

EPA Burn Wise Program: Tool to Educate and Empower

Residential Wood Smoke Workshop
March 11, 2020
New Orleans, LA

Presentation Overview

- Burn Wise Tools and Uses
- Wood Moisture Content Guessing Game
- What's working and what's missing?

What is Burn Wise?

- Voluntary Education Partnership Program
- Key Message: *Burn the right wood, the right way, in the right appliance*
- Goals:
 - educate users on how to properly use their wood burning
 - promote upgrades to cleaner burning technologies

Burn Wise Message



Right wood



right way



right appliance

Burn Wise Education Program

- Target audience
 - Current and future owners of wood burning appliances
 - Fireplaces
 - Wood Stoves
 - Hydronic Heaters/Outdoor Wood Boilers
 - Forced Air Furnaces
 - Outdoor fire-pits/chimeneas

Changing Behavior: What's in it for me?

- Improved health
- Save time, energy and/or money
- Safety, reduce risk
- Adhere to social norms

Health: Wood Smoke & Your Health Poster

Burn Wise
Program of U.S. EPA

WOOD SMOKE AND YOUR HEALTH

Wood smoke may smell good but it's not good for you. With a few simple steps you can help reduce wood smoke to protect your health and the air we breathe.

DID YOU KNOW?

One old, inefficient wood stove can emit as much air pollution as 5 dirty old diesel trucks.



Tiny particles in wood smoke can affect your health



HEART IMPACTS
Increases the risk of heart attack, irregular heartbeat, heart failure, stroke and early death.

LUNG IMPACTS
Triggers asthma attacks and aggravates other lung diseases and damages children's lungs.

WHO IS AT GREATER RISK?

- Older adults
- Children and teens
- People with heart or lung disease

Four easy steps to reduce wood smoke

1 Burn dry, seasoned wood that has been split, stacked, covered and stored.

2 Test wood with a moisture meter (20% moisture or less is best).




3 Use a cleaner-burning gas or wood stove.

4 Provide sufficient air to the fire; never let it smolder.




Learn more at www.epa.gov/burnwise



Asthma and Wood Smoke Videos

Videos

- Wood Smoke and Asthma:
 - Breathe Easier <http://www.youtube.com/watch?v=sJQ4IVDDA6Q>
 - Reduce Smoke <http://www.youtube.com/watch?v=aJXj9j3g7EM>
 - Dry Firewood <http://www.youtube.com/watch?v=Z-OfbPjXPUU>



Time and Money: Wet Wood is a Waste - Brochure and Video



**WET
WOOD IS A
WASTE**

BURN DRY FIREWOOD
TO SAVE MONEY AND HEALTH

**Four Easy Steps to
Dry Firewood**

**STEP 1
SPLIT**

**STEP 2
STACK**

**STEP 3
COVER**

**STEP 4
STORE**

Burn Wise Program of U.S. EPA 

EPA 456/F-10-003

Build a Firewood Storage Shed - Plans and Materials List



Build a Firewood Storage Shed

\$270

Wood Shed

(price dependant on locality)

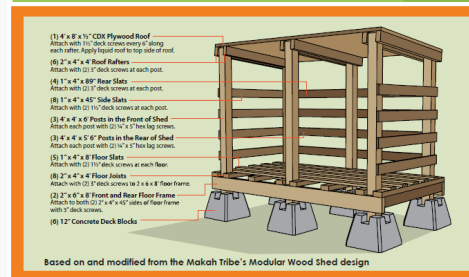
- Holds about one cord of wood
- Light enough to move by hand
- Easy to fabricate with mostly straight cuts and no mitered corners or joints
- Uses outdoor treated wood for the structure and liquid roofing primer for the roof
- Connectors and fasteners are galvanized
- Roof and sides are finished to owner specifications (e.g. composition, metal, wood shakes, etc.)
- Footings provided by owner (concrete post bases or pavers)

www.epa.gov/burnwise



Wood Shed Material List				
ITEM	QTY	DESCRIPTION	UNIT COST	SUBTOTAL
2" x 6" x 8' Treated Pine	2	Floor Frame	\$5.27	\$10.54
1" x 4" x 8' Treated Pine	13	Floor Slats, Side & Back Slats	\$4.97	\$64.61
2" x 4" x 8' Treated Pine	8	Floor Frame, Joists, Roof Rafters	\$3.37	\$26.96
4" x 4" x 12' Treated Pine	3	Posts	\$13.17	\$39.51
4" x 8" x 1/2" CDX Plywood	3	Roof	\$15.77	\$15.77
1/2" x 5" Hex Lag Screws	12	Secure posts to 2" x 6" x 8', 2" x 4" Floor Frame	\$0.54	\$6.48
3" Galvanized Deck Screws	1lb. Box	Secure Floor Frame, Joists & Roof Rafters	\$9.89	\$9.89
1 1/2" Galvanized Deck Screws	1lb. Box	Secure Floor Slats, Side & Back Slats, Roof	\$9.89	\$9.89
Liquid Roofing	1.5-Gal	Weather Protection	\$47.00	\$47.00
12" Deck Bolts	6	Raise Woodshed off ground	\$6.55	\$39.30
TOTAL				\$269.95


To view a 6 minute video on how to build this firewood storage shed, go to: www.epa.gov/burnwise/burn-wise-videos



Link to video demonstrating how to build this shed: <https://www.epa.gov/burnwise/burn-wise-videos>


Test Your Wood with a Moisture Meter

Burn Wise: Test Your Wood with a Moisture Meter


 **Why should I use a wood moisture meter?**

Burning wet wood is a waste of energy. Wood burns most efficiently when the moisture content is between 15% - 20%. When a live tree is cut the moisture content can be greater than 50%, (i.e., half of the weight of the wood is water).





Too much water in the wood reduces the temperature in the stove preventing the wood from completely burning (water puts out fires). Incomplete combustion results in smoke (wasted energy) going up the chimney and creates creosote (a fire hazard). The smoke can also negatively impact your air quality inside and outside your home.




Burn drier. Burn better.
Use dry wood for a cleaner fire with more heat and less smoke.

 **How do I test my firewood with a wood moisture meter?**

Split the firewood, then shortly after (less than 24 hours), stick the prongs of the wood moisture meter into the newly split side of the wood. This ensures you are testing the inside of the wood and not just the outer layer of the wood. Also, stick the wood so the prongs run parallel with the grain of the wood and test 2-3 different locations for the most accurate reading. If possible, test the wood when the outside temperature is 50°F - 90°F. Lower wood temperatures result in lower indicated moisture content. See correction table: <http://www.delmhorst.com/correction-tables#temperature>. You can purchase a basic moisture meter online or at most hardware stores for around \$15.00 - \$40.00.

Step 1: Split the wood	Step 2: Test <u>newly</u> split side	Ready to Burn	Not Ready to Burn
			

 **How to Season Your Firewood?**

To season your wood split (split wood dries much faster), stack, cover the top and store your wood for at least 6-12 months.

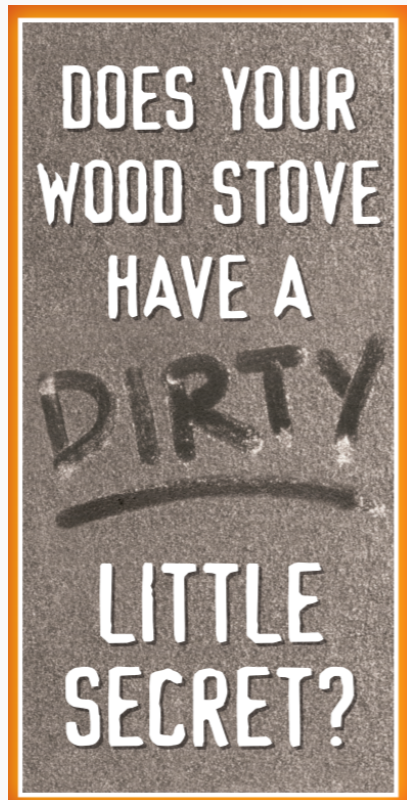
For more information go to <http://www.epa.gov/burnwise>.
Burn Wise Split, Stack, Cover and Store Video- <http://www.youtube.com/watch?v=y01-7rh11s>

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“How-to” Burn Wise video also available

<https://www.epa.gov/burnwise/burn-wise-other-materials>

Safety: Does Your Wood Stove Have Dirty Little Secret Brochure



Retailers Can Help You

A hearth retailer can guide you through the wood stove removal and replacement process. With hundreds of stoves to choose from, the variety and cost ranges are wide — from \$1,000 to \$3,000 before installation. Some local governments and agencies offer incentives for replacement.

Professional Installation Matters

Improperly installed stoves or chimneys can spill smoke back into your home or cause a house fire. A hearth specialty retailer can arrange professional installation by a trained technician or one certified by the National Fireplace Institute.⁹



Stoves and chimneys should be inspected by a certified chimney sweep once a year to prevent chimney fires.

—Chimney Safety Institute of America

Social Norms: Wood Smoke Activity Book



Who is Promoting the Burn Wise Message?

- EPA Headquarters & Regions
- States, Tribes and Local Agencies
- Chimney Sweeps
- Non-profit Organizations
- Hearth, Patio, and Barbecue Association
- Hearth Retailers & Manufacturers

How to Apply the Burn Wise Messages

- Make printed educational materials available at all your outreach events
- Post Burn Wise logo and website link on your organization's website
- Share Burn Wise message on social media
 - Post EPA ready-made messages on Facebook and Twitter
- Conduct educational campaign in conjunction with all wood burning appliance replacement programs

High Wood Moisture Leads to Poor Combustion



Photo credit: Hearth, Patio and Barbecue Association



- Ideal combustion, moisture content is between 15%-20%

Wood Moisture

6 lbs of unseasoned red oak at
moisture contains how much water?

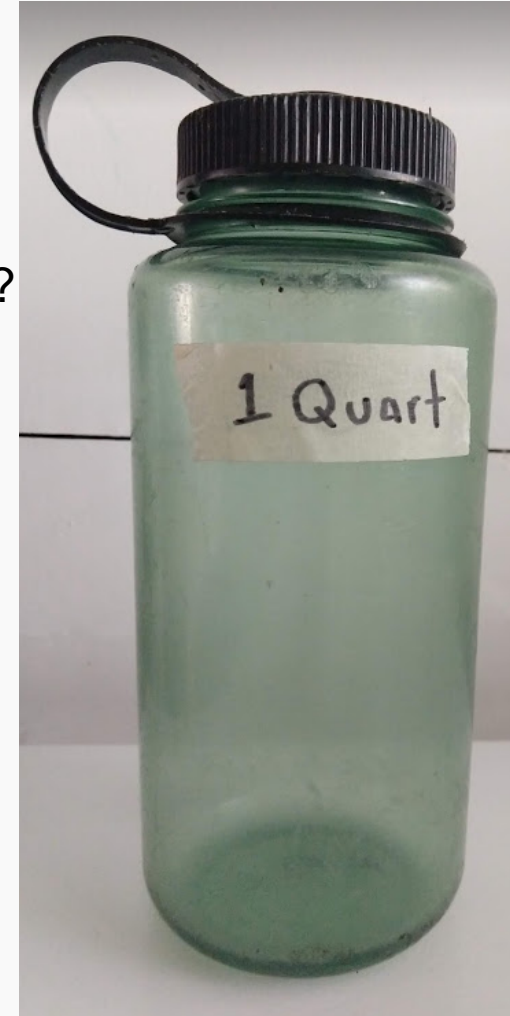


Photo credit: EPA

Wood Moisture

36 lbs of unseasoned red oak at 45% moisture contains approximately 2 gallons of water



Photo credit: EPA

What do we use to put out fires?

Burn Wise Program and Educational Tools

- What's working and what's needed?
- How can Burn Wise support you?