

**SACRAMENTO METROPOLITAN  
AIR QUALITY MANAGEMENT DISTRICT**

For Agenda of **October 26, 2006**

**To:** Board of Directors  
Sacramento Metropolitan Air Quality Management District

**From:** Larry Greene, Air Pollution Control Officer  
Sacramento Metropolitan Air Quality Management District

**Subject:** New Rule 417, WOOD BURNING APPLIANCES

---

**Recommendations**

1. Determine that the adoption of Rule 417 is exempt from the California Environmental Quality Act (CEQA); and
  2. Approve the attached resolution adopting Rule 417.
- 

**Executive Summary**

The District does not meet state clean air standards for particulate matter. Additionally, the District is expected to be designated nonattainment for the recently revised National Ambient Air Quality Standard for fine particulate matter. Particulate matter is linked to serious adverse health effects, including causing asthma in children, aggravated asthma, heart attacks, and premature death in people with heart or lung disease.

Wood smoke accounts for 44% of wintertime fine particle emissions. The proposed Rule 417, WOOD BURNING APPLIANCES, will help the District make progress towards meeting the standards and prevent further degradation in air quality by limiting particulate matter emission by nearly 80 tons per year. The overall cost effectiveness is estimated to be \$4.19 per pound of particulate matter.

New Rule 417 will also fulfill a commitment approved by the Board on July 28, 2005. The commitment was adopted to meet the requirements of the California Health and Safety Code, Section 39614 (SB 656), which required an implementation schedule committing the District to consider cost-effective control measures to reduce particulate matter emissions.

Rule 417 will prohibit the installation of any new uncontrolled fireplaces within the District, and will require that new wood burning appliances be EPA certified appliances or other low emission devices (pellet stoves or masonry heaters). The rule will also require distribution of educational information at the point of sale, establish a maximum moisture requirement for wood advertised as "seasoned" or "dry," and prohibit the burning of garbage and other materials not intended for use as a fuel.

During the rule development process, Staff held a public workshop and also had meetings with the Building Industry Association, the Hearth, Patio & Barbecue Association, and the Sacramento Realtors Association. Staff made several changes to the proposed rule in response to the comments received.

Rule 417 is one of a series of measures designed to reduce the serious health consequences of particulate matter pollution. Other wood burning control measures to be studied further include mandatory curtailment, replacement of noncertified units upon sale of property, and density restrictions for new wood burning appliances. If cost-effective emission benefits are found, these measures will be proposed in 2007 and 2008.

---

## Attachments

The table below identifies the attachments to this memo.

Item	Attachment	Page Number
Board Resolution	A	9
Draft Rule 417	B	12
Staff Report	C	18
Written Comments	D	55
Evidence of Public Notice	E	77

---

## Background

Particulate matter (PM) is a mixture of very small liquid droplets and solid particles that are suspended in the air. Adverse health effects are linked to particles that are less than 10 microns in diameter (PM<sub>10</sub>), and the subset of fine particles that are less than 2.5 microns in diameter (PM<sub>2.5</sub>). According to the U.S. Environmental Protection Agency (EPA), health studies have linked exposure to PM, especially fine particles, to several significant health problems, including:

- increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing;
- decreased lung function;
- development of chronic respiratory disease in children
- aggravated asthma;
- development of chronic bronchitis;
- irregular heartbeat;
- nonfatal heart attacks;
- atherosclerosis (hardened arteries);
- cystic fibrosis;
- premature death in people with heart or lung disease; and

- premature death in people with lung cancer.

Exposure to PM pollution can cause coughing, wheezing, and decreased lung function even in otherwise healthy children and adults. EPA estimates that tens of thousands of elderly people die prematurely each year from exposure to fine particles<sup>1</sup>. In addition, a recent study (Dominici et. al, 2006) of the correlation between PM2.5 concentrations and hospital admission rates concluded that short-term exposure to PM2.5 increases the risk of hospitalization for cardiovascular and respiratory diseases. The latest review of health studies has also shown a stronger correlation between elevated PM2.5 levels and increased mortality rates.

The District is currently nonattainment for the state PM10 standard and PM2.5 standard. Additionally, the District is not expected to be in attainment for the recently revised National Ambient Air Quality Standard (NAAQS) 24-hour standard of 35 µg/m<sup>3</sup> for PM2.5. The 2004 emission inventory for Sacramento County shows that wood smoke accounts for 20% of wintertime PM10 emissions and 44% of wintertime PM2.5 emissions.

In addition, the proposed Rule 417 is necessary to meet the implementation schedule for District particulate matter control measures adopted by the Board on July 28, 2005 as part of the requirements of SB 656 (California Health and Safety Code, Section 39614). Rule 417 will limit PM emissions and assist the District in its efforts to attain the state and federal PM standards.

---

### Summary of Proposed Rule

Proposed Rule 417 applies to any person who manufactures, sells, offers for sale, installs, or operates a wood burning appliance, and to any person who sells, offers for sale, or supplies wood intended for burning in a wood burning appliance. Rule 417 will:

1. Require that sale, installation, or transfer of all wood burning appliances be U.S. EPA Phase II certified, or equivalent;
2. Prohibit the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments;
3. Require proper operation of U.S. EPA Phase II certified wood burning appliances;
4. Require distribution of educational information about wood burning at point of sale of new wood burning appliances;
5. Require wood advertised as “seasoned” or “dry” to contain 20% moisture or less; and
6. Prohibit burning of garbage and other items not intended for use as a fuel.

The rule allows for the installation of natural gas, propane, or electric fireplaces, pellet

---

<sup>1</sup> EPA report indicates that 0.7% to 1.6% fewer deaths are expected each year from a 1 µg/m<sup>3</sup> reduction of PM2.5 annual average standard. “Expanded Expert Judgment Assessment of the Concentration-Response Relationship Between PM2.5 Exposure and Mortality”, September 2006.

stoves, and masonry heaters as an alternative to uncontrolled fireplaces. Due to the requirements set forth in Title 40 Code of Federal Regulations, Part 60, Subpart AAA, most of the appliances in these classes do not receive EPA certification. However, these devices have emission factors that are even lower than certified wood stoves. Therefore, they are included as allowable alternatives to traditional fireplaces.

Chimineas and outdoor firepits, which are designed for portable, outdoor use, are not covered by the rule. These items will be evaluated in the Further Study Measure. The rule also does not apply to cookstoves.

---

### **Impact on Businesses and Public**

Rule 417 applies to the building industry, manufacturers and retailers of wood burning appliances, wood suppliers, commercial fireplace installations in locations such as hotels and restaurants, and consumers.

The proposed rule will require builders to either not build fireplaces or to install appliances compatible with the rule. While not installing any fireplace or wood burning appliance would save the builder cost, consumer demand in some cases is expected to require installation of some other option. Therefore, the cost to the builders will be the increased cost of purchasing and installing certified stoves or other units. The additional cost of installing a compliant wood burning appliance or other device in place of a traditional wood burning fireplace is between \$400-\$2500 per home, or for a projected 20,000 homes built per year, a total cost each year of \$3,120,000-\$19,500,000.

The cost of the additional equipment required by the builders is likely to be passed on to home buyers. However, the additional cost is less than 0.7% of the median price of a home in Sacramento County, and is not expected to have a large impact on the affordability of new houses or the housing market in general. Additionally, the use of required appliances will result in reduced fuel costs of \$43.73 to \$86.37 per year per household. The overall cost effectiveness is estimated to be \$4.19 per pound of PM10.

---

### **District Impacts**

The cost to the District consists of the additional staff time needed to evaluate building permits, perform inspections to ensure compliance with the rule, and the cost of providing educational information to wood burning appliance retailers. Staff estimates the proposed amendments will result in the need for an additional 0.41 FTE (full time equivalent), and \$2,200 per year for the production of educational information. Enforcement of the fireplace bans will require a review of building plans and random inspections to ensure compliance. This type of compliance program has been successfully carried out by other districts with few problems; similar success is anticipated for the District.

---

### **Emission Impacts**

The proposed rule will achieve reduction in the growth of the current projected emission inventory of at least 79.5 tons per year of PM10.

---

### **Environmental Review and Compliance**

Proposed Rule 417 does not create new requirements that may have an adverse effect on the environment. Pursuant to state CEQA Guidelines, the District's Environmental Coordinator finds that the adoption of the proposed rule is exempt from CEQA (Class 8 Categorical Exemption, Action by Regulatory Agencies for Protection of the Environment; §15308 State CEQA Guidelines).

California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. The proposed rule will not increase emissions and will not cause any significant adverse effects on the environment; therefore the Environmental Coordinator has concluded that no environmental impacts will be caused by compliance with the proposed rule.

---

### **Public Outreach**

Below is a summary of the public outreach undertaken by Staff to ensure that affected businesses and sources are aware of proposed Rule 417.

- Staff conducted a public workshop on August 14, 2006, at the District Offices. Staff published the notice of public workshop in the Sacramento Bee, and sent the notice to the Building Industry Association, the Architects Institute of America, several wood dealers, the Hearth, Patio & Barbecue Association, and persons who have requested rulemaking notices.
  - A meeting was held before the public workshop with the Sacramento Realtors Association on February 10, 2006, to brief them on the proposed rule and the effect it would have on them.
  - A meeting was held before the public workshop with the Building Industry Association on July 12, 2006, to brief them on the proposed rule and the effect it would have on them.
  - A notice for the public hearing was published in the Sacramento Bee on August 29, 2006. The notice was also mailed to attendees of the public workshop, affected industry sources, and persons who have requested rulemaking notices.
- 

### **Public Comments**

Staff received several comments at the workshop, and from meetings with affected

parties. These comments, together with the Staff responses, are presented in Appendix E of the staff report (page 15 of this Board Package). Several changes were made to the proposed rule and staff report in response to these comments:

- Modified the definition of a fireplace to include the following alternatives: a burn rate over 5 kilograms per hour, or over 800 kilograms in weight.
- Modified the definition of a masonry fireplace to reference the existing ASTM E 1602-03 definition.
- Removed the requirement for educational material to include information on proper sizing of appliances. Additionally, Staff has agreed to include information on the importance of homeowners keeping their stored wood dry and tips on how to properly store wood.

---

### Remaining Issues

Staff did not revise the proposal as requested by one commenter. Those comments requested a fireplace density restriction and explicit requirement to include in the required public education materials a preference for burning manufactured firelogs.

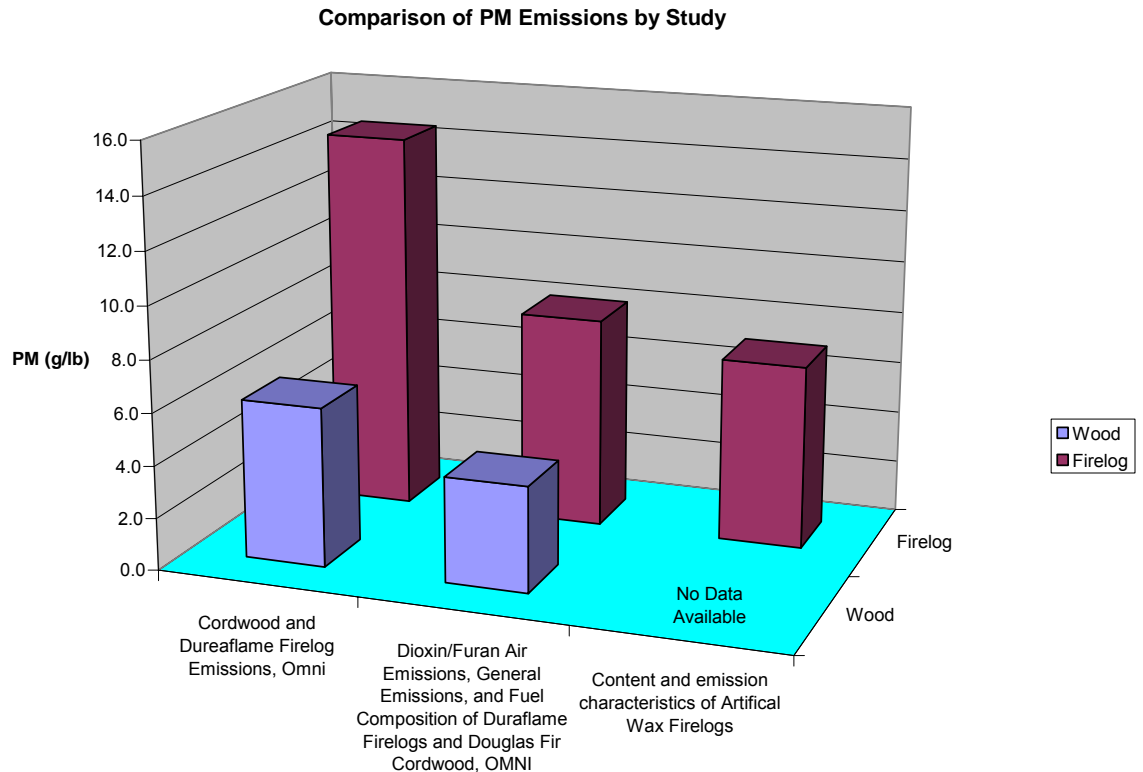
Density restriction - A comment was made requesting that the rule should allow 4 uncontrolled fireplaces per acre, instead of prohibiting installation of any new uncontrolled fireplaces proposed in the rule. San Joaquin Valley APCD has a density restriction which effectively bans the installation of uncontrolled fireplaces in all multi-unit housing and on lot sizes less than ½ acre, or multi unit housing), no fireplaces can be installed. This is half the requested density from the commenter. Staff does not recommend including any density restrictions for several reasons:

1. Other districts in the Sacramento area already have requirements similar to staff's proposal including Yolo Solano AQMD, Butte County AQMD, parts of Placer County and several cities. The Placer County APCD Board approved a commitment to expand that to the remainder of Placer County next year.
2. Other areas in the state have similar requirements, including Great Basin APCD (parts), San Luis Obispo County APCD, and several cities.
3. The District is expected to be designated nonattainment for the federal annual PM2.5 standard. The District will be required to apply Best Available Control Measures (BACM) to PM sources. Since other districts have implemented complete fireplace bans, this is likely to be considered by EPA BACM for fine particles, and the District would be required to implement it.
4. This request is analogous to allowing some new industrial sources to install dirty equipment and requiring other new industrial sources to install clean equipment. It is more effective to design for the cleanest technology available, rather than requiring retrofitting later. It also avoids the potential additional costs for retrofitting later.
5. All fireplaces installed under a density restriction would present additional exposure to the serious health effects of fine particles to neighboring residents and Sacramento County as a whole. Given the rapid population growth and

development in some rural communities, higher density developments adjacent to rural or lower density developments is likely and encouraged by Blueprint.

Preference for Manufactured Logs - A comment was made requesting that manufactured fire logs be included as a clean burning method. Staff does not recommend including this for several reasons:

1. While existing studies are used by the commenter to claim that manufacture logs are cleaner than wood, the validity of the claim can only be applied to a specific comparison of one manufactured fire log to a large wood fire. This comparison does not necessarily apply to all fire use situations.
2. On a pound for pound comparison, manufactured logs emit more pollutants than wood (see chart below).



3. EPA staff experts stated in a letter dated October 6, 2006 (Attachment D), that they cannot “state unequivocally that manufactured fire logs produce less air pollution than cordwood.” They also state that the EPA “will not be pursuing this matter further”.
-

**Conclusion**

The proposed Rule 417 will satisfy the requirements of state law (Health and Safety Code Section 39614) and cost effectively reduce growth in particulate matter emissions and associated serious health consequences. Staff recommends that the Board determine that Rule 417 is exempt from CEQA and approve the attached resolution adopting Rule 417 as proposed.

---

Respectfully Submitted

---

Larry Greene; Air Pollution Control Officer  
Sacramento Metropolitan  
Air Quality Management District

Approved as to form:

---

Kathy Pittard, District Counsel  
Sacramento Metropolitan  
Air Quality Management District

Attachments



**Attachment A**

**Board Resolution**

**Attachment B**

**Draft Rule 417**

**Attachment C**

**Staff Report**

**Attachment D**  
**Written Comments**

**Attachment E**  
**Evidence of Public Notice**