildings or 30 feet for two-story buildings.

If the home is located in the middle of the slope or with inadequate set back at the top of the slope, the homeowner should:

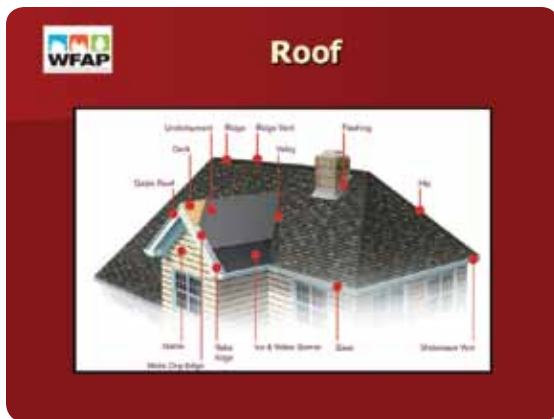
- Be more aggressive with vegetation modifications and maintenance plans. Push fuel modification area beyond the 100-foot distance, if at all possible. A target for the extended fuel modification area would be between 150 feet and 200 feet
- Be more aware of the materials used to build the home, deck, or any detached structures. When making future improvements, incorporate ignition-resistant features and materials into the building and surrounding landscape.
- Consider increasing the home's protection by constructing a noncombustible retaining wall to help increase the set back. Just to note: a noncombustible wall would work best with a surface fire, but not as well if forested area was down slope and fire crowned in these trees (wall likely not tall enough in those cases). In forested areas, fuels management would have to include removing ladder fuels to minimize chance of fire moving into the crown.



Resource Reference

A Firewise video demonstrating slope is available on your Flashdrive or on the web at www.youtube.com/watch?v=GcdNkZ2FXck.

Text utilized from IBHS.



Slide 20



Talking Points

Now let's look at the structure – the home itself. We'll start from the top of the structure with the roof.

This illustration shows the names of the different parts of a roof structure for training.

Roofs are classified under three different standards in regards to fire exposure:

- Class A: effective against severe fire test exposures (2-4 Hours)
- Class B: effective against moderate fire test exposures (1 hour)
- Class C: effective against light fire test exposures (20 minutes)

Two things you should be aware of:

- Standard roof tests do not evaluate potential weaknesses at edge-to-roof intersections, so there are still vulnerabilities at these locations that you should be looking for, which we will cover shortly
- Building codes and roof regulations are area specific and enforced by state or local government agencies. For residents who have major roof concerns, recommend that they reach out to a professional for guidance above what is covered in this module.



Resource Reference

Check out UL's web site at www.ul.com/code-authorities/building-code/roof-assemblies for more technical information and clarification about roof materials, assembly, construction, certifications, and more.



Slide 21



Talking Points

Class “A” is the highest fire-resistance rating for roofing, which indicates that the roof is able to withstand severe exposure to fire originating from sources outside the building.

There are two ways for a roof to have a Class A fire rating:

- From the covering alone (sometimes called a ‘stand alone’ Class A roof). This is the external shell of the roof and mainly what assessors will be looking at.
- From the covering and underlying materials (sometimes called Class 1 or Class A ‘by assembly’). So not all Class A roofs are also a Class 1. This will generally be beyond the scope of this assessment.

Class A roofs may be made of brick, concrete, tile, slate, clay, asphalt, metal fiber, or cement. Non-rated products include untreated wood shakes or shingles. Other roof coverings may carry a Class B or C fire rating. A Class A fire-rated roofing product offers the best protection.

Certain roofing materials retard fire. Some of the best firefighting roofing materials are those that do not include wood. For instance, slate and metal are both great choices when looking for a fire-resistant material. Tile roofs also resist fire, and asphalt roofs are fitted with a fire grading. Some asphalt shingles are better than others.

Whether or not a roofing material is fire retardant can help people decide how they want to build their roof. Although this should not be the only factor considered, it is an important one.



Resource Reference

Visit <http://firecenter.berkeley.edu/bwmg/roof.html> for more information about roof classifications and complex roof issues.



Quiz Question

Which type of roof has the highest fire-resistance rating and is able to withstand severe exposure to fire originating from sources outside the building?

Choices: Class A, Class B, Class C, None of the above

Answer: Class A

Class B Roof Coverings



Slide 22



Talking Points

Class “B” is a fire-resistance rating that indicates roofing materials are able to withstand moderate exposure to fire originating from sources outside the building.

Class B roof assemblies (underlying materials) are those that are effective against moderate fire-test exposure. Class B roof assemblies may have coverings of metal sheets and shingles.

Class B roofs can have pressure-treated shakes and shingles.

Wood shingles (as shown on the slide) are combustible, but can be treated at the mill with fire-retardant chemicals. However, the fire-retardant properties of these chemicals become less effective with weathering and can be overcome if the shingles are painted or stained.

Class C Roof Coverings



Slide 23



Talking Points

Class “C” is a fire-resistance rating that indicates roofing materials are able to withstand light exposure to fire originating from sources outside the building.

Class C roof assemblies are those that are effective against light fire-test exposure.

Class C roofs may be made of wood shakes and shingles, plywood, or particleboard.



Slide 24



Talking Points

The gutters should be clear of debris. Routinely remove plant debris, such as pine needles, leaves, branches, and bark, from the roof.

A drip edge should be installed to protect any exposed roof sheathing or fascia (see photos). Drip edges cover small gaps and provide a solid backing for the shingles to lie on so that they do not curl over the fascia causing them to crack and break leaving exposures for embers to find their way in.

Remove any debris that has accumulated at roof-to-wall intersections; for example, near a dormer or a chimney. Metal step flashing extending up from the roof a minimum of 6 inches can be installed at the base of combustible siding in lieu of replacing it. If necessary, homeowners should consult a roofing professional to get help with this.

Plug openings in roof coverings, such as the open ends of barrel tiles, with non-combustible materials. The opening could allow embers to intrude or bird nests to be built which can readily ignite.



Slide 25



Talking Points

An eave is the edge of a roof or the part of a roof that meets or overhangs the walls of a building. They normally project beyond the side of the building so they can carry rain water away.

A soffit is like the skin that covers your eaves. Open eaves should be covered with sheathing, such as plywood or fiber-cement board.

If the home has open-eave framing, then the resident should consider converting to a boxed-in or soffited-eave design. Venting in the soffit material (and between the soffit and attic space) must be maintained.

If there are vents in the eaves, they should be covered with 1/8-inch mesh corrosion-resistant metal screening.

If an open-eave construction is maintained, closure devices for vents located in the blocking of open-eave framing are commercially available. The homeowner can purchase these or make them from 1/4-inch plywood or thin sheet metal. Install these devices when a wildfire threatens and remove or open them after the threat has passed. Most under-eave vents have been designed to resist the entry of embers and flames.



Quiz Question

True or False: Eaves are on the edge of the roof, so it is okay to leave them open and exposed.

Answer: False



Slide 26



Talking Points

The purpose of roof ventilation is to allow any moisture that collects on the underside of the roof to dissipate to the atmosphere. However, vents can pose a great threat if they are not protected during a wildfire. Flying embers can easily enter a structure through vents.

See the photos on the slide for various types of vents: turbine, ridge, and dormer.

Attic roof vents should be covered with $\frac{1}{8}$ -inch corrosion-resistant metal mesh screening. They should also be free of debris.

If there is a turbine vent, enter the attic and inspect the location where the vent attaches to the roof. Again, a $\frac{1}{8}$ -inch screening should be attached to the roof sheathing if none is present.

A through-roof vent is a vent that penetrates the roof to allow exfiltration of attic air; also known as an eyebrow or dormer vent. Dormer vents and turbines can be particularly hazardous. The resident should consider replacing these with a low-profile vent, such as a ridge vent, if possible.



Resource Reference

Check out additional vent information with graphics from the University of California's Wildfire Mitigation Guide at <http://ucanr.edu/sites/Wildfire/Vents>.



Slide 27



Talking Points

Here are various photos that illustrate different types of ember-resistive vents. Again, building codes and regulations vary by location. Be sure to check with your jurisdiction for approved specifications.

Top left: low profile, through-roof vents

Top right: the vent shown here uses screening on the front and back of the honeycomb matrix. This matrix is coated with an intumescent paint that swells when contacted by flames.

Bottom left: uses a baffle design.


Bottom right: uses screening and a fused-link. The fused-link device is shown in the photo inset. Activation of the fused-link causes a metal door to close.



Resource Reference



University of California, Berkeley produced the Builders Wildfire Mitigation Guide at

<http://firecenter.berkeley.edu/bwmg/default.html> that contains a series of visual and text information on the specific items relating to wildfire mitigation building and retrofitting. This is a great source for specific, technical information about vents and other items that you may be evaluating during the home assessment. Photos were utilized from this web site.



Skylights and Chimneys

- Skylights
 - Remove accumulated debris
 - Consider replacing acrylic glass for tempered glass
- Chimneys
 - Cover chimney and stovepipe outlets
 - Make sure that the chimney is at least 10 feet away from any tree branches

Slide 28



Talking Points

Skylights

During a wildfire, skylights could be an entry point for wind-blown embers and flames if the glass or Plexiglas opening were to fail.

Operable skylights would also be vulnerable if left open when a wildfire threatens. Debris accumulation on top of and around skylights will be greater on flat or lower-sloped roofs.

If the skylight is installed on a steep roof and if vegetation is at the same level (so if ignited, the burning vegetation would become a radiant heat exposure to the skylight), remove and prune vegetation, clear away debris, and trim overhanging limbs.

Dome-type skylights use an acrylic glass product and flat-type skylights use tempered or other specialized glass. Performance differences between acrylic and glass would make the flat-type skylights less vulnerable to wildfire exposures.

All skylights incorporate metal flashing at the base, where it integrates with the roof.

Chimney

The chimney should be safe from embers and other flying debris. Chimneys and stovepipe outlets should also be covered with a non-combustible, corrosion-resistant screen of ¼-inch wire mesh or smaller to minimize the number and size of embers that may get through.

Make sure that tree branches are at least 10 feet away from the chimney.



Resource Reference

For more information about skylights, visit <http://firecenter.berkeley.edu/bwmg/roof-3.html>.



Siding

- 0-5 foot of defensible space
- Examine siding for locations where embers could accumulate or lodge
- Apply caulk at trim-to-siding locations where missing or has failed



Garage on the left of the home has no clearance from grade to siding.

Slide 29



Talking Points

Wood products, such as boards, panels or shingles, are common siding materials. However, they are combustible and not good choices for fire-prone areas. Walls with ignition-resistant building materials, such as stucco, fiber cement, brick veneer, fire-retardant/treated wood, or other approved materials are better for structures in the WUI. (www.readyforwildfire.org). Replacing siding will be a major investment.

0-5 feet of defensible space should exist next to the home.

If siding extends to grade, consult with contractor to determine if your foundation would allow some siding at the base of the wall to be removed to obtain the 6 inch clearance.

Moisture-related degradation and insect damage may be present in some siding products that have been installed such that it extends to grade.

Examine the siding for locations where embers could accumulate or lodge.

Apply caulk at trim-to-siding locations where it is missing or has failed, and replace poor condition building materials.



Slide 30



Talking Points

One of the most vulnerable parts of any home is the glass windows. Radiant heat from the fire can also impact the glass when there is a fire near the home. Even if the fire is a significant distance away, the wind can carry radiant heat to the home causing the glass to break. One solution is dual-pane windows. Homes should have dual or multi-pane windows, preferably ones with tempered glass, instead of single-pane windows.

Install window screening to improve performance against radiant heat exposures and to minimize the size and number of embers that could enter the home. Both plastic-clad fiberglass and metal screening will reduce radiant exposure to the glass and protect against ember entry, but neither will protect against flames. The fiberglass screen will fail if exposed to flames, thereby allowing embers to enter if the window glass has also failed.

Another solution is installation of shutters. They are fitted directly in front of the windows, concealing all the glass area, therefore preventing the flying embers from hitting the windows, and hence are an excellent fire protection barrier. Rolling security shutters can provide significant protection from fires that may occur on a resident's property. The aluminum construction of the shutters makes them almost completely fireproof. The shutters prevent a hot fire's heat radiation from igniting objects (such as curtains, etc.) inside the home. They also prevent burning objects (such as embers or branches) from breaking a window and entering the home.

Close all windows and shutters if wildfire is threatening. It's also important to remove or prune flammable plants and shrubs near windows as they will act as a radiant heat source during a wildfire.



Slide 31



Talking Points

Foundations

If there is an open crawl space or post-and-beam style foundation, it should be enclosed with noncombustible material – this process is sometimes called “skirting.”

Enclosed spaces should be ventilated according to local building code requirements.

All foundation vents should have ¼-inch corrosion-resistant metal screening that is in good condition.

Remove combustible materials stored in the crawl space or from under the building. Residents sometimes use these spaces as storage, so it is important to look for hazardous materials that may ignite.

Vents on Exterior Walls

Are there foundation vents that are closeable? If yes, communicate to homeowners that these vents should be closed when a wildfire threatens, but should be opened after the wildfire has passed. Some foundation vents have been designed to resist the entry of embers and flames.

If the foundation and gable vents (see photo) are not closeable, the resident should consider using closure devices. There are commercially available options or they can make their own and store in a place where they can be easily retrieved and installed when wildfire threatens. The commercial devices should be deactivated, or home-made covers removed, after the wildfire passes. Some gable end and crawl space vents have been designed to resist the entry of embers and flames.

Are there other vent openings on the wall? Dryer vents and wall-mounted air openings for furnaces should be screened with 1/8-inch corrosion-resistant metal mesh. Check that all your bathroom, dryer, and kitchen vents have automatic back-draft dampers and fire-rated assemblies where they penetrate the exterior skin of your building. (refer the photos on the bottom right)

The main goal for all vents and open spaces is to make sure that they don’t provide access for embers, radiant heat, or direct flames to the house during a wildfire.



Slide 32



Talking Points

Deck

Most deck boards are combustible, including wood, plastic, and wood-plastic composites. Solid surface decks, such as those made from lightweight concrete, are usually noncombustible, but they are also more expensive. For optimal protection, decks should be built of noncombustible materials. Check to see if rotted or degraded deck boards or structural supports exist as they should be replaced.

If the deck overhangs a steep slope, be sure your defensible space is sufficient to minimize flames spreading up the hill and reduce flame length to minimize the chance for a flame contact exposure to the underside of the deck.

Consider building a noncombustible wall across the slope approximately 15 - 20 feet from the edge of the deck.

For decks that overlook a wooded area, check to make sure trees are thinned and ladder fuels removed to minimize the chance of fire moving into the upper portion of the trees.

Combustible materials should not be stored on or under the deck and placed at least 30 feet away from the home, such as grill tanks. If there is no other option, installing a noncombustible siding product around the deck perimeter may be a preference.

Porch and Deck Accessories: If wildfire is threatening, the homeowner should remove combustible materials from the porch and deck including newspapers, wicker baskets, door mats, pine cones, and dried flower arrangements, and place BBQ propane tanks indoors. You should also check to that debris is removed between deck board joints and other areas where it can accumulate.

Fence

Replace any combustible fencing that attaches directly to your home with a noncombustible section that is at least 5 feet long. Maintain wooden fences in good condition and create a noncombustible fence section or gate next to the house for at least five feet.

A chain link gate or fence, a wood frame fence with metal mesh infill, or other noncombustible material can be used. If metal wire is used, do not allow climbing vegetation to grow on the fence – this would defeat the purpose of the noncombustible material.



Detached Structures

- Create defensible space
- Consider a noncombustible material for a trellis
- Carefully maintain vegetation
- Play sets should be relocated at least 30 ft. from your home



Slide 33



Talking Points

Now let's talk about the areas around the home.

Detached Structures

If the home has a shed, detached garage, play set, barn, or other secondary buildings in the yard, the residents should create defensible space around every structure or relocate them at least 30 feet from the home if able.

Trellises should be made of noncombustible materials. Plants on trellis-type structures should be carefully maintained, pruning regularly to remove dead vegetation.

Combustible materials used for play sets are typically larger dimensions and therefore more difficult to ignite. Combustible wood/bark or rubber mulch that are more commonly used as surfacing materials around play sets are easily ignited by embers. Play sets with combustible mulch surfacing materials should be relocated at least 30 feet from the home.



Quiz Question

True or False: Homeowners should create defensible space around detached buildings, such as garages, toolsheds, and playgrounds, or relocate them at least 30 feet from the home.

Answer: True



Slide 34



Talking Points

Many of the mitigation activities residents can undertake are simple - replace wood mulches with non combustible or low combustible types (i.e. rock, composted wood chips) .

Recently the California Agriculture and Natural Resources Department released information on the fire safety of various types of commonly used mulches. After exposing the mulches to summer weather for 12 weeks, each type of mulch was ignited and evaluated for flame height, rate of fire spread, and temperature above the mulch bed. All of the mulch materials began flaming readily, with the exception of the composted wood chips, which smoldered but produced few flames. The fire spread fastest in shredded rubber, pine needles, and shredded western cedar.

The resident should also regularly remove plant debris (dried grass and flowers, dead leaves, and dead branches) from flowerbeds, next to the house, other buildings, and wooden fences.

Firewood piles and propane tanks should be moved at least 30 feet away from the structure.



Resource Reference

Mulch research: www.garden.org/subchannels/landscaping/planning?q=show&id=3503.



Slide 35



Talking Points

The area immediately adjacent to homes can be extremely vulnerable to ember intrusion. Creating and maintaining “fuel breaks” reduces or eliminates ignition hazards presented by vegetation by:

- Thinning or spacing
- Removing dead leaves and needles
- Pruning shrubs and tree branches

This zone, which consists of an area of 5 feet around the structure, features the most intense modification and treatment. These 5 feet are measured from the outside edge of the home’s eaves and any attached structures, such as decks. Residents should:

- Limit vegetation within this zone.
- Do not plant directly beneath windows or next to foundation vents.
- Frequently prune and maintain plants in this zone.
- Remove dead branches, stems, and leaves.
- Do not use bark or pine straw mulch; use gravel or bare dirt.

Plants adjacent to combustible siding, as well as plants under or next to windows or interior corners present the greatest hazard. Embers may still be able to ignite individual islands of plants, so plant selection and maintenance is most critical in this zone.

Prevent debris and leaves from collecting in window wells.



Resource Reference

Utilize the two resources below for information about plants and landscaping in the WUI.

- State-specific Firewise Landscaping and Plant Lists:
<http://firewise.org/wildfire-preparedness/firewise-landscaping-and-plant-lists.aspx?sso=0>
- Firewise Landscape and Construction Guide: www.firewise.org/~media/firewise/files/pdfs/guides/landscaping.pdf?la=en



Quiz Question

True or False: Creating and maintaining “fuel breaks” reduces or eliminates ignition hazards presented by vegetation.

Answer: True



Slide 36



Talking Points

The top left hand picture shows a home with a well-marked street address.

The picture on the lower right side shows an extremely inaccessible driveway which would make responding to a fire difficult and impossible if residents are evacuating at the same time. Relay this vital information to the resident. It will help not only in wildfire situations but for any emergency response call that you have to answer at their property.

Ask the resident, “Is your home accessible?”

- Is your address marking more than 3 inches tall and readable?
- Is your driveway more than 12 feet wide and unobstructed?
- Do your gates open inward and are they wide enough to accommodate emergency equipment?
- Are your trees and shrubs overhanging the road trimmed to a minimum of 13½ feet to allow emergency vehicles to pass.



Slide 37



Talking Points

No home is entirely fireproof. But if you encourage residents to build or remodel using the right materials, their home will have a far better chance of withstanding catastrophic blazes.

After San Diego County's 2003 fires, one of the largest in California history, researchers found that homes constructed or remodeled to comply with stricter fire and building codes fared three times better than those that did not.

So if your residents live in a region of the country that's vulnerable to wildfires, or if they want to protect their property and their family from all the fire hazards caused by drought, lightning, and simple human carelessness, help them identify risk reduction options in and around their home.



Module 3 - Summary

- List items needed to conduct a home assessment
- Identify personal preparedness tips that should be conveyed to residents
- Recognize building and structural elements
- Identify risk reduction options
- Conduct a home hazard assessment of the structure from top to bottom!

Slide 38



Talking Points

To recap, this module provided the following information:

- List of items needed to conduct a home assessment
- Personal preparedness tips that should be conveyed to residents
- Building and structural elements
- Hazard reduction options
- Conduct a home hazard assessment of the structure from top to bottom!



Slide 39



Instructor Note

Address any questions from the class.

Issue Module 3 Quiz.



WFAP: Module 3 Quiz

(Passing Score: 7 out of 10)

Name: _____

Email: _____ Phone: _____

1. The assessment you will be providing is a code inspection, so photos should be taken in areas of the home where the homeowner doesn't comply with wildfire mitigation principles.

- a. True
- b. False

2. Before analyzing the defensible space of a home, assessors should begin assessing the _____ to ensure the resident is taking the necessary precautions to prevent the home from being a combustible source for a wildfire.

- a. Community wildfire protection plan
- b. Home ignition zone
- c. Inside of the home
- d. All of the above

3. When assessing the garage attached to the home, which of the following should be addressed?

- a. Install a solid door with self-closing hinges between living areas and the garage.
- b. Weather seal the perimeter of garage doors.
- c. If you do not have a garage door, consider installing one to help protect combustible materials stored there.
- d. All of the above

4. You should advise the homeowner to create a family disaster plan to be prepared for evacuations and make a supply kit to be ready should a wildfire strike.

- a. True
- b. False

5. The resident should install hard surfaces in this zone, such as a concrete walkway, or use noncombustible mulch products, such as rock. Also, shrubs and trees are not recommended in this zone.

- a. Zone 1: 0-5 feet around the structure
- b. Zone 2: 5-30 feet around the structure
- c. Zone 3: 30-100 feet around the structure
- d. Zone 4: 100 feet and beyond

6. Which type of roof has the highest fire-resistance rating and is able to withstand severe exposure to fire originating from sources outside the building?

- a. Class A
- b. Class B
- c. Class C
- d. None of the above

7. Eaves are on the edge of the roof, so it is okay to leave them open and exposed.

- a. True
- b. False

8. Homeowners should create defensible space around detached buildings, such as garages, toolsheds, and playgrounds, or relocate them at least 30 feet from the home.

- a. True
- b. False

9. Creating and maintaining "fuel breaks" reduces or eliminates ignition hazards presented by vegetation.

- a. True
- b. False

10. Fires burn faster and more intensely _____ than along flat ground.

- a. Downhill
- b. Uphill
- c. Next to a noncombustible wall
- d. None of the above



WFAP: Module 3 Quiz - Instructor Key

(answers in red are correct)

1. The assessment you will be providing is a code inspection, so photos should be taken in areas of the home where the homeowner doesn't comply with wildfire mitigation principles.

a. True

b. False

2. Before analyzing the defensible space of a home, assessors should begin assessing the _____ to ensure the resident is taking the necessary precautions to prevent the home from being a combustible source for a wildfire.

a. Community wildfire protection plan

b. Home ignition zone

c. Inside of the home

d. All of the above

3. When assessing the garage attached to the home, which of the following should be addressed?

a. Install a solid door with self-closing hinges between living areas and the garage.

b. Weather seal the perimeter of garage doors.

c. If you do not have a garage door, consider installing one to help protect combustible materials stored there.

d. All of the above

4. You should advise the homeowner to create a family disaster plan to be prepared for evacuations and make a supply kit to be ready should a wildfire strike.

a. True

b. False

5. The resident should install hard surfaces in this zone, such as a concrete walkway, or use noncombustible mulch products, such as rock. Also, shrubs and trees are not recommended in this zone.

a. Zone 1: 0-5 feet around the structure

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6. Which type of roof has the highest fire-resistance rating and is able to withstand severe exposure to fire originating from sources outside the building?

a. Class A

b. Class B

c. Class C

d. None of the above

7. Eaves are on the edge of the roof, so it is okay to leave them open and exposed.

a. True

b. False

8. Homeowners should create defensible space around detached buildings, such as garages, toolsheds, and playgrounds, or relocate them at least 30 feet from the home.

a. True

b. False

9. Creating and maintaining "fuel breaks" reduces or eliminates ignition hazards presented by vegetation.

a. True

b. False

10. Fires burn faster and more intensely _____ than along flat ground.

a. Downhill

b. Uphill

c. Next to a noncombustible wall

d. None of the above

b. Uphill



WFAP: Module 3 - Quick Reference

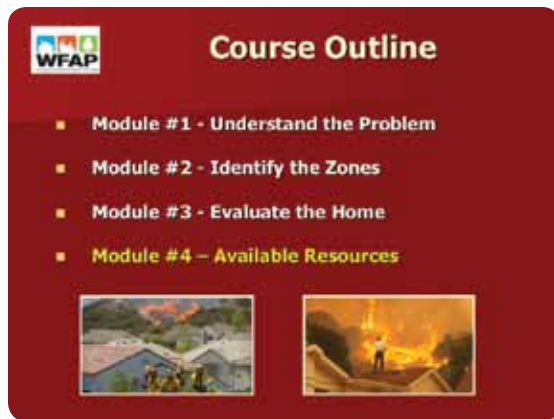
- 1. B**
- 2. C**
- 3. D**
- 4. A**
- 5. A**
- 6. A**
- 7. B**
- 8. A**
- 9. A**
- 10. B**



WFAP Instructor Guide

Module 4





Slide 1



Instructor Note

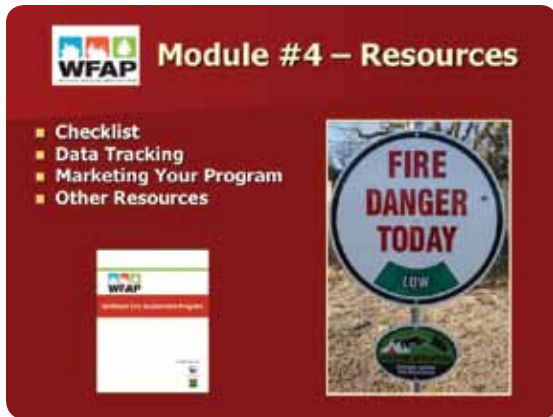
This is the final course to the four-part WFAP training series. Students should take all four modules in sequential order.

All four modules will help assessors fully understand the wildland-urban interface (WUI) problem and the tools and resources available to make their community more fire adapted.



Talking Points

Throughout this module we are going to cover some of the tools available to assessors and also a variety of excellent organizations and resources that can help residents protect their lives and property from wildfires. It will also encourage participants to think about how one assessment can lead to residents' participation in some currently available community programs.



Slide 2



Talking Points

Module 4 will cover:

- The WFAP Checklist
- Data Tracking
- Marketing Your WFAP Program
- Other Resources

The checklist and marketing materials are all provided electronically on your Toolkit Flashdrive. You can customize these specific for your department.



Instructor Note

If the instructor has the capabilities, show participants the resources provided here by utilizing the web addresses on each of the slides.



Slide 3



Talking Points

Module 3 provided a step-by-step walkthrough of the checklist assessors will be using to perform home assessments with residents in their community. The checklist is available in two forms:

- 1)** Printed no carbon required (NCR) form: this is a carbonless copy form that allows you to write on the top copy which transfers to a bottom copy that you can leave with the resident. Each student that takes the WFAP course is provided with at least one copy of the NCR form in their WFAP Toolkit. If a department needs more copies, they can order these by emailing nvfcoffice@nvfc.org. Please note that quantities may be limited.
- 2)** Online form: this form is set up through an online form system called Wufoo. A sample form can be found at <https://wfap.wufoo.com/forms/wfap-home-assessment-checklist>. This is a tool that is provided by the NVFC specifically for the WFAP program. If the assessor has access to a smart tool, such as an iPad, iPhone, tablet, or other electronic device, they can fill out the form electronically during the assessment (internet or data plan required to access the form). Following the assessment, the assessor can email the checklist to the resident immediately and also have a copy for the department's records.

Each department wishing to utilize the Wufoo system will need to email the NVFC at nvfcoffice@nvfc.org in order to establish their own, personalized Wufoo account – one account is allowed per department. An email notification will be sent with instructions on how to set up user information and utilize the system. By setting up a Wufoo account, not only will the department be able to fill out the form electronically, but it will also help departments track the assessments they've completed. We'll discuss this more in the next slide.



Quiz Question

You can order more copies of the WFAP Checklist by:

Choices: Emailing the FAC Coalition, Contacting the NVFC, Calling your state forester, None of the above

Answer: Contacting the NVFC



Slide 4



Talking Points

Keeping track of how many and which homes departments have assessed is valuable information. Departments can utilize this information when writing grants, or more importantly, so they can know which areas in their community are less susceptible to wildfire risks.

As noted, the online Wufoo form offered by the NVFC not only gives assessors an option to alleviate paperwork during an assessment, but it also gives the department a way to track assessments. Even if the paper NCR forms are used during the assessment, departments are encouraged to transfer each report into the department's personalized Wufoo account. Through this account, departments can export all assessments and see how many homes have been reached. You can also go back in and edit information once the homeowner makes the recommended changes following the assessment. This will require keeping in contact with homeowners that participated in the WFAP program and/or encouraging them to provide updates. There are also places to make notes and add in additional recommendations, along with various other functions that can help departments track their progress.

Wufoo is a simple and easy tool to use. To export information to see all assessments performed, click on Entries in the form options, select Bulk Actions, and then click the Export button.



Instructor Note

If internet capabilities exist in the classroom and time allows, walk through how to utilize the form and export options to show students how the system works. Instructors will have access to Wufoo prior to any presentation.



Quiz Question

The NVFC offers an online data tracking system called _____.

Choices: WFAP, Fire Adapted Communities, Wufoo, The NVFC doesn't offer an online data tracking system.

Answer: Wufoo



Quiz Question

True or False: Even if the paper WFAP Checklist forms are used during an assessment, departments are encouraged to transfer each report into the department's personalized Wufoo account.

Answer: True



Slide 5



Talking Points

It's important to market the WFAP program that your department is offering so the public is aware that free home assessments are available to help them mitigate damages a wildfire can cause. The NVFC has created a variety of marketing tools available to inform residents that you're here to help. Consider the following resources to get the word out that this service is available. These resources are customizable so you can enter your department-specific contact information. They are included in the WFAP Toolkit in the resources section, along with instructions and tips on how to utilize them to get the most out of your marketing efforts.

- Web banners
- Press release
- Flyers
- Frequently Asked Questions
- And more!

Consider posting these resources, like the WFAP web banner, on your department's web site. Work with homeowner's associations and insurance agencies to submit flyers in their mailings or newsletters. Submit press releases to local newspapers.

We mentioned in Module 1 that fire departments were one of the most important sources of information to get residents to take action against wildfire threats. The other source was social media. It's so important to engage in mediums like Facebook and Twitter to get messages, FREE messages, out to the public.

There are unlimited ways to publicize your program. If residents in your community don't know that these assessments are available, they won't know to ask for your help.



Discussion Question

Ask students what mediums, sources, or methods of publicizing the free home assessments would work well in their community.



Resource Reference

All of the resources mentioned on the last few slides, in addition to other tools and programs that may benefit your WFAP efforts, can be found on the NVFC site at www.nvfc.org/WFAP.



Slide 5 *continued from page 116*



Quiz Question

The NVFC offers which of the following resources to help market your program?

Choices: Web banners, Press release, Flyers, All of the above

Answer: All of the above



Slide 6



Talking Points

Now that you know of the resources available to help promote your assessments, we want to talk about Wildland Community Preparedness Day (WCPD).

WCPD is an annual event that happens on the first Saturday in May every year. Sponsored by NFPA and State Farm, WCPD rallies individuals and groups to perform activities that will make their community safer from the impacts of future and past wildfires.

This is a great time to promote your assessment services to the public and join in the mitigation efforts.

Additionally, WCPD offers project ideas and funding to promote activities on this day. Activities can be coordinated by anyone (individuals, a small group, an entire neighborhood or a community-based organization) working to reduce wildfire risk, advance general wildfire preparedness, or minimize post-fire impacts from a recent wildfire.



Resource Reference

A two-minute video explaining WCPD is available on your flash drive and at <https://youtu.be/dqt-r9oLsLs>.

More information about WCPD can be found at www.wildfireprepd.org.



Slide 7



Talking Points

We've already discussed the importance of Fire Adapted Communities in Module 1 and the primary elements that make a community more fire adapted.

The NVFC is part of the Fire Adapted Communities Coalition – a group of partners committed to helping people and communities in the wildland-urban interface adapt to living with wildfire and reduce their risk for damage without compromising firefighter or civilian safety. The NVFC created the WFAP to be one section in part of a bigger agenda to protect our communities and our responders from the threats of wildfire. There are a multitude of other resources available to assessors, departments, and communities to enhance their education.

Check out the FAC web site for information about mitigation efforts regarding:

- Neighbor to neighbor
- Residents and home
- Science and research
- Whole community
- Fuel management
- The CWPP process
- Codes and standards

To become more fire adapted, your community should use the tools supported by federal and state agencies to prepare homes, neighborhoods, businesses, infrastructure, natural areas, and surrounding landscape for wildfire, but it's up to residents and their local jurisdictions to take the necessary actions. The FAC web site can help you do just this.



Resource Reference

Visit the Fire Adapted Communities web site at www.fireadapted.org for more information.



Slide 7 *continued from page 119*



Quiz Question

True or False: The National Volunteer Fire Council is part of the Fire Adapted Communities Coalition.

Answer: True



Quiz Question

True or False: To become more fire adapted, your community should use the tools supported by federal and state agencies to prepare its homes, neighborhoods, businesses, infrastructure, natural areas, and surrounding landscape for wildfire but it's up to residents and their local jurisdictions to take the necessary actions.

Answer: True



Slide 8



Talking Points

The U.S. Forest Service (USFS) is dedicated to the improvement of water resources, development of climate change resiliency, creation of jobs that will sustain communities, and restoration and enhancement of landscapes.

Local and state foresters have a wealth of knowledge and information about your area that can help with your assessments. You may also consider inviting foresters to help you assess properties for your WFAP efforts. You can locate state foresters from the National Association of State Foresters, which is also part of the FAC Coalition.



Resource Reference

Visit <http://www.fs.fed.us> for more information about the USFS and its resources.

Visit <http://www.stateforesters.org> for more information about state foresters.



Quiz Question

True or False: The U.S. Forest Service (USFS) is dedicated to the improvement of water resources, development of climate change resiliency, creation of jobs that will sustain communities, and restoration and enhancement of landscapes.

Answer: True



Slide 9



Talking Points

The Insurance Institute for Business & Home Safety's (IBHS) mission is to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses, and communities against natural disasters and other causes of loss. DisasterSafety.org is a service of the IBHS.

The IBHS Wildfire Home Assessment & Checklist was used in Module 3 as the basis for a home assessment. IBHS has a host of other resources and information targeting wildfire risk, such as a disaster planning app, an IBHS workbook to reduce wildfire risks that you can share with the resident, property protection brochures, studies and scientific findings on wildfire research, and more.



Resource Reference

Visit <http://www.disastersafety.org/wildfire> for more information.



Slide 10



Talking Points

The Ready, Set, Go! Program (RSG) provides tools and resources to fire departments and homeowners on how to prepare for wildfires.

Managed by the International Association of Fire Chiefs, RSG seeks to develop and improve the dialogue between fire departments and the residents they serve. Launched nationally in March 2011, the program helps fire departments to teach individuals who live in high-risk wildfire areas and the wildland-urban interface how to best prepare themselves and their properties against fire threats. This program helps residents be Ready with preparedness understanding, be Set with situational awareness when fire threatens, and to Go – acting early when a fire starts. RSG works in complimentary and collaborative fashion with existing wildland fire public education efforts and amplifies their messages to individuals to better achieve the common goal of Fire Adapted Communities.

RSG members enjoy access to a variety of resources including informational documents such as Effective Outreach and Guidance and the Implementation and Background Guide. These guides provide a step-by-step strategy for fire departments to join and implement RSG in their community.

Some items from the WFAF Checklist and Module 3 were taken from the RSG! Program's resources.



Resource Reference

Learn more about this program at <http://www.wildlandfirersg.org>.



Quiz Question

Which of the following does RSG stand for?

Choices: Be Ready with preparedness understanding, Be Set with situational awareness when fire threatens, Go – acting early when a fire starts, All of the above

Answer: All of the above



Slide 11



Talking Points

Managed by the National Fire Protection Association, the Firewise Communities program encourages 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.

The program is co-sponsored by the U.S. Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters – all part of the FAC Coalition.

To save lives and property from wildfire, the Firewise Communities program teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action now to prevent losses. We all have a role to play in protecting ourselves and each other from the risk of wildfire.

They have courses specifically designed to address problems faced by structural and wildland firefighters when fighting fires, especially those threatening structures in the wildland-urban interface. The courses focus on three parts:

- Understanding fire behavior in the WUI
- Structure protection strategies in the WUI
- Firefighter safety in the WUI

There are additional Firewise courses for fire and forestry professionals and others who want to help residents of areas at risk from wildfire to make their homes safer. Taking these courses provides participants with a thorough understanding of how homes ignite during wildfires, how simple actions can greatly reduce home ignitions, and how community behavior change can create Firewise homes and communities.



Resource Reference

Visit <http://www.firewise.org> for more information.



Quiz Question

True or False: Firewise is run by the National Fire Protection Association and is co-sponsored by the USDA Forest Service, the US Department of the Interior, and the National Association of State Foresters.

Answer: True



Slide 12



Talking Points

FEMA has training through the U.S. Fire Administration called the ICS Simulation Series: Wildland Fire (Q0617). It focuses on teaching the Incident Command System and is designed to expose the new firefighter to the problems and issues that arise in the WUI. The scenario begins with a small wildfire that encroaches into a community, after which the student takes command of fire suppression efforts. Although specific home assessment training is not addressed in the scenario, it provides a helpful backdrop to the larger issues that arise in the WUI.



Resource Reference

For more information about the ICS Simulation Series: Wildland Fire (Q0617), visit <https://apps.usfa.fema.gov/nfacourses/catalog/details/726>.

Visit <http://www.usfa.fema.gov> for a whole host of other resources, pamphlets, brochures, and online training.



Slide 13



Talking Points

The International Code Council (ICC) is a member-focused association dedicated to developing model codes and standards used in the design, build, and compliance process to construct safe, sustainable, affordable, and resilient structures.

Studies show only 11 percent of the 70,000 at-risk communities adopt a WUI code or have a community wildfire protection plan (CWPP).

The original International Wildland-Urban Interface Code (IWUIC) was developed by the International Fire Code Institute with support from the FEMA Grant Program, administered by the California Governor's Office of Emergency Services through the Office of the State Fire Marshal. It was a result of the 1993 Southern California wildfires.

The IWUIC is a simple straight forward code that utilizes the latest fire research and integrates with all other ICC codes. It requires evaluation of the level of fire risk at individual properties. It can be part of a Fire Protection Plan for an entire community or subdivision and ties well to the CWPP.

A growing consensus is that WUI codes may assist in the prevention and impact of wildfires. We have Community Wildfire Protection Plans, and programs like Firewise, Firefree, Firesmart, Fireready and Firesafe, and READY SET GO, however an important part of this complex puzzle was missing – the adoption of the IWUIC Code.



Resource Reference

Visit <http://www.iccsafe.org> for more information.



Slide 14



Talking Points

The Wildfire Ignition Resistance Estimator Wizard, or WildFIRE Wizard, is an interactive tool designed for wildfire prevention personnel, educators, and other wildfire professionals to help homeowners understand how landscaping, terrain, and structural features increase or decrease their home's vulnerability during a wildfire. The Wizard allows the user to input details about features including windows, doors, roof, exterior walls and landscaping and then creates a homeowner-friendly, customized report that includes specific recommendations about how to reduce the home's potential to ignite during a wildfire.

The software is not intended to simulate or predict what will happen to the home when approached by a wildfire, but rather a tool that can highlight vulnerabilities that can be remedied in the homeowner's structure or yard. Homeowners' should not use the tool without consulting a wildfire professional.



Resource Reference

Visit <http://flash.org/wfwizard> to obtain the WildFIRE Wizard tool.



Slide 15



Talking Points

The Living With Fire program began in 1997, when Ed Smith and Paul Tueller of the University of Nevada, Reno and Fire Chief Loren Enstaad of the Sierra Front Wildfire Cooperators received a Nevada Agricultural Experiment Station/Nevada Cooperative Extension Joint Program grant. Together with Nevada's firefighting organizations, they developed a set of consistent wildfire threat reduction recommendations for Nevadans. Since then, these recommendations have been shared with thousands of homeowners living in fire prone areas throughout the country.

Today, Living With Fire is a collaborative effort involving many organizations and is managed by University of Nevada Cooperative Extension. The program has many tools available to educators, homeowners, community groups, fire safe councils, and firefighting professionals to help educate and inform others about mitigating Nevada's wildfire threat. PowerPoint presentations, videos, and handouts are available.

This program is designed to inform the public on how to coexist with wildfire. Although not designed for firefighters, the materials provide information about a structures' vulnerability during a wildfire. Resources and information can be adapted and applied to other states.



Resource Reference

Additional information can be found at <http://www.livingwithfire.info>.



Slide 16



Talking Points

The American Red Cross has a great deal of information, checklists, and training that can help those living in the WUI. One program is entitled “Be Red Cross Ready” – a must have for anyone who lives in an area that is susceptible to wildfires or has loved ones that do. This information is also available as an app for your smart phone. This is a good resource to relay to residents.

Features include:

- Step-by-step instructions let you know what to do before, during, and after wildfires, even if there is no data connectivity.
- Get notifications about current wildland fires or wildfire-conductive weather from NOAA.
- Let family and friends know you are okay with the customizable “I’m Safe” alert for Facebook, Twitter, email, and text.
- Find open Red Cross shelters in your area when you need help. (The Red Cross has a Congressional Charter to open shelters in the aftermath of fires or other disasters where individuals are displaced from their homes.)
- Stay safe when the lights are out with the Toolkit, including a strobe light, flashlight, and audible alert functions.
- Prepare for the worst by learning how to assemble an emergency kit for your family in the event of power outage or evacuation.
- Empower your family to stay safe and remain calm in an emergency by learning how to make and practice an emergency plan.
- Earn badges that you can share with your friends and show off your wildfire knowledge with interactive quizzes.
- See an illustrated history of wildfires in your area.



Resource Reference

More information about the app is available at <http://www.redcross.org/mobile-apps/wildfire-app>.



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Talking Points

Two federal agencies have teamed to create the first-ever system for linking accurate assessments of risk from wildland fires to improved building codes, standards, and practices that will help communities better resist the threat.

The proposed Wildland-Urban Interface Hazard Scale addresses fires that occur where developed and undeveloped areas meet. Information about this Hazard Scale was released in December 2012 by the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) in collaboration with the U.S. Department of Agriculture's U.S. Forest Service (USFS).

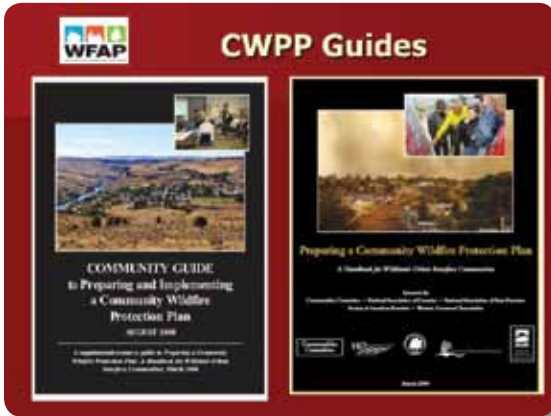
NIST and USFS have developed a proactive approach that could one day provide buildings and the communities in which they reside with increased resistance to WUI fires. The WUI Hazard Scale is designed to consistently measure the expected risks from fire and embers during a WUI fire event for individual locations within a community, taking into account the ever-changing nature of those hazards.

The researchers have designed the scale to easily accommodate additional threats and plan to include exposure from three other sources associated with WUI fires — burning structures, ornamental vegetation, and vehicles — at a later date, using the same methodology.



Resource Reference

Visit <http://www.nist.gov> for more information.



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Talking Points

So how can doing even one home assessment lead to participation in current community programs? Assessments can pique residents' interest and create buy-in! Encouraging the development of a Community Wildfire Protection Plan (CWPP) will engage all stakeholders in the process and can lead to a truly fire safe community.

The CWPP enables a community to plan how it will reduce the risk of wildfire. The plan identifies strategic sites and methods for fuel reduction projects across the landscape and jurisdictional boundaries. Other benefits of having a CWPP include establishing collaboration between multiple agencies, the community, and other stakeholders, and funding prioritization for projects identified in the plan.

A CWPP addresses:

- Mitigations
- Prevention
- Ignition management
- Vegetation management
- Risk management
- Habitat protection and enhancement
- Liability



Resource Reference

Visit <http://www.forestsandrangelands.gov/communities/cwpp.shtml> for more information about developing a CWPP.



Quiz Question

A Community Wildfire Protection Plan addresses:

Choices: Mitigations, Prevention, Ignition Management, All of the above

Answer: All of the above



Module 4 - Summary

- Understand the different formats of the assessment checklist and how to use them
- Comprehend the importance of data tracking, the resources provided to document assessments, and how to use them
- Identify marketing resources available to publicize your assessment program to the public
- Describe other organizations involved in wildfire mitigation and preparation and how they contribute to fire adapted communities

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Talking Points

To recap, this module provided the following information:

- The different formats of the assessment checklist and how to use them
- The importance of data tracking, the resources provided to document assessments, and how to use them
- Marketing resources available to publicize your assessment program to the public
- Other organizations involved in wildfire mitigation and preparation and how they contribute to fire adapted communities



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Instructor Note

Address any questions from the class.

Issue Module 4 quiz.



WFAP: Module 4 Quiz

(Passing Score: 7 out of 10)

Name: _____

Email: _____ Phone: _____

1. The National Volunteer Fire Council is part of the Fire Adapted Communities Coalition.

- a. True
- b. False

2. You can order more copies of the WFAP Checklist by:

- a. Emailing the FAC Coalition
- b. Contacting the NVFC
- c. Calling your state forester
- d. None of the above

3. The NVFC offers an online data tracking system called _____.

- a. WFAP
- b. Fire Adapted Communities
- c. Wufoo
- d. The NVFC doesn't offer an online data tracking system.

4. Even if the paper WFAP Checklist forms are used during an assessment, departments are encouraged to transfer each report into the department's personalized Wufoo account.

- a. True
- b. False

5. The NVFC offers which of the following resources to help market your program?

- a. Web banners
- b. Press release
- c. Flyers
- d. All of the above

6. A Fire Adapted Community uses tools, supported by federal and state agencies, to prepare its homes, neighborhoods, businesses, infrastructure, natural areas, and surrounding landscape for wildfire, but it's up to residents and their local jurisdictions to take the necessary actions.

- a. True
- b. False

7. The U.S. Forest Service (USFS) is dedicated to the improvement of water resources, development of climate change resiliency, creation of jobs that will sustain communities and restoration and enhancement of landscapes.

- a. True
- b. False

8. Which of the following does RSG stand for?

- a. **Ready** with preparedness understanding
- b. Be **Set** with situational awareness when fire threatens
- c. **Go** - acting early when a fire starts.
- d. All of the above

9. Firewise is run by the National Fire Protection Association and is co-sponsored by the U.S. Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters.

- a. True
- b. False

10. A Community Wildfire Protection Plan addresses:

- a. Mitigations
- b. Prevention
- c. Ignition Management
- d. All of the above



WFAP: Module 4 Quiz - Instructor Key

(answers in red are correct)

1. The National Volunteer Fire Council is part of the Fire Adapted Communities Coalition.

a. True

b. False

2. You can order more copies of the WFAP Checklist by:

a. Emailing the FAC Coalition

b. Contacting the NVFC

c. Calling your state forester

d. None of the above

3. The NVFC offers an online data tracking system called

a. WFAP

b. Fire Adapted Communities

c. Wufoo

d. The NVFC doesn't offer an online data tracking system.

4. Even if the paper WFAP Checklist forms are used during an assessment, departments are encouraged to transfer each report into the department's personalized Wufoo account.

a. True

b. False

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b. Press release

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a. True

b. False

10. A Community Wildfire Protection Plan addresses:

a. Mitigations

b. Prevention

c. Ignition Management

d. All of the above



WFAP: Module 4 - Quick Reference

- 1. A**
- 2. B**
- 3. C**
- 4. A**
- 5. D**
- 6. A**
- 7. A**
- 8. D**
- 9. A**
- 10. D**



WFAP Instructor Guide Resources



Marketing Your Program

It's important to market the WFAP program that your department is offering so the public is aware that free home assessments are available to help them mitigate damages a wildfire can cause. The NVFC has created a variety of marketing tools you can use to inform residents that you're here to help. Utilize the following resources to get the word out that this service is available. These resources are customizable so you can enter your department-specific contact information. Once you've customized them with your department's information, you can save the file as a .jpg, which is best for posting on the web.

Consider posting these resources, like the WFAP web banner, on your department's web site. Utilize social media like Facebook and Twitter to publicize your program. Work with homeowner's associations and insurance agencies to submit flyers in their mailings or newsletters. Submit press releases to local newspapers. There are unlimited ways to publicize your program. If residents in your community don't know that these assessments are available, they won't know to ask for your help.

All customizable resources are available electronically on your Supplemental Documents Flash Drive and on the NVFC web site at www.nvfc.org/wfap.

Flyer

Check out the customizable flyer on the following page.

Web banners

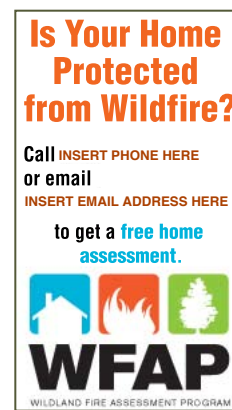
Here are sample, customizable web banners in various sizes to best fit your web site or social media needs.



430x430



600x125



172x300

Will Your Home Survive a Wildfire?

Get your **free** wildland fire home assessment done today!



Every year, thousands of homes are damaged or destroyed due to wildfire. You live in the wildland-urban interface, which makes your family and your home more susceptible to this natural disaster. Both lives and properties are at risk, but YOU can take the necessary steps to protect your home and prepare your family.

Contact your local fire department to schedule your **free home assessment today!**

Department Name _____

Phone _____

Email Address _____

This program is brought to you by the National Volunteer Fire Council and the U.S. Forest Service.

Press Release

Below is a customizable press release. Consider adding in statistical and anecdotal wildfire information specific to your community so you can resonate with homeowners and get them to sign up for an assessment.

Customizable Press Release

[Insert Department Logo]

FOR IMMEDIATE RELEASE

For more information contact: _____

Phone: _____

Email: _____

Date: _____

Is Your Home Protected from Wildfire? Find Out Today!

According to the National Interagency Fire Center, 2015 produced record-breaking numbers with over 10 million acres burned from more than 68 thousand wildfires. Countless communities, homes, and lives have been lost. **[Insert statistical information specific to your community and/or state that has been affected by or that is more vulnerable to wildfire].**

Our community is in the wildland-urban interface, which means YOUR home is more susceptible to wildfire. It's not a question of IF it will happen, but WHEN. Will your home survive when a wildfire strikes? FIND OUT TODAY!

[Department Name] is offering FREE home assessments to help you be proactive in protecting your family and property and to make sure our community doesn't become another statistic. Trained assessors from the department will perform a step-by-step walk-through of your property with you on-site and provide guidance, tips, and resources to educate you about areas in and around your home that are more vulnerable to wildfire.

This is a free public service brought to you by your local fire department. Information and recommendations that assessors provide to residents are based on established mitigation practices and do not enforce any codes or standards.

[Optional: insert a quote about the need for residents to take personal responsibility to protect their home from wildfire from either a local resident who has been affected by wildfire, Fire Chief, government official (mayor or member of Congress), etc.]

Contact the **[Department Name]** at **[Phone Number]** or **[Email]** to schedule your assessment today!

Liability

You are providing an essential service to the public through the WFAP; however, keep in mind that liability is an important factor to consider when performing home assessments. As noted in the disclaimer, the WFAP provides guidance and support to assessors – it is not to enforce codes or standards; therefore, no legal action can be taken should the resident disregard recommendations provided by the assessor.

Here are 10 simple tips to mitigate liability concerns when performing home assessments:

- 1.** Clearly communicate to the resident that assessors are offering suggestions and recommendations to make their home better prepared to handle a wildfire should one strike. It is the responsibility of the homeowner to make the necessary changes, and the department is not liable for any property damage or loss incurred by a wildfire.
- 2.** Have the resident sign a liability waiver (template included) to ensure the assessor and the department are protected and not held responsible for damages – both during the assessment and in the event of a wildfire. Have legal council review the waiver to ensure it complies with all local and state statutes.
- 3.** Be sure assessors are trained and educated to adequately perform the assessment. Also be sure that assessors aren't endorsing any businesses or programs not sanctioned by the department.
- 4.** Because assessors are making house calls, inspecting personal property, and working directly with the public, departments should perform background checks on all assessors to ensure they are a good fit for the job. NVFC members can get discounted background checks for their department. Learn more at www.nvfc.org/?s=background+checks.
- 5.** Consider pairing up assessors – at least two people per inspection. This will help ensure the safety of the assessors. It will also benefit the actual inspection because you have more eyes and ears in the field to provide feedback.
- 6.** Be wary of current property damage to ensure you don't add to existing damage or cause any additional damage while performing an assessment. For example, if a home shows signs of termites, the assessor should opt out of examining roof or crawl spaces due to an unstable foundation. By simply stepping on termite-infested or water-damaged wood, you could break support beams and cause damage to the structure.
- 7.** Bring your own tools to the home inspection, such as a ladder, flashlight, tape measure, etc. Avoid using the home owner's personal possessions to conduct the assessment.
- 8.** Only perform assessments when there is adequate lighting. This will help avoid falls and other potential injuries while inspecting places that are difficult to access, such as rooftops or areas with large amounts of vegetation.
- 9.** Only perform assessments in the presence of the homeowner. This is a step-by-step walk through of the property, so the homeowner should be with you to receive feedback on what needs to be modified. This will also help avoid possible false accusations of damage or disruption to the property that an assessor caused during the inspection.
- 10.** Walk away from unruly or hostile residents. You are providing a free service to your community for which the resident asked for assistance; however, if a homeowner acts inappropriately or aggressively, discontinue the inspection and leave the property immediately to avoid conflict.

Release of Liability Template

[Insert Department Logo]

The Wildland Fire Assessment Program (WFAP) is provided free of charge from the [Insert Department Name]. Upon request, a member of the fire department will conduct the home assessment. The assessment provides a safety record for the homeowner and is also used for educational purposes and data analysis.

The goal of this assessment is to:

- 1)** Improve my awareness of existing conditions/and or hazards in and around my home that may be susceptible to wildfire
- 2)** Receive retrofit or modification recommendations from the assessor to lessen my home's (and its occupants') risk from wildfire
- 3)** Prevent injuries and loss of life
- 4)** Prevent property damage and loss
- 5)** Provide data and applicable information to the fire department to be used for wildfire mitigation efforts

In exchange for participation in this assessment, I agree for myself (and if applicable), members of my family, and others residing on my property to the following:

- ☐ I understand that the WFAP is merely an advisory service, free-of-charge, and not an inspection of applicable code enforcements.
- ☐ I understand that neither the fire department nor the assessor from said department is responsible for making modifications or changes to the property.
- ☐ I recognize that there are certain inherent risks associated with the above described activity and I assume full responsibility for personal injury to myself and (if applicable) to my family or other persons residing in the home and further release and discharge the [Insert Department Name] and assessor(s) for injury, loss, or damage, whether caused by the fault of myself, my family, the fire department, or other third parties.
- ☐ I agree that participation in this assessment will not guarantee that a fire, injury, death, and/or property damage or loss will not occur.
- ☐ I understand that modifications I make to my home based on the recommendations of the assessment do not guarantee that a fire, injury, death, and/or property damage or loss will not occur.
- ☐ I agree to indemnify and defend [Insert Department Name] and assessor against all claims, causes of action, damages, judgments, costs, or expenses, including attorney fees and other litigation costs, should any arise from this assessment.
- ☐ I understand that I am voluntarily participating in this service and that the service is neither required by the city nor the fire department. I will not be reprimanded or prosecuted should I choose not to make the recommended adjustments.

By signing this disclaimer, I agree that members of the household will also be bound by the terms of this disclaimer.

In recognition of these facts, I agree to hold harmless the fire department for any negligence in providing this Wildland Fire Assessment Program.

Print Name: _____ Phone: _____

Signature: _____ Date: _____

Address of home being assessed: _____

City: _____ State: _____ Zip: _____

Fire Department Name: _____

Assessor(s):

Print Name: _____ Phone: _____

Signature: _____ Date: _____

Print Name: _____ Phone: _____

Signature: _____ Date: _____

Frequently Asked Questions for the Resident

1. What is the WFAP?

The Wildland Fire Assessment Program is a public service provided by your local fire department to help you assess your home and locate areas that could be retrofitted or adjusted to make your home safer from wildfires.

2. Will the department help make the necessary changes to make my home safer from wildfires?

The department's assessor(s) will make recommendations to mitigate the risks of wildfire affecting your home, but it is the individual homeowner's responsibility to fortify your property against wildfire and make any recommended changes.

3. How long does an assessment take?

Depending on the size of your home and other variables, such as landscaping or detached structures, each assessment takes approximately two hours to complete.

4. Do I have to make the changes the assessor/department suggests?

The WFAP simply makes recommendations to better protect your home from wildfire. This is not a code enforcement, so you will not be prosecuted or reprimanded should you choose to not make the recommended adjustments.

5. Do I need to be home for the assessment to take place?

Yes, the department will only assess a home with the homeowner/resident present. This is to ensure the resident can be educated first-hand of problem areas in the home, and also to avoid possible liability situations since the assessor is evaluating inside and outside the home.

Certificate Template

Included in your flash drive is a certificate template you can personalize for students who complete all four sessions and quizzes of the WFAP course. Insert the appropriate information; consider adding in your department logo and any other

agency's logo that helped facilitate or host the training. Once customized, save the Word document as a PDF and print for or email to the student.





Home Assessment Checklist

This checklist serves as a guide that both the assessor and resident can use to determine problem areas around the home that can be retrofitted or restructured to mitigate damage when a wildfire strikes. Many of the items listed in the checklist are free or low cost modifications; however, some items may require more significant investment in order to increase a home's safety and survivability during a wildfire. A key for estimating costs is included for most items. Remember, if it's predictable, it's preventable!

Resident Name: _____

Phone: _____ Email: _____

Address of Home Being Assessed: _____

City: _____ State: _____ Zip: _____

Fire Department Name: _____

Phone: _____ Date of the Assessment: _____

Assessor(s): Print Name: _____

Print Name: _____

KEY

\$ less than \$500
\$\$ \$500 - \$1,000
\$\$\$ \$1,000 - \$5,000
\$\$\$\$ more than \$5,000

Information and resources were utilized from but not endorsed by the following agencies:

- Insurance Institute for Business and Home Safety
- International Association of Fire Chiefs, Ready, Set, Go! Program
- Federal Emergency Management Agency, Ready.gov
- Center for Fire Research and Outreach, College of Natural Resources, University of California, Berkley

Inside the Home

- Y / N / NA** Residents have reviewed homeowner's insurance policy and prepared/updated a list of home's contents. **Free**
Suggested Action: _____
- Y / N / NA** All residents know where the gas, electric, and water main shut-off controls are and how to use them. **Free**
Suggested Action: _____
- Y / N / NA** Heavy, fire-resistant drapes are installed throughout the home. **\$ – \$\$**
Suggested Action: _____
- Y / N / NA** Newspapers and rubbish are regularly disposed of at an approved site. Local burning regulations are followed. **Free**
Suggested Action: _____
- Y / N / NA** A screen is installed in front of each fireplace or wood stove. **\$**
Suggested Action: _____
- Y / N / NA** Fireplace and wood stove ashes (also applies to outside grill) are stored in a metal container and disposed of only when cold. **Free**
Suggested Action: _____
- Y / N / NA** Residents created a family disaster plan and supply kit to be prepared for wildfire and potential evacuations. **Free**
Suggested Action: _____
- Y / N / NA** Electric and gas stoves are in good operating condition. **Free – \$**
Suggested Action: _____
- Y / N / NA** Security bars on windows and/or doors have an approved quick release mechanism. **Free – \$**
Suggested Action: _____
- Y / N / NA** A solid door with self-closing hinges is installed between living areas and the garage. **\$**
Suggested Action: _____
- Y / N / NA** The garage has a garage door to help protect combustible materials stored there. **\$\$**
Suggested Action: _____
- Y / N / NA** Garage door perimeters are weather-sealed. **\$**
Suggested Action: _____
- Y / N / NA** Gasoline, oily rags, and other flammable materials are stored in approved safety cans. Cans are placed in a safe location away from the base of buildings. **Free – \$**
Suggested Action: _____
- Y / N / NA** Combustibles are kept away from ignition sources, such as water heaters. **Free**
Suggested Action: _____
- Y / N / NA** Tools – such as a shovel, rake, bucket, and hoe – are available for emergencies. **\$**
Suggested Action: _____
- Y / N / NA** Fire extinguishers are on-hand (kitchen, garage, living room) and all residents are trained to use them. **\$**
Suggested Action: _____

Outside the Home

Defensible space is comprised of three zones. The selection and maintenance of vegetation and other combustible items in these zones will determine the adequacy of the defensible space.

ZONE 1: 0-5 feet around the perimeter of the home (\$ – \$\$)

Y / N / NA Hard surfaces are installed in this zone, such as a concrete walkway.

Suggested Action: _____

Y / N / NA Noncombustible mulch products are used, such as rock.

Suggested Action: _____

Y / N / NA The lawn is well irrigated and only has low-growing, herbaceous plants.

Suggested Action: _____

Y / N / NA Dead vegetation is removed and is continuously maintained.

Suggested Action: _____

ZONE 2: 5-30 feet around the perimeter of the home or to the property line (Free – \$\$\$)

Y / N / NA Islands or groupings of vegetation form a discontinuous path to make it difficult for the fire to burn directly to the home.

Suggested Action: _____

Y / N / NA Dead plant material and tree branches are removed. Lower tree branches and shrubs positioned under the tree line are removed so that a surface fire cannot reach the tree crown.

Suggested Action: _____

Y / N / NA Trees in this zone are maintained with a minimum horizontal spacing of 10 feet between crowns, with the distance increasing with slope.

Suggested Action: _____

Y / N / NA Limbs and branches are pruned to a height of up to 15 feet. For shorter trees, pruning does not exceed $\frac{1}{3}$ of the tree height.

Suggested Action: _____

Y / N / NA Propane tanks larger than 125 gallons (water capacity) are located at least 30 feet from the house. There are at least 10 feet of Zone 1 defensible space around the tank.

Suggested Action: _____

ZONE 3: 30-100 feet around the perimeter of the home or to the property line (Free – \$\$\$)

Y / N / NA Trees in this zone are maintained with a minimum horizontal spacing of 10 feet between crowns, with this distance increasing with slope.

Suggested Action: _____

Y / N / NA Ladder fuels under taller trees are eliminated.

Suggested Action: _____



Y / N / NA A separation between groupings of shrubs and bushes exists and is continuously maintained.

Suggested Action: _____

Y / N / NA Dead plant material is removed from all vegetation and is continuously maintained.

Suggested Action: _____

SLOPE (\$ – \$\$)

Y / N / NA The home is located on a steep slope; vegetation is managed beyond 100 feet.

Suggested Action: _____

Y / N / NA The home is located in the middle of a steep slope or at the top of a slope with minimal setback; vegetation management is increased in the five to 100 feet zones.

Suggested Action: _____

Y / N / NA A noncombustible wall is installed within 15 to 20 feet of the downslope side of the home, particularly if a deck overhangs the slope.

Suggested Action: _____

ROOF COVERING (\$\$\$\$)

Y / N / NA The roof is product-rated class A.

Suggested Action: _____

ROOF EDGES (Free – \$\$)

Y / N / NA The gutters are clean of all debris.

Suggested Action: _____

Y / N / NA A drip edge is installed at the roof edge to protect any exposed roof sheathing or fascia.

Suggested Action: _____

Y / N / NA Debris that has accumulated at roof-to-wall intersections is removed; for example, near a dormer or a chimney.

Suggested Action: _____

Y / N / NA Roof-to-wall intersections are sided with a noncombustible or ignition-resistant siding product.

Suggested Action: _____

EAVES (\$ – \$\$\$)

Y / N / NA Venting exists in the soffit material and between the soffit and attic space.

Suggested Action: _____

Y / N / NA Any vents in the eaves are covered with 1/8-inch mesh, corrosion-resistant metal mesh screening.

Suggested Action: _____

Y / N / NA If the home does have open-eave framing, vents have closure devices made of 1/4-inch thin sheet metal; closures can be removed or opened after the wildfire threat has passed.

Suggested Action: _____

ROOF VENTS (Free – \$\$)

- Y / N / NA** Attic vents located on the roof are covered with 1/8-inch corrosion-resistant metal mesh screening.
Suggested Action: _____
- Y / N / NA** Attic vents located on the roof are free of debris.
Suggested Action: _____
- Y / N / NA** 1/8-inch screening is attached to the roof sheathing under turbine vents. Inspect this area through the attic where the vent attaches to the roof.
Suggested Action: _____
- Y / N / NA** The home has low-profile vents instead of dormer-type, through-roof vents.
Suggested Action: _____
- Y / N / NA** Ridge vents are rated for high-wind/rain exposure.
Suggested Action: _____

SKYLIGHTS (Free – \$\$)

- Y / N / NA** Accumulated debris is removed, vegetation is pruned, and overhanging limbs are trimmed near any skylight.
Suggested Action: _____
- Y / N / NA** The home has tempered-glass skylights instead of dome-type skylights.
Suggested Action: _____
- Y / N / NA** Operable skylights are kept closed when a wildfire threatens.
Suggested Action: _____

CHIMNEY (Free – \$)

- Y / N / NA** Chimney and stovepipe outlets are covered with a non-flammable, corrosion-resistant screen of 1/4-inch wire mesh or smaller.
Suggested Action: _____
- Y / N / NA** Chimney is at least 10 feet away from any tree branches.
Suggested Action: _____

SIDING (Free – \$\$\$\$)

- Y / N / NA** Siding and corner trim of the home is made of a noncombustible or ignition-resistant material.
Suggested Action: _____
- Y / N / NA** There is a six-inch clearance between the foundation and siding so the siding does not extend to the grade.
Suggested Action: _____
- Y / N / NA** Embers cannot accumulate or lodge anywhere on or around the siding of the home.
Suggested Action: _____



Y / N / NA Caulk is applied at trim-to-siding locations where it is missing or has failed.

Suggested Action: _____

WINDOWS (\$ – \$\$\$\$)

Y / N / NA All windows are dual or multi-pane, preferably with tempered glass, instead of single-pane.

Suggested Action: _____

Y / N / NA Window screening is installed to improve performance against radiant heat exposures and to minimize the size and number of embers that could enter the home.

Suggested Action: _____

FOUNDATIONS (Free – \$\$\$)

Y / N / NA Open crawl space style foundations are enclosed with a noncombustible material, a process sometimes called “skirting.”

Suggested Action: _____

Y / N / NA Enclosed spaces are ventilated according to local building code requirements.

Suggested Action: _____

Y / N / NA All foundation vents have $\frac{1}{8}$ -inch corrosion-resistant metal screening that is in good condition.

Suggested Action: _____

Y / N / NA Combustible materials stored in the crawl space or under the building are removed for a non-skirted, open crawl space style foundation.

Suggested Action: _____

EXTERIOR WALL VENTS (Free – \$\$)

Y / N / NA Closeable foundation vents are closed when a wildfire threatens but opened after the wildfire has passed.

Suggested Action: _____

Y / N / NA Non-closeable vents have detached closure devices that can be easily accessed and attached during a wildfire and removed after the threat has passed.

Suggested Action: _____

Y / N / NA Dryer vents and wall-mounted air openings for furnaces are screened with $\frac{1}{8}$ -inch corrosion-resistant metal mesh.

Suggested Action: _____

Y / N / NA Dryer vent is closed unless the dryer is running.

Suggested Action: _____

DECK (Free – \$\$\$)

Y / N / NA The deck is built of noncombustible materials.

Suggested Action: _____



Y / N / NA For decks that overhang a steep slope, defensible space is sufficient to reduce flame length and minimize flames spreading up the hill so it is less likely that flames will come in contact with the underside of the deck.
Suggested Action: _____

Y / N / NA A noncombustible wall is installed across the slope approximately 15 to 20 feet from the edge of the deck.
Suggested Action: _____

Y / N / NA For decks that overlook a wooded area, trees are thinned and ladder fuels removed to minimize the chance of fire moving into the upper portion of the trees.
Suggested Action: _____

Y / N / NA Combustible materials are not stored on or under the deck and are placed at least 30 feet away from the home, such as grill tanks.
Suggested Action: _____

Y / N / NA Debris is removed between deck board joints and other areas where debris can accumulate.
Suggested Action: _____

Y / N / NA There are no rotted or degraded deck boards or structural support members.
Suggested Action: _____

Y / N / NA Combustible items like deck furniture and cushions can be moved inside or as far away from the house as possible when a wildfire threatens.
Suggested Action: _____

FENCE (\$ – \$\$)

Y / N / NA Fencing attached directly to the home is made of noncombustible material and at least five feet long.
Suggested Action: _____

Y / N / NA There is no climbing vegetation growing on the fence.
Suggested Action: _____

DETACHED STRUCTURES (Free – \$\$)

Y / N / NA Detached structures (i.e. sheds, playsets, trellises) are at least 30 feet from the home.
Suggested Action: _____

Y / N / NA Every detached structure has defensible space.
Suggested Action: _____

Y / N / NA Detached structures are made of noncombustible materials.
Suggested Action: _____

Y / N / NA Vegetation is maintained on trellis-type structures and pruned regularly to remove dead undergrowth.
Suggested Action: _____



Y / N / NA Address marking is at least three inches tall or larger to ensure it is readable.

Suggested Action: _____

Y / N / NA Driveway is at least 12 feet wide or more and unobstructed.

Suggested Action: _____

Y / N / NA Gates are wide enough to accommodate emergency equipment.

Suggested Action: _____

Y / N / NA Trees and shrubs overhanging the road are trimmed to a minimum of 13½ feet to allow emergency vehicles to pass.

Suggested Action: _____

ADDITIONAL RECOMMENDATIONS:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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