

Hydronic Heater (HH) Program Overview for Wood Smoke Workshop 3/2011

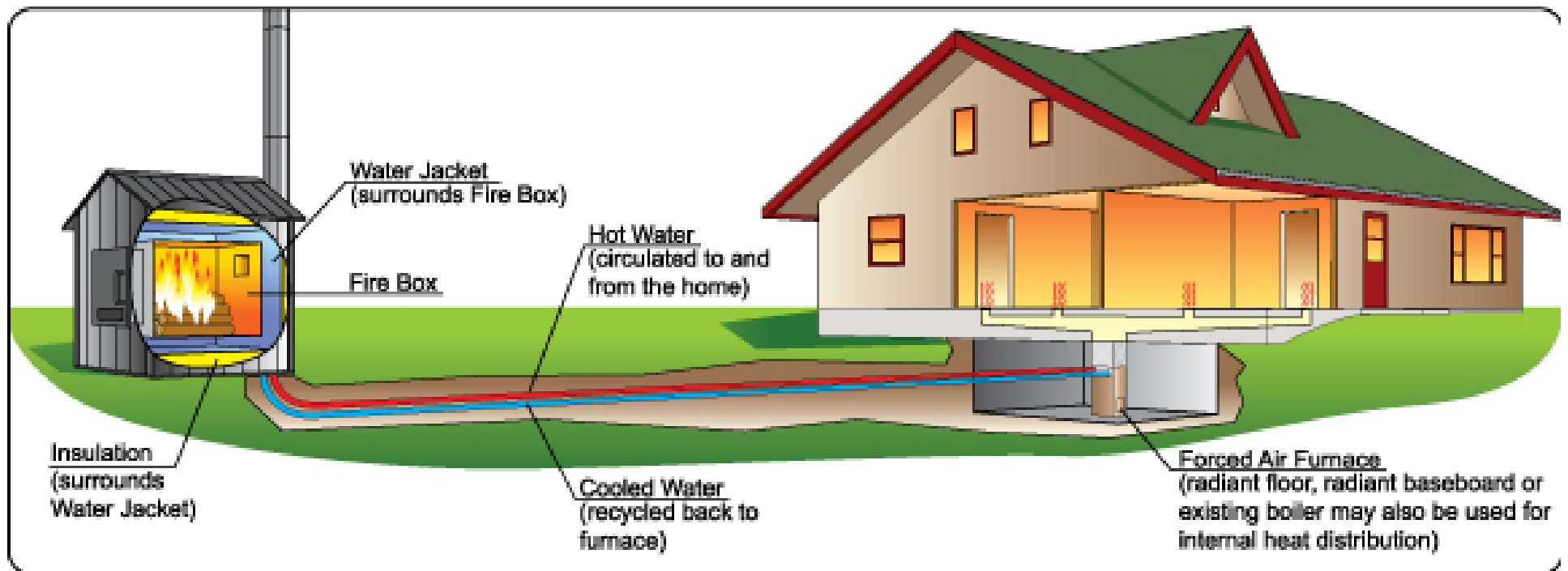




Purpose of Today's Presentation

- Hydronic Heater Voluntary Program
- NESCAUM Model Rule
- Testing
- Implementation
- Next Steps

How It Works



Front View of Typical Unit













PM2.5 Emissions: Efficiency Comparisons

| | Grams/hour | Pounds/ton wood burned [pounds/MM BTU] | Efficiency (%) |
|---|------------------------------------|---|----------------|
| Outdoor Wood-fired Hydronic Heaters | 30-390 | 6-60 [0.5-5] | ~30-55 |
| EPA Qualified Hydronic Heaters | 1-6 | 0.04- 0.32 | 50%-90* |
| Old Wood Stoves | 22 | ~90-150 [7.5-12.5] | ~54 |
| NSPS Wood Stoves 40CFR60 Subpart AAA | 7.5 Non-Catalytic 4.1 Catalytic | ~30 [2.5] ~16 [1.4] | ~67 |
| Pellet Stoves | ~1 | 4.2 [0.3] | ~70-80 |
| Fireplaces | | 34.6 [2.8] | ~10 |
| | | | |
| | | | |

*Efficiency testing issues are currently being worked on with partners and states



Voluntary HH Program

- January 2007 launched program
- 18 Phase 2 participating manufacturers
- Phase 1 models (70% cleaner) sold: 2,510
- Phase 2 models (90% cleaner) sold: 5,900
- Total annual tons PM_{2.5} emissions avoided = 4,770
- \$1.7 to \$4.2 billion in health benefits in 2009



Voluntary Program Components

- EPA and manufacturer Agreement to bring cleaner units to market
- Permanent label on qualifying models that states only dry seasoned wood should be burned, no trash...
- Hang tag – provides the emission levels
- Owner's Manual text on proper operation and maintenance
- EPA website with list of cleaner HH: epa.gov/Burnwise

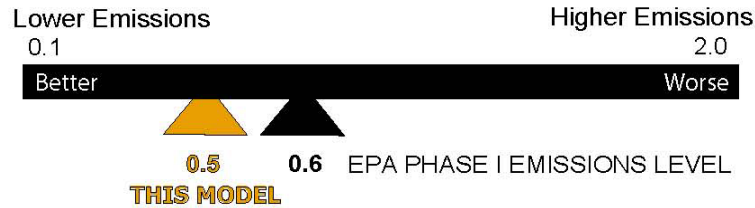
U.S. Environmental Protection Agency 2007 Outdoor Wood-Fired Hydronic Heater Program

This Outdoor Wood-Fired Hydronic Heater has been tested
and meets a certain air quality emissions level.*

By meeting this level this model is cleaner and pollutes less than those models
that have not met this emissions level. Exposure to wood smoke has been
associated with respiratory illness and other health problems. Models that have
lower smoke emissions may reduce your family's risk.

For more information go to www.epa.gov/woodheaters

OUTDOOR WOOD-FIRED HYDRONIC HEATERS SMOKE EMISSIONS RANGE



Outdoor wood-fired hydronic heaters with lower emissions produce
less smoke when installed and operated properly.

MANUFACTURER: XXXXXXXXXXXX
MODEL NO: XXXXXXXX
8-HOUR HEAT OUTPUT RATING: 58,000 BTU/HR
EMISSIONS: XXX GRAMS/HR
0.5 LBS/MILLION BTU HEAT INPUT
XX GRAMS/HR / 10,000 BTU HEAT OUTPUT

* - This model has been tested by an accredited independent laboratory according to EPA
method 28 OWHH and meets the emissions level for U.S. EPA's Phase 1 Voluntary Program.

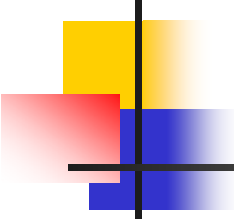


Northeast States for Coordinated Air Use Management (NESCAUM) Model Rule

Several Northeast states have adopted rules based on the Model Rule

- Phase 1: Compliance as early as 4/2008
 - Technology-based, 80% reduction
 - 0.44 # of PM per mmBTU heat input
 - 80% reduction

- Phase 2: Compliance as early as 4/2010
 - Health-based
 - 0.32 # of PM per mmBTU heat output
 - 90% reduction



NESCAUM Rule Components

- Establishes emission limits and labeling requirements
- Setback requirements from property lines, structures, and homes
- Stack height requirements
- Distributor and buyer notification requirements



Testing/ Verification

- Use of EPA method for “certification”
- Validation of method on-going
- 3rd party testing with QA/QC audits



HH Program Implementation

- Intense review of verification tests [Mike Toney]
- Validation of test method [Mike Toney]
- States adopting rules and potentially incorporating into PM SIPs
- Track sales and market penetration
- Have Expanded Voluntary Program to include wood pellets & other biomass



Next Steps

- Stakeholders & EPA decide on testing qualification process for the next few years
- Revise Partnership Agreement

EPA Voluntary Hydronic Heater Program

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Hydronic Heaters Use in US

