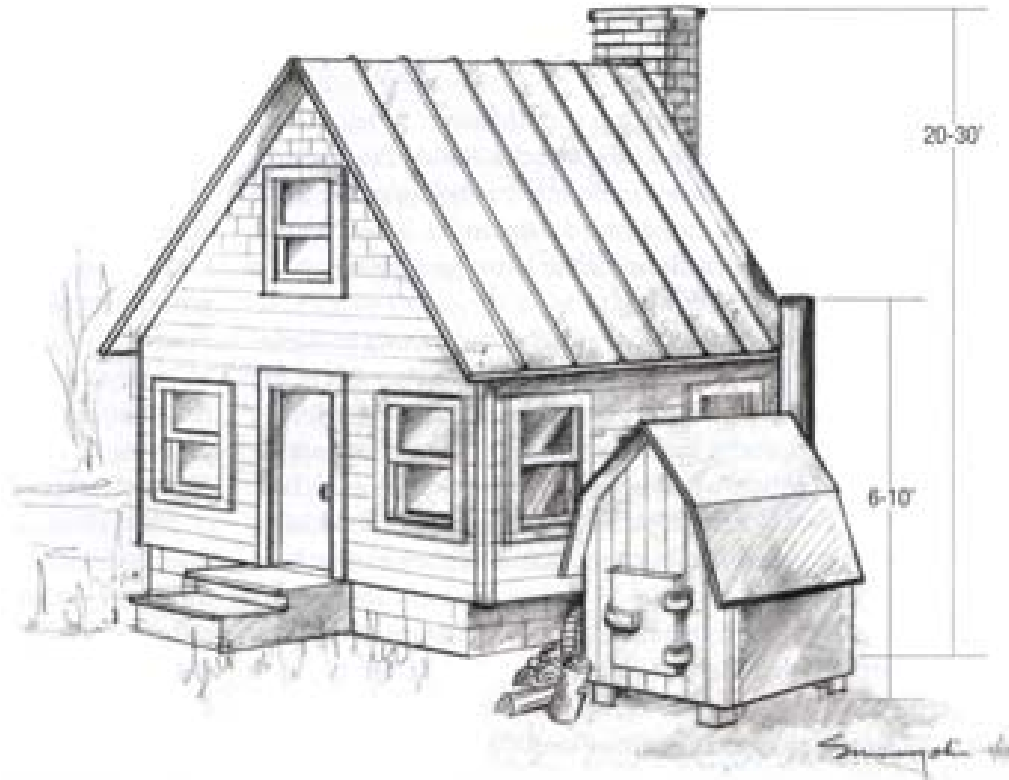




Maryland
Department of
the Environment

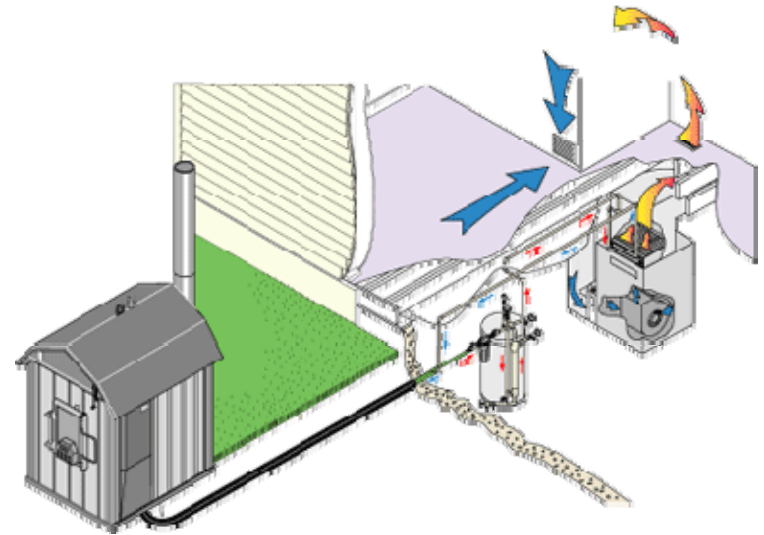
Control of Particulate Matter from Small Wood Boilers





What is a “Small Wood Boiler”?

- Also known as a hydronic heater.
- Can be located indoors or outdoors.
- Has a firebox surrounded by a water jacket which heats water that is circulated to adjacent building or structure through underground pipes.
- Has gained popularity in colder, rural areas.
- Used to heat houses, shops, greenhouses, swimming pools and spas and supply domestic hot water.





Why Are Small Wood Boilers Regulated?

Uncontrolled wood boilers contribute to the following issues:

- Health concerns – health problems resulting from exposure to excessive wood smoke emissions.
- Environmental concerns – excess smoke, particulate matter and toxic compound emissions.
- Nuisance issues – smoke and odor can create complaints in many communities where these units are in operation.
- Operational concerns - operators not following suggested best burn practices or operating instructions resulting in excess emissions, nuisance complaints and other hazards.

When installed and used properly, modern controlled boilers address these concerns.



Regulatory Background – Wood Boilers

Federal

- Previously exempt from Federal air emission standards.
- In 2007, U.S. EPA created voluntary program (Hydronic Heater Program) to encourage manufacturers to develop and distribute cleaner and efficient units.



NESCAUM

- In 2007, the Northeast States for Coordinated Air Use Management (NESCAUM) developed a model rule that several states used as a starting point for regulations.





Regulatory Background – Wood Boilers (cont.)

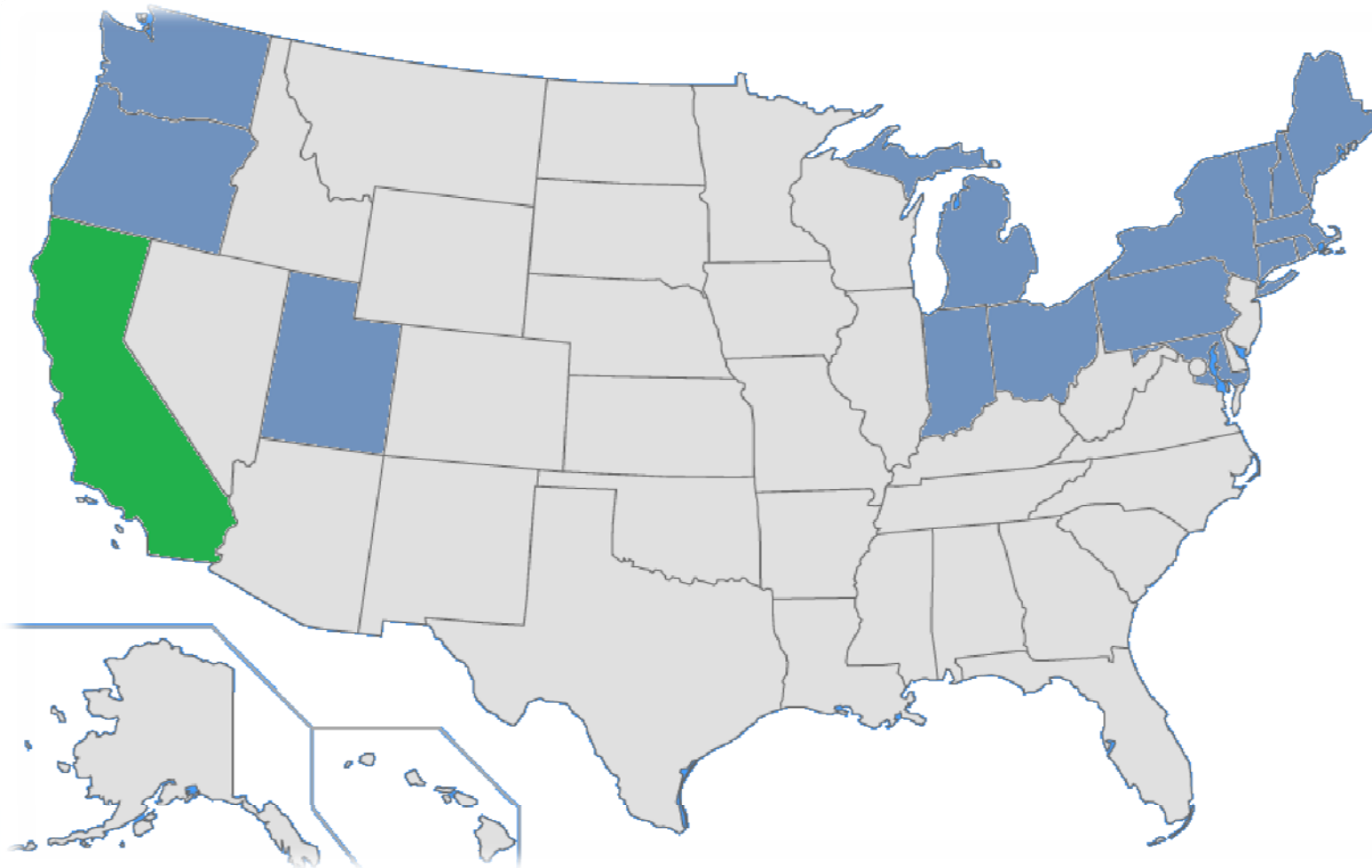
Maryland



- Prior to 2009, no regulatory prohibitions on the sale of wood boilers, but Maryland regulations prohibited the construction and use of wood boilers.
- In 2009, Maryland adopted COMAR 26.11.09.11 – Control of Particulate Matter from Small Wood Boilers which established emission limits and other requirements based upon EPA's voluntary program.



States with Applicable Regulations for Wood Boilers



Sources: U.S. EPA, Vermont Department of Environmental Conservation, Alliance for Green Heat



Comparison of U.S. EPA Voluntary Hydronic Heater Program and Existing COMAR 26.11.09.11

Current Emission Limits and Compliance Dates for Small Wood Boilers under COMAR 26.11.09.11			
Step	Particulate Matter (PM) Limit	Compliance Dates	
		U.S. EPA [†]	Maryland
Phase I	<ul style="list-style-type: none"> • 0.60 pounds per million Btu heat input (weighted average) 	January 2007 through March 31, 2010	April 1, 2009 through March 31, 2010
Phase II	<ul style="list-style-type: none"> • 0.32 pounds per million Btu heat output 	April 1, 2010 through May 15, 2015	April 1, 2010 - Current

[†] U.S. EPA Voluntary Hydronic Heater Program



Benefits of Existing COMAR 26.11.09.11

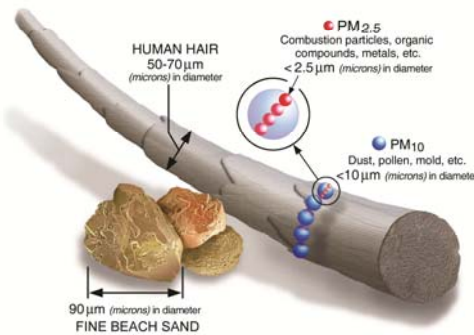
BENEFITS



Greater availability of clean
burning units



Reduction in PM
emissions



Reduction in enforcement
actions





Certified Small Wood Boilers - Maryland

Small Wood Boilers

Maryland Certified Small Wood Boilers

The following table lists small wood boilers that have been approved for sale and use in Maryland. **As of April 1, 2010, the Department will no longer certify Phase 1 models (0.60 pounds of particulate matter per million BTU). Phase 1 units may not be offered for sale or installed in Maryland after this date.** Phase 1 units installed before March 31, 2010 may continue to be operated in Maryland. Phase 2 models, which meet a minimum 0.32 pounds of particulate matter per million BTU, are available for sale and installation and may be operated in Maryland.

Phase 2 Models (April 1, 2010 and Newer)			
Manufacturer	Model Name & Number	Annual Average Emission Level (lbs/million BTU)	Maryland Certification Letter
Central Boiler	Classic Edge 350	0.18	pdf
Central Boiler	Classic Edge 550	0.31	pdf
Central Boiler	Classic Edge 750	0.18	pdf
Central Boiler	E-Classic 1450	0.18	pdf
Central Boiler	E-Classic 3250	0.18	pdf
Central Boiler	Maxim M255 PIPE	0.04	pdf
Dectra Corporation	GARN Model WHS-1500	0.132	pdf
Dectra Corporation	GARN Model WHS-2000	0.07	pdf
Earth Manufacturing	Klear Sky 400 Series	0.29	pdf
Hardy Manufacturing	Model KB125	0.31	pdf

MDE maintains a list of boilers that meet applicable emission standards and have been certified by the Department

Since 2009, the Department has certified over 40 different models for sale, installation, and use in Maryland



New Federal Regulations and Standards for Residential Wood Boilers

- In 2015, the U.S. EPA established new standards for indoor and outdoor wood boilers
- Known as New Source Performance Standards (NSPS)
 - 40 CFR 60, Subpart QQQQ.





Summary of New Source Performance Standards (NSPS) for Wood Boilers

- Applies only to new boilers – does not apply to existing units in use, or appliances such as fireplaces, wood stoves, ovens, etc.
- Manufacturers test and certify each model line by internationally accredited laboratories and certification bodies.
- Includes test methods (28-WHH) that manufacturers will have to use to determine PM emissions and demonstrate compliance for each emissions limit in the rule.
- New boilers sold in the United States required to have a permanent label or hangtag indicating they are EPA-certified to meet PM emission standards in the rule.



Summary of New Source Performance Standards (NSPS) for Wood Boilers (cont.)

- 2 Step Phase-In Of Emission Limits
 - Step 1 - Particulate matter (PM) emission limit, emission testing, and certification similar to Phase II level under EPA Voluntary Hydronic Heater Program.
 - Step 2 – More stringent particulate matter emission limit 5 years after effective date.
- Does not apply to wood boilers that are fueled solely by gas, oil or coal.



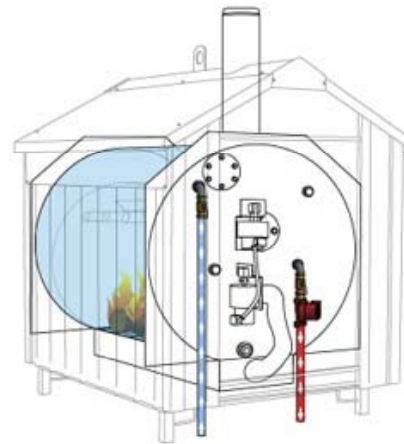
Federal Emission Standards for Wood Boilers under NSPS

Emission Limits and Compliance Dates for Hydronic Heaters		
Step	Particulate Matter (PM) Limit	Compliance Date
Step 1	<ul style="list-style-type: none">• 0.32 pounds per million Btu heat output (weighted average), with a cap of 18 grams per hour for individual test runs.• Limit is for crib testing. If tested with cordwood, emissions test method must be approved, and must meet crib wood limit.	60 days after final rule is published in the <i>Federal Register</i> (May 15, 2015)
Step 2	<ul style="list-style-type: none">• 0.10 pounds per million Btu heat output for each burn rate• <i>Alternative limit:</i> 0.15 pounds per million Btu heat output for each burn rate. If tested with cordwood; method must be approved.	5 years after the final rule is published (2020)



Amendments to COMAR 26.11.09.11

- The amendments to the regulation incorporate emission standards and requirements from U.S. EPA's NSPS for hydronic heaters.
- New, federal emission and operating standards and compliance procedures for small wood boilers incorporated into Maryland regulations apply to small wood boilers sold and made available for use.





Amendments to COMAR 26.11.09.11 – Proposed Standards

The following provisions remain the same as in the current regulation:

- Acceptable and prohibited fuels for use in small wood boilers - clean wood, wood pellets made from clean wood, or other fuels approved by the Department.
- Enforcement provisions.

The following provisions are changes from the current regulation:

- Labeling and certification requirements.
- Prohibitions – units may not operate between May 1 to September 30 (ozone season) of any year, beginning May 1, 2018 unless the small wood boiler meets PM standard equal to or less than 0.32 lbs./MMBtu heat output.



Amendments to COMAR 26.11.09.11 - Proposed Emission Standards

Proposed Emission Limits and Compliance Dates for Small Wood Boilers under COMAR 26.11.09.11		
Step	Particulate Matter (PM) Emission Limit	Compliance Date
Match EPA Step I (MDE Phase II)	<ul style="list-style-type: none">• 0.32 pounds per million Btu heat output (weighted average), with a cap of 18 grams per hour for individual test runs.• Limit is for crib testing. If tested with cordwood, emissions test method must be approved, and must meet crib wood limit.	Effective date of regulation
Match EPA Step II (MDE Phase III)	<ul style="list-style-type: none">• 0.10 pounds per million Btu heat output for each burn rate• <i>Alternative limit:</i> 0.15 pounds per million Btu heat output for each burn rate. If tested with cordwood; method must be approved.	May 15, 2020



Calendar – Important Dates (Tentative)

Air Quality Council Advisory Council (AQCAC)

March 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Public Hearing

August 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Notice of Proposed Action (MD Register)

July 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Final Publication in MD Register

October 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



Final Thoughts and Discussion

- The amendments to COMAR 26.11.09.11 - Control of Particulate Matter from Small Wood Boilers will align the regulation with the new federal standards.
- Fuel-burning and enforcement provisions will remain the same.
- Labeling and certification requirements will be consistent with federal standards.
- The amendments to the regulation includes a seasonal prohibition.

