

## HOW CAN I MAKE A DIFFERENCE IN MY COMMUNITY?

The need to burn wood will always be present in Northern Arizona communities. The key for personal safety and protection of health is to burn the right wood, the right way, in the right wood-burning appliance. The goal should be no visible emissions. If you see smoke from a chimney, chances are something isn't right.

**The Right Wood** - Burn only dry, well-seasoned wood that has been split properly, or use sawdust (non wax) manufactured logs. Properly seasoned wood is darker, has cracks in the end grain, and sounds hollow when smacked against another piece of wood. Green, wet wood produces more smoke.

**The Right Way** - Start fires with newspaper or dried kindling and don't burn household trash and painted or chemically-treated wood. Operate the appliance in accordance with manufacturer's instructions, remove ash regularly, check rope gaskets on the appliance doors and replace them as needed, keep the chimney clean and maintain a hot fire. Letting a fire smolder overnight by reducing the air supply doesn't improve heating value and increases air pollution.

**The Right Appliance** - Wood stoves are devices intended as either primary or secondary sources of heat. While more efficient fireplace models are now on the market, fireplaces are typically very inefficient and mostly used for ambiance and secondary sources of heat. Fireplace inserts are manufactured to fit within a fireplace and function like a wood stove. Wood pellet stoves are typically cleaner-burning by nature and produce less smoke. They are therefore exempt from certification by the U.S. Environmental Protection Agency (EPA).

Wood stoves manufactured before the early 1990s contain no emission controls and are inefficient. Since that time, nearly all wood stoves and wood fireplace inserts sold in the United States must meet strict emission standards and be certified by EPA. Older, non-EPA certified wood stoves release 15 to 30 grams of smoke per hour. By comparison modern, EPA-certified stoves produce 2 to 7 grams of smoke per hour. EPA-certified appliances are also 50 percent more energy efficient, use less wood for the same amount of heat and reduce the risk of chimney fire.

To check whether your stove or insert is EPA certified, look for a metal, EPA label on the back of the unit. Almost all EPA-certified stoves have glass doors. Stoves with solid metal doors are most likely uncertified. When upgrading to a new, cleaner-burning appliance, select the right sized appliance for your home and keep the old, uncertified unit out of circulation. It is recommended that wood-burning appliances be installed and regularly serviced by certified professionals.



### Contact Information:

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#### ADEQ Community Liaisons

##### Northwestern Arizona

Coconino, Mohave and Yavapai Counties  
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##### Northeastern Arizona

Apache, Navajo and northern Gila Counties  
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(928) 337-3565

#### Apache County Public Health Services District

(928) 337-7607

[www.co.apache.az.us/Departments/HealthDepartment/HealthDept.htm](http://www.co.apache.az.us/Departments/HealthDepartment/HealthDept.htm)

#### Coconino County Public Health Services District Environmental Services

928) 679-8750

[www.coconino.az.gov/health](http://www.coconino.az.gov/health)

#### Navajo County Public Health Services District

Holbrook Office

(928) 524-4750

[www.navajocountyaz.gov/pubhealth/](http://www.navajocountyaz.gov/pubhealth/)

#### Useful Websites:

##### ADEQ Air Quality Division

[www.azdeq.gov/enviro/air/index.html](http://www.azdeq.gov/enviro/air/index.html)

##### Particulate Monitoring Data

[www.phoenixvis.net/PPMmain.aspx](http://www.phoenixvis.net/PPMmain.aspx)

##### U.S. Environmental Protection Agency Burn Wise Program

[www.epa.gov/burnwise/](http://www.epa.gov/burnwise/)

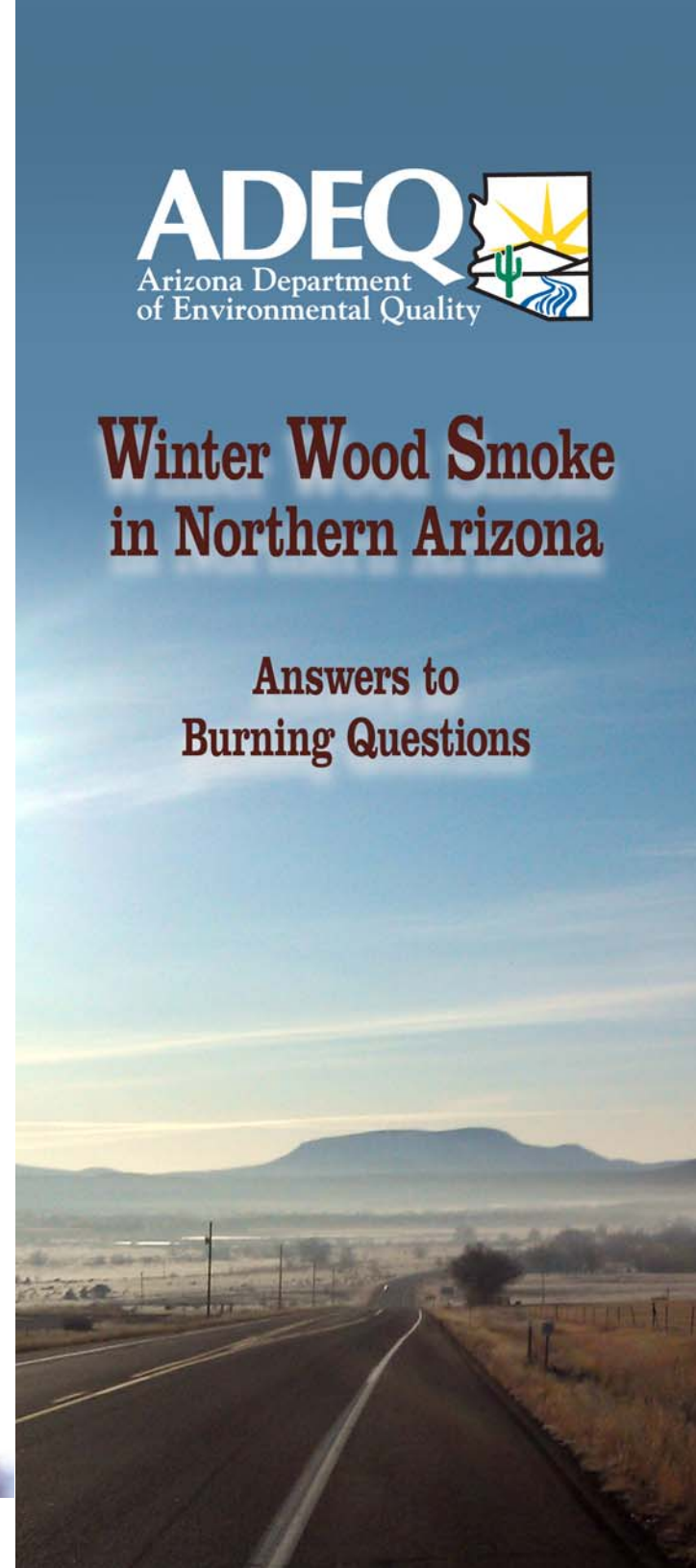
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## Winter Wood Smoke in Northern Arizona

### Answers to Burning Questions



**With the rising cost of fuel, wood-burning appliances (fireplaces, wood stoves and pellet stoves) remain a popular source of heat for Northern Arizona residents. They are a cost-effective heating source, while providing an ambiance which can't be duplicated by many of the other types of heating devices. Yet, while the heat is welcomed, there are unwelcomed consequences to wood heat.**

### **WHAT'S THE PROBLEM?**

A temperature inversion is a weather condition which occurs in certain of Northern Arizona's valleys during the cooler months of the year, most-commonly at night. Cooler air seeps into the valleys and is trapped by a layer of warmer air, creating a "lid" of stagnant air over the land surface. During the dead of winter, when wood-burning appliances are fired up, this inversion layer traps smoke and keeps it close to the ground – near our breathing zone. The good news is the health danger from smoke can be reduced even on cold, Northern Arizona winter nights.

Improper wood burning also contributes to indoor air pollution, which can be especially harmful to health.

### **WHY IS SMOKE SO BAD?**

Excessive, persistent air pollution is a health threat, especially to children, the elderly, and those with compromised immune systems. Children are more active outdoors and tend to breathe more air pollution per pound of body weight.

Wood smoke may smell good, but it's not good for you. It is a complex mixture of substances, including toxic gases and microscopic particles called particulate matter (PM). The smallest particles (called "PM 2.5" and measuring about 1/30th of the width of a human hair) are especially problematic. These microscopic particles deeply penetrate the lungs and are very hard to expel. Repeated exposure over longer periods of time (several hours to days) can decrease lung function leading to respiratory issues.

Smoke can cause symptoms of asthma and chronic obstructive pulmonary disease (COPD) to worsen. If you have heart disease, particle exposure can cause serious problems in a short period of time, even heart attacks with no warning signs. Smoke also carries fragments of pollen and/or mold which can cause allergies for much of the general population.

Smoke also contributes to haze and can impair visibility and the enjoyment of the outdoors.

### **HOW IS POLLUTION FROM SMOKE MEASURED?**

The Arizona Department of Environmental Quality (ADEQ) maintains a PM2.5 monitoring network in Northern Arizona. Real-time, hourly-average PM2.5 concentration data are available on-line for the Flagstaff, Camp Verde, Prescott, Sedona, Show Low and Springerville-Eagar areas.

The Web address for accessing this information is: [www.phoenixvis.net/PPMmain.aspx](http://www.phoenixvis.net/PPMmain.aspx). If you live in or near these communities, these smoke data might be useful to you.

ADEQ has found that PM2.5 levels sometimes increase to unhealthy levels at some of these monitoring stations during cold, stagnant winter nights – a sign that residential wood burning is contributing to unhealthy conditions.

### **WHAT PRECAUTIONS CAN BE TAKEN?**

Consider staying informed on air quality conditions if you live in or near a community within the PM2.5 monitoring network. Also, if you see, smell or taste smoke outdoors and it is affecting you and your family, consider some of the following actions:

- Reduce your physical activity and do not exercise.
- Stay indoors as much as possible and avoid activities which may produce indoor air pollution (such as smoking and vacuuming).
- If smoke conditions persist and you are starting to experience symptoms, consider temporarily locating to another area until the air clears.
- Use an alternative source of heat or take proper care when burning wood to avoid contributing to the community problem.
- Run room air filtration units, if available.

**If symptoms persist or become more severe, please contact your primary health care provider – even persons considered healthy can experience symptoms when exposed to smoke.**