

SOCIOECONOMIC  
ANALYSIS  
PROPOSED RULE

REGULATION 6, RULE 3:  
CONTROLLING PARTICULATE MATTER AND VISIBLE  
EMISSIONS FROM WOOD-BURNING DEVICES

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Prepared for  
Bay Area Air Quality  
Management District

Prepared by

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# 1. DESCRIPTION OF THE PROPOSED RULE

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Regulation 6, Rule 3 (Controlling Particulate Matter and Visible Emissions from Wood-burning Devices) limits both emissions of particulate matter (PM) and visible emissions (VE) from wood-burning devices, as part of an overall wood smoke reduction program within the jurisdiction of the Air District. The proposed rule would reduce wintertime PM<sub>2.5</sub> levels by curtailing wintertime wood-burning emissions from wood-burning devices, which includes fireplaces, and achieve additional reductions by requiring cleaner burning technologies in new construction. In addition, non-wintertime burning will be improved by requiring appropriate fuel with low-moisture content be used throughout the year in woodburning devices.

Currently, there is no Air District rule which directly limits emissions from wood-burning devices. Air District Regulation 1 has historically excluded regulation of any fires associated with residential heating and will be amended to remove this exclusion. An amendment to existing Regulation 5, Open Burning, will remove an exemption for outdoor wood fires set for recreational purposes and create a similar requirement to curtail wintertime burning outdoor as well as indoor.

A wood-burning device is any indoor wood-burning stove or insert, pellet-fueled device, conventional fireplace and/or any indoor permanently-installed device burning solid-fuel for aesthetic or space-heating purposes in structures for residential or commercial use. The proposal for wood-burning devices would:

1. Curtail operation of any wood-burning device during periods forecast to negatively impact public health due to PM<sub>2.5</sub> levels;
2. Establish limitations on visible emissions from wood burning;
3. Establish criteria for the sale, transfer or installation of wood-burning devices;

4. Establish criteria for the installation of wood-burning devices in new building construction;
5. Prohibit the burning of garbage and certain types of materials;
6. Establish requirements for the sale of wood products for use in wood-burning devices.

## 2. IMPACT OF PROPOSED RULE AMENDMENTS

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This section of the socioeconomic analysis describes demographic and economic trends in the San Francisco Bay Area (Bay Area) region. Following an overview of the methodology for the socioeconomic analysis, the first part of this section compares the Bay Area against California and provides a context for understanding demographic and economic changes that have occurred within the Bay Area between 1996 and 2006. After an overview of Bay Area industries, we focus on households and industries impacted by the proposed Regulation 6, Rule 3.

For the purposes of this report, the Bay Area region is defined as Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

### METHODOLOGY

The socioeconomic analysis of the proposed wood-burning devices rule involves the use of information provided directly by BAAQMD, as well as secondary data used to describe the industries affected by the proposed rule amendments.

Based on information provided by BAAQMD staff, ADE determined that the impacts would affect households and businesses in a narrow set of industries. With this information we began to prepare economic descriptions of the industry groups of which the impacted sites are a part, as well as to analyze data on the number of jobs, sales levels, the typical profit ratios and other economic indicators for the Bay Area businesses. In addition, we collected demographic information of typical households living in various housing settings, from owner-occupied single-family homes to renters living in large apartment complexes.

With the annual reports and data from the US Economic Census and other sources such as US IRS, ADE was able to estimate revenues and profit ratios for many of the sites impacted by the proposed rule amendments. In calculating aggregate revenues generated by Bay Area businesses in

affected industries, ADE first estimated annual revenue based upon available data. Using annual reports and publicly available data, ADE calculated ratios of profit per dollar of sales for the businesses on which the analysis focused. ADE also utilized data from California's Board of Equalization.

The result of the socioeconomic analysis shows what proportion of profit the compliance costs represent. Based on a given threshold of significance, ADE discusses in the report whether the affected sites are likely to reduce jobs as a means of recouping the cost of compliance or as a result of reducing business operations. ADE also examines whether affected industries can pass costs to consumers. To the extent that such job losses appear likely, the indirect multiplier effects of the job losses area estimated using a regional IMPLAN input-output model.

With respect to impacts on households purchasing new homes with fireplaces that meet BAAQMD's proposed new guidelines, ADE gathered information from US Census, particularly 2006 American Community Survey (ACS) data on households in the nine-county Bay Area. ADE identified typical households in a variety of housing arrangements, from households in owner-occupied single-family homes to renters living in large apartment complex. ADE identified average household incomes for households in various housing arrangements, and based on this information, compared incremental cost impacts stemming from the new wood burning rule against household incomes, to analyze whether incremental cost impacts are significant when analyzed as a percent of household income.

## REGIONAL DEMOGRAPHIC TRENDS

The Bay Area experienced moderate population growth from 1996 to 2006. Between 1996 and 2001, the nine-county region increased by 1.3 percent annually, from 6.5 million in 1996 to almost 6.8 million in 2001. From 1996 to 2006, the population increase was from 6.5 million to close to 7.1 million for an increase of approximately one percent annually. Over the same period, California grew at a faster rate of 1.4 percent per year.

Within the Bay Area, the greatest percentage increase occurred in Contra Costa County. From 1996 to 2006 Contra Costa increased its population by nearly 1.7 percent annually. All other Bay Area counties had population increases slower than Contra Costa County and the State. The smallest percentage increase occurred in Marin County where population grew annually by 0.5 percent from 1996 to 2006.

**TABLE 1**  
**Population Growth: San Francisco Bay Area**

	Population			Percent Change		
	1996	2001	2006	96-01	01-06	96-06
California	32,222,873	34,441,561	37,195,240	1.3%	1.6%	1.4%
Bay Area	6,454,434	6,872,313	7,135,505	1.3%	0.8%	1.0%
Alameda County	1,356,339	1,465,753	1,509,981	1.6%	0.6%	1.1%
Contra Costa County	872,631	966,845	1,030,732	2.1%	1.3%	1.7%
Marin County	239,251	248,994	253,818	0.8%	0.4%	0.6%
Napa County	118,381	126,093	134,326	1.3%	1.3%	1.3%
San Francisco County	759,833	784,031	800,099	0.6%	0.4%	0.5%
San Mateo County	693,815	712,527	726,336	0.5%	0.4%	0.5%
Santa Clara County	1,620,744	1,701,665	1,780,449	1.0%	0.9%	0.9%
Solano County	371,453	401,662	421,542	1.6%	1.0%	1.3%
Sonoma County	421,987	464,743	478,222	1.9%	0.6%	1.3%

Source: Applied Development Economics, based on household population estimates from The California Department of Finance

## REGIONAL ECONOMIC TRENDS

The Bay Area is one of the world's greatest regional economies. It benefits from pre-eminent knowledge-based industries, with competitive strength flowing from an unmatched culture of entrepreneurship, world-leading research institutions, and some of the nation's best educated and most highly skilled workforce. With these remarkable advantages, it has led through innovation in a wide range of research and industrial fields. However, in the five year period between 2001 and 2006, the Bay Area economy has not grown significantly with respect to employment, which contrasts with robust employment growth in the Bay Area between 1996 and 2001.

As Table 2 shows, as of 2006, the professional and business services sector was the largest employer in the region, at 554,576 jobs or 17 percent of all private and public sector



jobs. This is a change from 1996 when professional and business services accounted for 16 percent of all Bay Area employment. While professional and business service increased annually by a rapid rate of four percent between 1996 and 2001, between 2001 and 2006 employment actually declined in this sector by an annual clip of two percent. The broad category of Trade, Transportation and Utilities also boasts large workforce at 17 percent of total public and private employment; but a large part of this category consists of workers in Retail, a sub-sector within Trade, Transportation and Utilities. Another large industry in the Bay Area is public service, or government, with 442,000 jobs, or almost 14 percent of the total. Within the public sector, employment has risen fastest since 2001 in state government, whereas local government employment barely grew at a 0.2 percent annual pace between 2001 and 2006, and employment in federal agencies declined over the five year period. Employment in manufacturing accounted for slightly over 10 percent of total employment, but this sector declined significantly between 2001 and 2006, dropping annually by over five percent. Overall, since 2001, total public and private employment dropped by slightly over one percent a year, going from 3,484,800 workers in 2001 to 3,275,600 workers in 2006.

**TABLE 2**  
**Employment Profile of the San Francisco Bay Area, 1996-2006**

<b>Industry</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>	<b>% of Total Employment in 2006</b>	<b>% Change 1996 - 2001</b>	<b>% Change 2001 - 2006</b>
Total, all private industries	2,654,847	3,047,015	2,833,513		2.8%	-1.4%
Goods-Producing	612,549	682,135	567,697		2.2%	-3.6%
Natural Resources and Mining	26,861	29,517	22,760	0.7%	1.9%	-5.1%
Construction	128,937	192,338	192,897	5.9%	8.3%	0.1%
Manufacturing	456,754	460,281	352,040	10.7%	0.2%	-5.2%
Service-Providing	2,042,295	2,364,884	2,265,815		3.0%	-0.9%
Trade, Transportation, and Utilities	563,672	608,241	561,357	17.1%	1.5%	-1.6%
Information	96,876	147,581	112,820	3.4%	8.8%	-5.2%
Financial Activities	194,069	208,854	213,378	6.5%	1.5%	0.4%
Professional and Business Services	509,591	619,989	554,576	16.9%	4.0%	-2.2%
Education and Health Services	285,917	337,874	360,678	11.0%	3.4%	1.3%
Leisure and Hospitality	273,778	304,944	320,772	9.8%	2.2%	1.0%
Other Services	117,887	131,398	142,238	4.3%	2.2%	1.6%
Government Ownership:						
Federal Government	83,162	57,652	53,001	1.6%	-7.1%	-1.7%
State Government	108,771	81,895	87,874	2.7%	-5.5%	1.4%
Local Government	231,635	298,251	301,173	9.2%	5.2%	0.2%
<b>Total, all public and private industries</b>	<b>3,078,415</b>	<b>3,484,813</b>	<b>3,275,561</b>	<b>100.00%</b>	<b>2.5%</b>	<b>-1.2%</b>

Source: Applied Development Economics from data supplied by the Labor Market Information Division of the California Employment Development Department

## DESCRIPTION OF AFFECTED HOUSEHOLDS AND INDUSTRIES

Proposed Regulation 9, Rule 3 potentially affects particular wood products manufacturers, retailers, and households in the Bay Area. Table 3 below identifies wood product manufacturers in the San Francisco Bay Area. Table 3 shows that this industry has declined since 2001 in terms of number of businesses and employment. It is important to note that, while there are a number of wood products manufacturers in the region served by the BAAQMD, none actually manufacture fire logs and other products subject to the proposed regulation.

**TABLE 3**  
**Wood Products Manufacturing Industries: Nine-County San Francisco Bay Area, 2001-2006**

NAICS Code	Description	2001		Average Size	Avg Wages
		Establishments	Employment		
3219	Other wood product manufacturing	190	2,706	14	\$36,548
32191	Millwork	83	980	12	\$42,541
3219x	Rest of "Other wood product" excluding millwork	107	1,726	16	\$33,145
21999	All other miscellaneous woods products manufacturing	28	216	8	\$34,623

NAICS Code	Description	2006		Average Size	Avg Wages
		Establishments	Employment		
3219	Other wood product manufacturing	147	2,167	15	\$38,401
32191	Millwork	75	850	11	\$43,163
3219x	Rest of "Other wood product" excluding millwork	72	1,317	18	\$35,328
21999	All other miscellaneous woods products manufacturing	20	146	7	\$37,561

NAICS Code	Description	2001-2006 Change		Average Size	Avg Wages
		Establishments	Employment		
3219	Other wood product manufacturing	-43	-539	1	\$1,854
32191	Millwork	-8	-130	0	\$623
3219x	Rest of "Other wood product" excluding millwork	-35	-409	2	\$2,183
21999	All other miscellaneous woods products manufacturing	-8	-70	-1	\$2,938

Source: Applied Development Economics, based on Minnesota IMPLAN Group 2001-2006 ES202 dataset. [Note: there are no fire log manufacturing plants in the 9-county SF Bay Area. Duraflame and Jarden's Java Logs are based outside of the region.]

While there are no manufacturers of fire logs in the nine-county Bay Area, there is a major manufacturing and wholesale distribution facility in Stockton, California, which is operated by Duraflame. In addition to Duraflame, Bay Area consumers purchase fire logs from producers located outside of the San Francisco Bay Area-San Joaquin County region, if not the State of California.

Table 4 includes an estimate on the total value of fire logs sold in the nine-county Bay Area to consumers. This value is based on an estimate on number of fire logs used by consumers in the region. Table 4 shows that fire log sales amount to a \$203.9 million market. Fire log producers generate an estimated \$6.9 million in net profits. The table below shows that annual aggregate costs resulting from the proposed regulation will amount to \$3.3 million per year in the first five years after rule adoption. At \$3.3 million,

aggregate costs amount to almost half of net profits generated by affected wood products manufacturers, none of whom, it is worth noting, are in the nine-county Bay Area. More than likely, fire log producers including Duraflame will pass costs to retailers as affected manufacturers can not sustain these cost impacts to their respective profits. The analysis below demonstrates that there will be little to no significant impacts to retailers and consumers who must ultimately bear added costs stemming from the proposed rule.

**Table 4. Profile of All Fire-Log Producers Serving SF Bay Area Market**

Market	All firelog producers, including Duraflame
Est. Revenues	\$203,950,133
Market Share	
Est. Net Profits	\$6,954,700
Initial Annual Compliance Cost (\$0.05 per log)	\$3,365,177
Initial Cost to Estimated Net Profits	48.4%
Significant	yes
<b>Costs Passed on To Retailers</b>	<b>\$3,365,177</b>

Source: Applied Development Economics, based on Dun and Bradstreet, Duraflame, Conros Corp., Jarden Corp., BAAQMD, US Economic Census 2002 and US Census County Business Patterns, Fundinguniverse.com; and, US Internal Revenue Service.

**Table 5. Total Annual Costs of All Affected Fire-log Manufacturers Passed Onto Retailers in the Nine-County San Francisco Bay Area Region**

	All	Gen Merch Stores	Drug Stores	Food Stores	Lumber\Bldg Materials	Hardware Stores
Stores	5,919	2,208	727	1,462	1,083	439
Taxable Sales	\$21,155,256,048	\$10,662,100,000	\$1,725,058,048	\$2,889,891,000	\$4,954,219,000	\$923,988,000
Actual Sales	\$187,349,822,622	\$174,788,524,590	\$2,755,683,782	\$3,926,482,337	\$4,954,219,000	\$924,912,913
Net Profit Rate	2.72%	2.73%	2.68%	1.47%	3.67%	1.76%
Est. Net Profits	\$5,101,396,642	\$4,771,726,721	\$73,852,325	\$57,719,290	\$181,819,837	\$16,278,467
Initial Annual Cost Passed to Retailers By Fire-Log Producers	\$3,365,177	\$983,595	\$323,856	\$1,379,723	\$482,443	\$195,561
Costs as Percent of Net Profits	0.07%	0.02%	0.44%	2.39%	0.27%	1.20%
Significant	no	no	no	no	no	no

Source: ADE, Inc., based on BAAQMD, California Board of Equalization, ADE Retail Model, US IRS

Table 5 above identifies the type and number of retailers in the Bay Area that potentially sell fire logs. The type of retailer that sell fire log is based on information presented by Duraflame. Table 5 above shows that there are 5,919 retailers in five broad retail categories that potentially sell fire logs. According to California's Board of Equalization, these retailers generated \$21 billion in taxable sales in 2006. Factoring in non-taxable sales, these retailers generated an estimated \$187 billion in retail sales, from which was generated an estimated \$5.1 billion in aggregate profits. At \$3.3 million per year over the first five years after rule adoption, the estimated cost amounts to 0.07 percent of aggregate net profits. Also, within the particular retail segments affected by the rule, cost-to-net profit ratios are similarly low. In other words, impacts to retailers are not significant. Thus, impacted stores might not pass costs onto ultimate end-users, the consumer. While impacts to retailers are less than significant, given that both locally-owned and national retailers typically operate on low profit margins, there is still a possibility that affected retailers will pass costs stemming from the proposed regulation to consumers. For this reason, below we analyze a scenario in which costs are passed on in case this does happen.

### **Household Trends and Impacts**

As Table 6 shows, there are 2.5 million households in the nine-county Bay Area. Of these households, 1.5 million live in owner-occupied housing in which households maintain a mortgage. Of these 1.5 million households, the bulk live in single-family units, or 1.3 million households. Table 6 also shows that there are over 1 million renting households in the Bay Area.

**Table 6. Profile of Households By Housing Type, Tenure, and Average Household Income**

	<b>Number of Households</b>	<b>Percentage of households with woodburning appliance</b>	<b>Distribution of wood-burning appliances by housing type and tenure</b>	<b>Number of households with woodburning appliance</b>	<b>Average Household Income: all households</b>	<b>Average Household Income: owner-occupied mortgage</b>	<b>Average Household Income: owner-occupied no mortgage</b>	<b>Average Household Income: renter-occupied</b>
Total Housing Units	2,519,760	48%		1,209,485				
Owner occupied:	1,507,511				\$93,634	\$126,345	\$65,778	na
1, detached or attached	1,335,577		100%	1,066,968	\$122,230	\$132,790	\$87,127	na
2 to 4	42,950		0%	0	\$111,654	\$121,301	\$79,588	na
5 to 9	31,746		0%	0	\$83,582	\$90,802	\$59,577	na
10 or more	52,515		0%	0	\$59,328	\$54,891	\$36,015	na
Mobile home and all other units	44,723		0%	0	\$44,045	\$47,850	\$31,396	na
Renter occupied:	1,012,249		0%	0	\$59,882	na	na	\$59,882
1, detached or attached	296,909		100%	142,516	\$77,652	na	na	\$77,652
2 to 4	176,792		0%	0	\$62,073	na	na	\$62,073
5 to 9	130,672		0%	0	\$50,111	na	na	\$50,111
10 or more	399,274		0%	0	\$49,200	na	na	\$49,200
Mobile home and all other units	8,601		0%	0	\$45,767	na	na	\$45,767

Source: Applied Development Economics, based on US Census ACS 2006, Association of Bay Area Governments, and BAAQMD (see "Woodburning appliances in the SFBA", page 1 and "Revised Est. of Wood Burning in SFBA", page 13)

Data in Table 6 above is also broken into three broad categories of “mortgage,” “no mortgage,” and “renters” as incomes for households in each of these broad categories typically differ even when adjusted for housing unit type (i.e. single-family units, duplex, small apartment, mid-sized apartment, and large apartment). Thus, the average household income for households in owner-occupied unit living situations with a mortgage is \$126,345 versus \$65,778 for households without a mortgage. Because spending on a wide variety of goods varies with income, it is important to characterize average household incomes as accurately as possible. Table 6 shows that, of the 2.5 million households in the Bay Area, an estimated 48 percent utilize fire places or wood burning stoves. According to the BAAQMD, almost all of these fire places are in single-family dwelling units. Thus, of the 2.5 million households, 1.2 million have fire places and wood stoves that are potentially subject to the proposed regulation.

In the event retailers pass costs to households, households will bear an estimated \$3.5 million in annual costs over the first five years after rule adoption. This figure is based on the aggregate annual number of logs burned by the 1.2 million households, which is then multiplied against the \$0.05 per log cost (in addition to a certain mark-up for retailers). When the \$3.5 million amount is translated on a per household basis, we arrive at an annual cost of \$2.92 per household. Table 8 is similar to Table 7 except that it analyzes cost impacts stemming from annual compliance costs five years after rule adoption. In both instances, impacts to households are very small.



**Table 7. Aggregate and Per Households Passed to Households: San Francisco Bay Area**

		Total Households Living in SFU	Woodburning Households Living in SFU	Annual average # of logs per day per household		Annual aggregate # of logs per day per All wood-burning household		Initial Annual Cost of Compliance (\$0.05 per label)		Total Unit Cost	Aggregate Annual Cost Borne By All Woodburning Households	Annual Cost Per Woodburning Household
				fireplaces	woodstoves	fireplaces	woodstoves	Markup	Markup			
		1,632,486	1,209,485			61,631,520	5,672,024	\$0.05	0.25%	\$0.053	\$3,533,436	\$2.92
Owner-occupied	1, detached or attached	1,335,577	1,066,968	0.13	0.07	54,811,801	4,973,967	\$0.05	0.25%	\$0.053	\$3,138,753	\$2.94
Renter-occupied	1, detached or attached	296,909	142,516	0.13	0.07	6,819,719	698,057	\$0.05	0.25%	\$0.053	\$394,683	\$2.77

Source: Applied Development Economics, based on US Census ACS 2006, ABAG, and BAAQMD

**Table 8. Aggregate and Per Households Passed to Households: Five Years After Rule Adoption: San Francisco Bay Area**

		Total Households Living in SFU	Woodburning Households Living in SFU	Annual average # of logs per day per household		Annual aggregate # of logs per day per All wood-burning household		Initial Annual Cost of Compliance (\$0.05 per label)		Total Unit Cost	Aggregate Annual Cost Borne By All Woodburning Households	Annual Cost Per Woodburning Household
				fireplaces	woodstoves	fireplaces	woodstoves	Markup	Markup			
		1,632,486	1,209,485			61,631,520	5,672,024	\$0.02	0.25%	\$0.023	\$1,514,330	\$1.25
Owner-occupied	1, detached or attached	1,335,577	1,066,968	0.13	0.07	54,811,801	4,973,967	\$0.02	0.25%	\$0.023	\$1,345,180	\$1.26
Renter-occupied	1, detached or attached	296,909	142,516	0.13	0.07	6,819,719	698,057	\$0.02	0.25%	\$0.023	\$169,150	\$1.19

Source: Applied Development Economics, based on US Census ACS 2006, ABAG, and BAAQMD

Table 9 below expresses annual costs as a percent of household incomes. As the table demonstrates, impacts are significantly below one percent, meaning that, more than likely, consumers will not be impacted by costs stemming from the proposed regulation.

**Table 9. Costs as a Percent of Household Income**

	Annual Cost as Percent of Income			Annual Cost as Percent of Income (Five Years After Rule Adoption)		
	Owner-occupied household with mortgage	Owner-occupied household with no mortgage	Renter households	Owner-occupied household with mortgage	Owner-occupied household with no mortgage	Renter households
Owner-occupied 1, detached or attached	0.002%	0.003%		0.001%	0.001%	
Renter-occupied 1, detached or attached			0.004%			0.002%

Source: Applied Development Economics, based on US Census ACS 2006, ABAG, and BAAQMD

### Impacts to purchasers of new homes: \$500 per fire place unit impact

The proposed regulation will also affect construction of new homes. Once adopted, home builders will no longer be able to include wood burning fire places in their new units. Instead, they will be required to include natural gas-fired fire places, for those who choose to include fire places in their respective new units. The cost of a new fire place subject to the new proposed regulation is an estimated \$500. Table 10 analyzes what impacts, if any, a \$500 fire place will have on households interested in purchasing new single-family and multi-family units (i.e. condominiums and townhouses). Data in Table 10 comes from Realtor.com, and is broken down by various housing sub-markets within the nine-county region. The table includes median home prices and the minimum incomes needed to afford new homes at the median price point.

**Table 10. Impact of \$500 on New Single-Family and Multi-Family Dwelling Units: Housing Affordability**

Housing Sub-Market	Original Median Price		Qualifying Household Income before rule	
	New Single-Family Unit	New Condo\Townhouse	New Single-Family Unit	New Condo\Townhouse
San Jose-Campbell-Cupertino-Los Gatos-Milpitas-Morgan Hill-Santa Clara-Sunnyvale-Saratoga	\$965,000	\$584,488	\$263,516	\$159,608
San Francisco-Oakland	\$729,000	\$569,990	\$199,070	\$155,649
Santa Rosa-Healdsburg-Sebastapol-Rohnert Park-Windsor	\$509,975	\$428,285	\$139,260	\$116,953
Antioch-Blackhawk-Brentwood-Concord-Pittsburg-Pleasant-San Ramon-Suisun	\$734,900	\$507,335	\$200,681	\$138,540
Livermore-Danville-Dublin-Sunol	\$899,000	\$499,000	\$245,493	\$136,263

  

Housing Sub-Market	Median Price Post \$500		Qualifying Household Income after rule	
	New Single-Family Unit	New Condo\Townhouse	New Single-Family Unit	New Condo\Townhouse
San Jose-Campbell-Cupertino-Los Gatos-Milpitas-Morgan Hill-Santa Clara-Sunnyvale-Saratoga	\$965,706	\$585,053	\$263,708	\$159,762
San Francisco-Oakland	\$729,706	\$570,555	\$199,263	\$155,803
Santa Rosa-Healdsburg-Sebastapol-Rohnert Park-Windsor	\$510,681	\$428,850	\$139,453	\$117,107
Antioch-Blackhawk-Brentwood-Concord-Pittsburg-Pleasant-San Ramon-Suisun	\$735,606	\$507,900	\$200,874	\$138,694
Livermore-Danville-Dublin-Sunol	\$899,706	\$499,565	\$245,686	\$136,418

  

Housing Sub-Market	Impact: Change in Qualifying Household Income		Impact: Percent Change Qualifying Household Income	
	New Single-Family Unit	New Condo\Townhouse	New Single-Family Unit	New Condo\Townhouse
San Jose-Campbell-Cupertino-Los Gatos-Milpitas-Morgan Hill-Santa Clara-Sunnyvale-Saratoga	\$193	\$154	0.07%	0.10%
San Francisco-Oakland	\$193	\$154	0.10%	0.10%
Santa Rosa-Healdsburg-Sebastapol-Rohnert Park-Windsor	\$193	\$154	0.14%	0.13%
Antioch-Blackhawk-Brentwood-Concord-Pittsburg-Pleasant-San Ramon-Suisun	\$193	\$154	0.10%	0.11%
Livermore-Danville-Dublin-Sunol	\$193	\$154	0.08%	0.11%

As Table 10 above shows, the \$500 per fireplace impact would alter qualifying income very little. Prior to rule adoption, households interested in purchasing a new median-priced single-family home (\$965,000) in the San Jose-Silicon Valley sub-market needs at least \$263,500, assuming 20 percent down and an interest rate of 6.5 percent. After rule adoption, the qualifying income rises to \$263,700, for a change of less than one percent (or 0.07 percent). Across the board, impacts stemming from the rule do not affect housing affordability.

Table 11 below is included to show how a 25 basis points change in the interest rate, from 6.5 percent to 6.75 percent, impacts housing affordability. Changes in interest rates by 25 basis points alter minimum qualifying incomes by approximately 2.13 percent for households interested in purchasing new median-priced single-family homes. Interest rate changes also affect households interested in purchasing new median-priced town houses or condominiums. In short, larger market forces with respect to interest rates and overall home prices exert greater influence on housing affordability than the \$500 per fireplace impact associated with the BAAQMD's proposed wood-burning rule.

**Table 11. Impact of 25 Basis Point Change in Interest Rate on New Single-Family and Multi-Family Dwelling Units:  
Housing Affordability**

Housing Sub-Market	Median Price		Qualifying Household Income at 6.5% interest	
	New Single-Family Unit	New Condo\Townhouse	New Single-Family Unit	New Condo\Townhouse
	San Jose-Campbell-Cupertino-Los Gatos-Milpitas-Morgan Hill-Santa Clara-Sunnyvale-Saratoga	\$965,000	\$584,488	\$263,516
San Francisco-Oakland	\$729,000	\$569,990	\$199,070	\$155,649
Santa Rosa-Healdsburg-Sebastapol-Rohnert Park-Windsor	\$509,975	\$428,285	\$139,260	\$116,953
Antioch-Blackhawk-Brentwood-Concord-Pittsburg-Pleasant-San Ramon-Suisun	\$734,900	\$507,335	\$200,681	\$138,540
Livermore-Danville-Dublin-Sunol	\$899,000	\$499,000	\$245,493	\$136,263

  

Housing Sub-Market	Median Price		Qualifying Household Income at 6.75% interest	
	New Single-Family Unit	New Condo\Townhouse	New Single-Family Unit	New Condo\Townhouse
	San Jose-Campbell-Cupertino-Los Gatos-Milpitas-Morgan Hill-Santa Clara-Sunnyvale-Saratoga	\$965,000	\$584,488	\$269,118
San Francisco-Oakland	\$729,000	\$569,990	\$203,303	\$158,958
Santa Rosa-Healdsburg-Sebastapol-Rohnert Park-Windsor	\$509,975	\$428,285	\$142,221	\$119,440
Antioch-Blackhawk-Brentwood-Concord-Pittsburg-Pleasant-San Ramon-Suisun	\$734,900	\$507,335	\$204,948	\$141,485
Livermore-Danville-Dublin-Sunol	\$899,000	\$499,000	\$250,712	\$139,161

  

Housing Sub-Market	Impact: Change in Qualifying Household Income		Impact: Percent Change Qualifying Household Income	
	New Single-Family Unit	New Condo\Townhouse	New Single-Family Unit	New Condo\Townhouse
	San Jose-Campbell-Cupertino-Los Gatos-Milpitas-Morgan Hill-Santa Clara-Sunnyvale-Saratoga	\$5,603	\$3,393	2.13%
San Francisco-Oakland	\$4,232	\$3,309	2.13%	2.13%
Santa Rosa-Healdsburg-Sebastapol-Rohnert Park-Windsor	\$2,961	\$2,487	2.13%	2.13%
Antioch-Blackhawk-Brentwood-Concord-Pittsburg-Pleasant-San Ramon-Suisun	\$4,267	\$2,945	2.13%	2.13%
Livermore-Danville-Dublin-Sunol	\$5,219	\$2,897	2.13%	2.13%

## IMPACT ON SMALL BUSINESS

### DEFINITION OF SMALL BUSINESS PER CALIFORNIA STATUTE

For purposes of qualifying small businesses for bid preferences on state contracts and other benefits, the State of California defines small businesses in the following manner:

- Must be independently owned and operated;
- Cannot be dominant in its field of operation;
- Must have its principal office located in California
- Must have its owners (or officers in the case of a corporation) domiciled in California; and,
- Together with its affiliates, be either:
  - A business with 100 or fewer employees, and an average gross receipts of \$10 million or less over the previous tax years, or
  - A manufacturer with 100 or fewer employees

### SMALL BUSINESS IMPACT ANALYSIS

The analysis above shows that impacts stemming from the \$0.05 label are less than significant, particularly from the vantage point of the ultimate end-user of fire logs, namely households. In addition, the analysis shows that impacts to purchasers of new homes subject to the proposed regulation are not significantly impacted. As a result, there are no secondary impacts resulting from changes in household spending habits, meaning small businesses, particularly retail and services, are not disproportionately impacted by the rule.