



MUSTEL GROUP
MARKET RESEARCH

Inventory of Wood-burning Appliance Use in British Columbia

Report of Findings

February 2024

Presented to:



British Columbia Lung Foundation

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Executive Overview

Introduction

The BC Lung Foundation commissioned Mustel Group to conduct a province-wide survey of British Columbia residents regarding the use of residential wood-burning appliances. The questionnaire is based on those used in similar surveys conducted in 2003 and 2012 and is designed primarily to assist BC Lung Foundation, the Ministry of Environment and Climate Change Strategy, and Metro Vancouver Regional District in better understanding the incidence of wood-burning appliances across the province and frequency of use. The key findings are summarized in this executive overview. Further details are presented in the *Detailed Findings* section.

This report and the underlying methodology have been reviewed by staff of the B.C. Ministry of Environment and Climate Change Strategy (ENV), Metro Vancouver Regional District (MVRD), and BC Lung Foundation (BC Lung). In addition, ENV, MVRD, and BC Lung provided significant input into the questionnaire. However, the final methodology of the survey and the conclusions expressed in this report are those of the authors and may or may not be supported by ENV, MVRD, and BC Lung.

Funding for this research was provided by BC Lung, ENV, and MVRD.

Summary of Key Survey Findings

Incidence of Wood Burning Appliances

Among British Columbia households, the most common main source of domestic heat is natural gas (47%). For 37%, electricity is the main source of heat, while 8% rely on a heat pump, and 4% on wood or wood pellets.

Across the province overall, 15% of homes currently burn wood or wood pellets in a fireplace, wood stove or other wood burning appliance as a main or secondary source of domestic heat; of these 15%, 59% of those are in rural areas and 41% in urban areas.

By region, wood burning households incidence is highest in the Cariboo with 40%, and lowest in the Metro Vancouver region with just 5%.

Overall, among the 15% of wood burning households, approximately 14% of all the heat generated in-home comes from burning wood or pellets. Across the province, this ranges from <1% in the Metro Vancouver region to 27% in the Cariboo region.

The most common wood burning appliance – used by approximately half of all households – is a wood stove (46%). Next most common is a wood fireplace (42%), followed by a wood burning insert (17%). A further 10% use a pellet stove or furnace, and about 8% use a wood burning central heating system.

Most households have just one fireplace or insert (74% and 86% respectively), with an average age of 30 years for fireplaces and 15 years for inserts. The regions of Metropolitan Vancouver, the Fraser Valley Regional District and Thompson Okanagan are slightly more likely than those in the West Coast to have more than one fireplace. There is no regional difference among households with inserts.

Among users of wood burning inserts, 67% are known to be U.S. EPA emission certified or CSA B415 emission certified, compared with 65% of woodstoves, 67% of wood burning furnaces or boilers, and 61% of pellet stoves.

Wood as a Fuel

On average, users of pellet stoves burn about thirty-eight standard (40 pound) bags of pellets over the course of twelve months.

Close to one-half of users will burn one cord of wood or less over the course of a year (45%), while about one-third will burn between one and three cords (32%); approximately one-in-five users burn more than three cords (20%). The median average for the province is one to one and a half cords of wood over the past twelve months.

In the past year, of all wood burned in homes excluding pellets, more than forty percent was burned in wood stoves (44%) and about one-third in fireplaces (36%). The most common species of wood burned are Douglas Fir (53%), Cedar (33%), and Pine (32%).

Nearly one-half of all users gather or purchase their firewood during the Fall (46%). Approximately four-in-ten do so in the Summer (42%), one-third in the Spring (35%), and just one-in-five during the winter (21%). The majority will typically dry or season the wood for six months or more (72%) and will have it split before doing so (84%). Most store their wood in a woodshed (51%) or outdoors in a covered pile or stack (48%).

Wood Burning Behaviour

The major reasons for using a wood burning appliance include the reliability of using wood as a heat source in the event of power outages (52% rate this as a major reason), and that wood supply is readily available (45% rate this as a major reason).

Over the past year, users would have a fire burning an average of just over four days per week during the winter months (4.4), and slightly less than two days during the fall and spring (average of 1.9 and 1.6 days respectively), with little to no use during the summer months.

Installation of New Appliances

Among the equipment current wood burners would most seriously consider installing in the next three years, the most common is a heat pump, mentioned by one-quarter of residents (25%). Less than one-in-ten would consider a wood heater or pellet stove (7%), and roughly 3% would consider a gas stove. About 13% would consider replacing or upgrading parts of existing heating equipment.

Improving fuel efficiency, replacing aging equipment, and cost savings are the most common reasons given for considering the installation of new equipment.

Incentives, Bylaws and Programs

About three-quarters of all users are aware of the cash incentives available in many BC communities for upgrading to newer, more efficient, cleaner home heating appliances such as a heat pump or certified wood or pellet stove (75%).

Overall awareness of the provincial wood stove exchange program is relatively low, with just one-quarter aware of it (26%), including 4% who have participated in the program.

When presented with a series of incentives for replacing or upgrading existing wood burning equipment, approximately four-in-ten residents would be more likely to upgrade or replace their wood burning equipment should these incentives be offered (41%), including 18% who would be “very” likely to.

Overall, just over one-half of users are aware that all new wood burning stoves sold in British Columbia are mandated by law to be certified to lower emission levels to reduce smoke (55%).

Specifically in Metro Vancouver, just 16% of residents are aware of Metro Vancouver’s Residential Indoor Wood Burning Bylaw, the majority of whom are also aware of the

requirement to comply with best burning practices (75%) and the residential wood burning prohibition between May 15 and September 15 every year (60%).

Among the 16% above, awareness of the other Bylaw requirements is lower, with just one-half aware of the need to register eligible wood burning equipment in use (51%), four-in-ten aware of the need to submit a declaration of best burning practices before using an appliance (40%), and just three-in-ten aware of upcoming prohibition on the use of unregistered residential wood burning appliances in urban areas (31%).

Smoke Emissions

Chimney smoke is a concern for about one-in-ten residents across the province (10% total concerned), with the main concerns being its impact on health, the environment, and the smell.

Of the suggested actions to reduce the amount of smoke from residential wood burning, all actions garnered support from nearly one-half of residents, with “Providing a cash back incentive for removing old wood stoves and wood inserts” receiving the most support overall (59% support, including 33% strongly and 25% somewhat), and “Establishing emission control requirements through a local bylaw” receiving the least (45% support, including 23% strongly and 23% somewhat).

Strongest support is expressed for “Restricting wood burning on poor air quality days”, with about one-third strongly supporting this measure (36%), followed closely by “Providing a cash back incentive for removing old wood stoves and wood inserts” (33% strongly support).

Apart from “Providing a cash back incentive for removing old wood stoves and inserts”, support for any action to reduce smoke from residential wood burning is higher in Metro Vancouver compared on average to the rest of the province (52% total support for “Establishing emission control requirements through a local bylaw” and “Fines for generating excessive smoke”, 64% total support for “Restricting wood burning on poor air quality days”, and 53% for “Requiring the removal or upgrade of older high polluting appliances when a house is sold”).

In terms of perceived contributors to air pollution, “Transportation” is rated most often as a medium to high contributor (63%), followed by “Industry” (43%), “Open Burning” (29%), and finally, “Residential wood burning” (21%).

Most residents across the province describe the air quality in the area in which they live as good (91%), including nearly one-half who rate it as “almost always good” (47%), and more than four-in-ten who rate it as “good most of the time, poor on occasion” (44%).

Foreword

Background & Objectives

The BC Lung Foundation commissioned Mustel Group to conduct a province-wide survey of British Columbia residents regarding the use of residential wood-burning appliances. The questionnaire is based on those used in similar surveys conducted in 2003 and 2012 and is designed primarily to assist the Ministry of Environment and Climate Change Strategy and Metro Vancouver Regional District in better understanding the incidence of wood-burning appliances across the province and frequency of use.

More specifically, the objectives of the survey are to enable the Ministry and Metro Vancouver:

- To determine the number and type of domestic wood-burning appliances in use in the province and Metro Vancouver,
- to estimate emissions of air pollutants from wood-burning,
- to measure perceptions about residential wood burning and the degree to which smoke from residential wood burning impacts residents in communities across the province,
- to gauge the extent to which Metro Vancouver residents are familiar with residential wood burning bylaws, and
- to guide outreach and education campaigns targeting wood-burners.

Methodology

As in the 2012 survey, a mixed-mode approach was used to maximize the number of interviews completed within budget.

The main method of data collection was a random telephone survey, used initially to determine the incidence of wood-burning appliance users across the province. A web survey, which can be a more cost-efficient method than a telephone survey to target low incidence respondents, was used to ensure a large enough sub-sample of users could be obtained.

Sampling

As in previous survey waves, the approach to sampling was to set disproportionate targets for each region and sub-region, with an approximate ratio of two-thirds users (wood burning households) to one-third non-users (non-wood burning households).

To establish the actual incidence of users, surveys were conducted at random with both users and non-users and proportions of completed surveys were monitored up until the point that the smaller non-user targets were reached. Once the non-user targets were reached, those quota cells closed and surveys were only completed with users (an over-sample). However, to increase the accuracy and reliability of the incidence of users, households determined to be non-users through the screening process in the telephone survey were included in final incidence calculation.

While the incidence of users of wood-burning appliances varies by region, the overall incidence for the province is 15%.

The eight main regions and eighteen sub-regions, as defined by the BC Lung Foundation and the Ministry of Environment and Climate Change Strategy, were geo-mapped and random samples of households were drawn for each area, using a regularly updated database of published, residential telephone listings combined with cell phone sample to ensure broad coverage across the province. Within each household the eligible respondent was identified as the person most knowledgeable about their home heating equipment. Up to six calls attempts were made to each telephone record to complete an interview with each household/respondent selected, a measure used to minimize potential non-response bias.

While the telephone survey was being conducted, a total of 1,081 surveys were completed among users via an online survey, programmed and hosted by Mustel Group and utilizing Mustel Group's proprietary panel, Giving Opinions, a randomly recruited online panel of British Columbia residents, supplemented by reputable Canadian panel sample suppliers.

Results

Overall, a total of 2,927 interviews were completed, 1,840 with users and 1,087 with non-users. The following disproportionate sampling distribution was achieved by major region:

	Total	MoE*	Wood Burning Households	MoE*	Non-Wood Burning Households	MoE*
Total	2,927	+/- 1.8	1,840	+/- 2.3	1,087	+/- 3.6
Northern Region (Omineca, Skeena and Northeast)	353	+/- 5.2	234	+/- 6.4	119	+/- 9
Cariboo Region	274	+/- 5.9	179	+/- 7.3	95	+/- 10.1
Thompson/Okanagan Region	425	+/- 4.7	266	+/- 6.0	159	+/- 7.8
Kootenay/Boundary Region	328	+/- 5.4	220	+/- 6.6	108	+/- 9.4
Fraser Valley Regional District	182	+/- 7.3	110	+/- 9.3	72	+/- 11.6
South Coast Region	183	+/- 7.2	121	+/- 8.9	62	+/- 12.5
West Coast Region	536	+/- 4.2	367	+/- 5.1	169	+/- 7.5
Metro Vancouver	646	+/- 3.9	343	+/- 5.3	303	+/- 5.6

* Margin of Error at the 95% level of confidence

Statistical tolerance limits (or sampling margin of error) are displayed in the table above at the 95% confidence level. Please note that sampling margin of error applies to probability sampling only.

At the data processing stage results were weighted back into proportion according to known incidence levels of users versus non-users and according to known estimates from Statistics Canada of the number of households in each region and sub-region (per 2021 census stats). Base sizes shown in graphs and tables of this report reflect the actual, rather than weighted number of interviews completed.

Following is a more detailed table of completed surveys by sub-region (unweighted vs. weighted):

		Total		Wood Burning Households		Non-Wood Burning Households	
		Actual	Weighted	Actual	Weighted	Actual	Weighted
Total		2927	2927	1840	436	1087	2491
Northern Region (Omineca, Skeena and Northeast)	Prince George	134	54	87	14	47	40
	Other Northern Region	219	99	147	31	72	68
Cariboo Region	Quesnel	135	15	87	5	48	9
	Other Cariboo Region	139	23	92	10	47	13
Thompson/ Okanagan Region	Central Okanagan Regional District	125	138	76	22	49	116
	Kamloops	113	68	66	10	47	58
	Other Thompson/ Okanagan Region	187	156	124	49	63	106
Kootenay/ Boundary Region	Golden	82	3	55	2	27	1
	Other Kootenay/Boun dary Region	246	106	165	38	81	68
Fraser Valley Regional District	Fraser Valley Regional District	182	170	110	11	72	159
South Coast Region	South Coast Region	183	63	121	24	62	39
West Coast Region	Cowichan Valley	144	52	96	18	48	34
	Comox Valley	145	46	97	15	48	30
	Other West Coast Region	247	435	174	113	73	321
Metro Vancouver	Central	186	653	101	18	85	635
	Northeast	141	119	74	16	67	103
	North Shore	149	195	82	22	67	174
	South of Fraser	170	532	86	18	84	514

Detailed Findings

1. Wood Burning Appliances

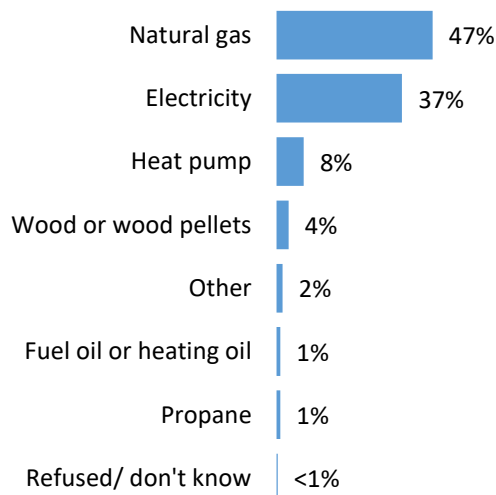
1.1 As a Main Heat Source

Among British Columbia households, the most common main source of domestic heat, for nearly one-half of homes, is natural gas (47%). For about one-third of homes electricity is the main source of heat (37%), while 8% rely on a heat pump, and 4% on wood or wood pellets.

Households on the West Coast and in the Metro Vancouver region are more likely to heat primarily with electricity compared on average to other regions, while those in the Cariboo, Kootenay Boundary, and South Coast regions are more likely than others on average to heat with wood or wood pellets.

When it comes to urban versus rural residents, those living in an urban setting are more likely to heat with natural gas (49% vs. 37% of rural residents) or electricity (40% vs. 31% of rural residents), while those living in rural communities are more likely than their urban counterparts to heat with wood or wood pellets (14% versus <1% respectively). Use of heat pumps as the primary home heating source is higher in rural areas (12% compared with 7% in urban areas), as is the use of propane (4% versus <1% in urban areas).

Main Heat Source for Home



Base: Total (n=2,927)

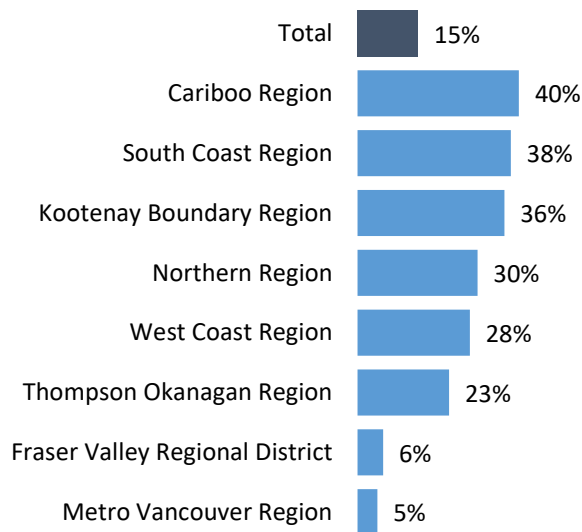
Q.3) What is the main source of heat in your home?

1.2 Incidence of Wood Burning Appliances

Across British Columbia, approximately 15% of homes currently burn wood or wood pellets in a fireplace, wood stove or other wood burning appliance, and approximately six-in-ten of those are located in rural areas (59%).

By region, the incidence is highest in the Cariboo, where about four-in-ten households burn wood (40%), and lowest in the Metro Vancouver region, where just one-in-twenty are wood burners (5%).

Incidence of Burning Wood or Pellets Across British Columbia

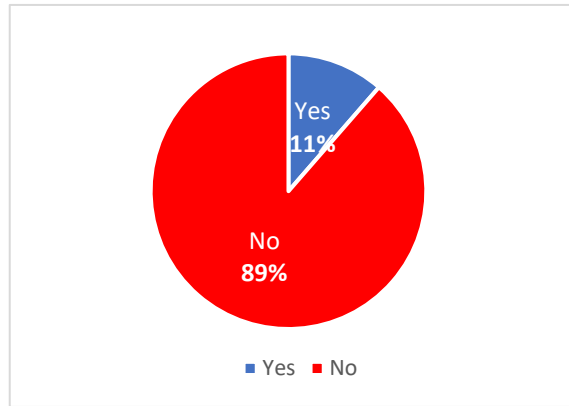


Base: Total (n=2,927)

*Q.4) Do you ever burn wood or wood pellets in a fireplace, woodstove or other wood burning appliance?
2012 Wording: Do you burn wood or wood pellets at all in a fireplace, woodstove or other wood burning appliance?*

1.2.1 Incidence of Wood Burning Appliances Non-Burners NEW 2023

Non-Burners Incidence of Wood Burning Appliances

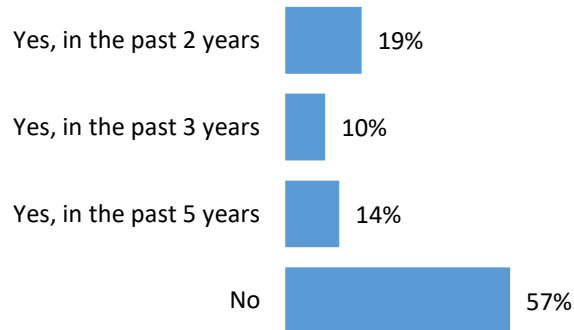


Base: Total non-users (n=1,087)

Q.5) You indicated that you do not burn wood or wood pellets at all. Does your home have any wood burning appliances, such as fireplaces, woodstoves, that you don't use?

In all, about one-in-ten households across the province have a wood burning appliance that they are not currently using (11%), with those living in the Northern region most likely to have one that is not in use (19%), and Metro Vancouver is in the provincial average (11%).

Non-Burners Use of Wood-burning Appliances

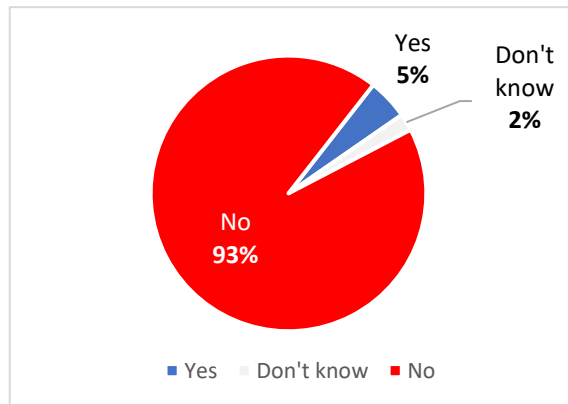


Base: Total have any wood burning appliances that they don't use (n=137)

Q.39) Has your household used those wood-burning appliances in the recent past?

Among households who have wood burning appliances currently not in use, about four-in-ten have used them in the recent past, including 19% in the past 2 years, 30% in the past 3 years, and 43% in the past 5 years.

Non-Burners Removal of Wood Burning Appliances



Base: Total have any wood burning appliances that they don't use (n=950)

Q.40) Have you removed any wood burning appliances from your household in the last ten years?

Approximately one-in-twenty of these households have removed a wood burning appliance in the past 10 years (5%).

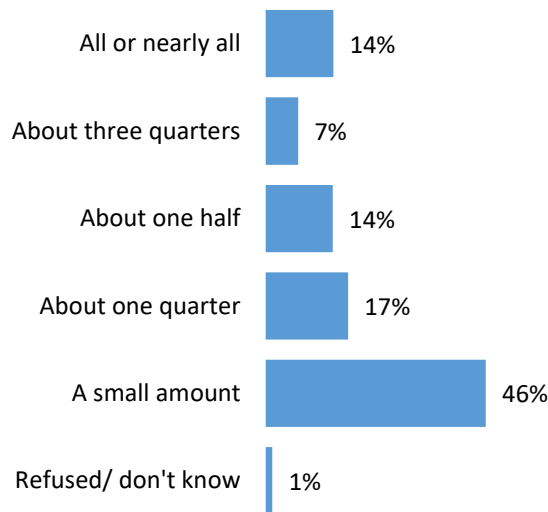
1.3 Use of Wood Burning Appliances

Among users of wood burning appliances in British Columbia, approximately 14% of homes generate all or nearly all their heat through burning wood or pellets. Across the province, this ranges from <1% in the Metro Vancouver region to 27% in the Cariboo region.

A further 7% generate about three-quarters of their heat from burning wood or pellets, 14% generate about one-half, and 17% generate about one-quarter. Close to one-half of wood burning households generate only a small amount of heat from burning wood or pellets (46%).

The proportion of heat generated in homes by wood burning also varies greatly by the type of appliance used. Households with wood burning central heating or a wood stove are much more likely to generate all the heat used in their home from wood burning compared to those with other appliances (30% and 23% respectively, compared with 4% to 12% among other appliances).

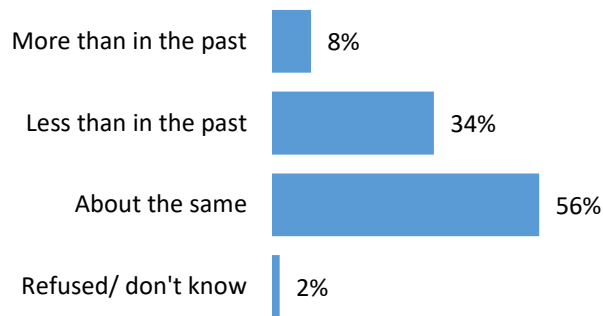
Proportion of Household Heat from Burning Wood or Pellets



Base: Users (n=1,840)

Q.6a) Of all the heat used in your home, approximately what percentage comes from burning wood or pellets:

Change in Burning Usage



Base: Users (n=1,840)

Q.6b) Does your household burn more, less or about the same amount of wood as in recent years?

Across the province, just over one-half of all households burn roughly the same amount of wood now compared to recent years (56%), about one-third burn less than in the past (34%), and fewer than one-in-ten households burn more (8%).

Residents living in urban areas tend to burn less than in the past compared with those living in rural areas (38% versus 32% among homes in a rural setting).

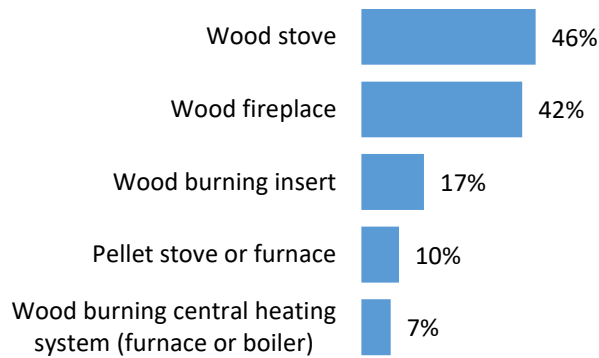
1.4 Inventory

When it comes to the type of wood burning appliance most commonly used over the past twelve months, close to one-half of all wood burners used a wood stove (46%) and more than four-in-ten used a wood fireplace (42%). A further 17% used a wood burning insert, 10% used a pellet stove or furnace, and just 8% used a wood burning central heating system.

Use of wood burning stoves tends to be more common in the Kootenay Boundary, Cariboo, and South Coast regions (60-65%), while use of wood fireplaces is somewhat more common in the Thompson Okanagan, Fraser Valley, and Metro Vancouver regions (48-82%), with Metro Vancouver having the highest proportion of wood fireplaces across the province (82% among users).

Wood stoves are more commonly used in rural homes (58% versus 29% urban homes), as are pellet stoves (11% versus 8%), while fireplaces and wood burning inserts are more likely to be used in urban homes (58% versus 32% of rural homes have fireplaces, and 19% versus 15% of rural homes have inserts).

Wood Burning Appliances Used in Past 12 Months



Base: Users (n=1,840)

Q.7) Which of the following types of wood burning appliances did you use in your home in the past 12 months?

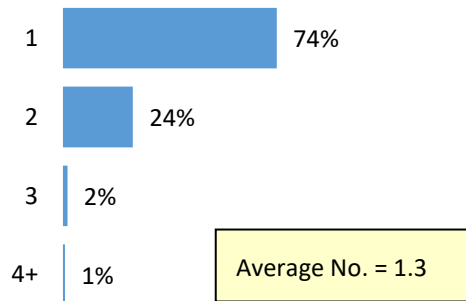
	Region							
	West Coast (367) %	Kootenay Boundary (220) %	Thompson Okanagan (226) %	Cariboo (179) %	Northern (234) %	South Coast (121) %	FVRD (110) %	Metro Vancouver (343) %
Base: Users (n=1,840)								
Wood stove	51	65	43	6	55	64	6	14
Wood fireplace	33	26	48	15	26	31	50	82
Wood burning insert	21	11	15	8	12	13	24	17
Pellet stove or furnace	7	6	18	12	12	5	15	9
Wood burning central heating system	2	14	11	18	15	3	13	7

Q.7) Which of the following types of wood burning appliances did you use in your home in the past 12 months?

1.5 Fireplace or Insert

Of those who currently have a fireplace or insert in their home, the majority – approximately three-quarters in all – have just one (74%). A further one-quarter have two (24%), and 2% have three or more.

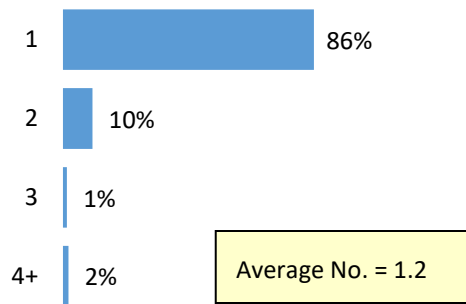
Number of Wood Burning Fireplaces



Base: Total have a wood fireplace (n=753)

Q.8) How many wood burning fireplaces do you currently have in your home?

Number of Wood Burning Inserts



Base: Total have a wood burning insert (n=276)

Q.10) How many wood burning inserts do you currently have in your home?

This includes fireplaces that have an open hearth as well as fireplaces with doors.

2012 Wording: How many wood burning fireplaces or inserts do you currently have in your home? (This includes fireplaces that have an open hearth [Hearth] and also fireplaces with doors. A fireplace insert is a cast iron or steel device that is inserted into an existing wood burning fireplace and has glass doors that allow the flames of the fire to be viewed while the insulated doors remain closed).

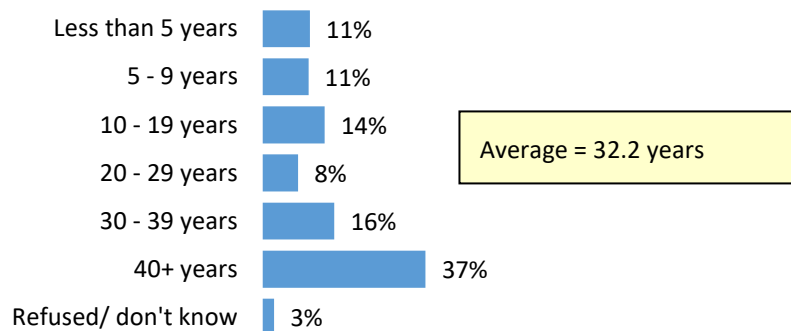
Among households that currently have a fireplace insert, the majority have just one (86%).

About one-in-ten have two inserts (10%), and 3% have three or more.

Across the province, on average, users of fireplaces have had them for about thirty years (mean average 32.2 years). About one-in-five users have had their fireplace for less than ten years (21%), and one-in-ten for less than 5 years (11%). Users in the West Coast and Metro Vancouver regions are the most likely to have a fireplace that is more than 40 years old (46% and 44%, respectively).

Urban homes, which are more likely to be older, have on average older fireplaces (mean of 39 years) compared with homes in rural areas (mean of 25 years).

Approximate Age of Fireplace

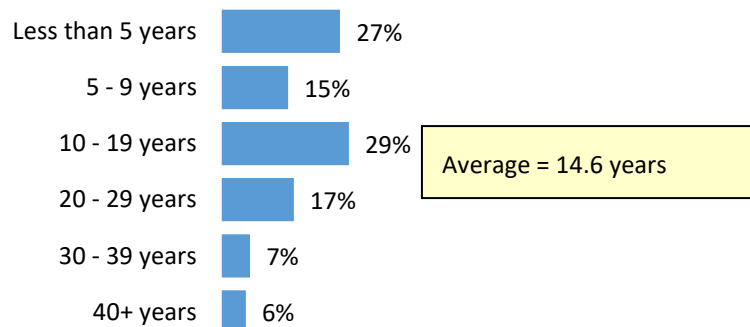


Base: Total have a wood fireplace (n=753)

Q.9) Approximately how old is your fireplace?

2012 Wording: Approximately how old is your fireplace or insert?

Approximate Age of Insert



Base: Total have a wood burning insert (n=276)

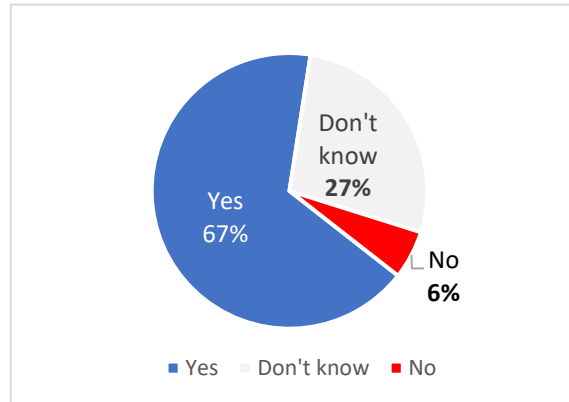
Q.11) Approximately how old is your wood burning insert?

2012 Wording: Approximately how old is your fireplace or insert?

On average, users of wood burning inserts have had them for fifteen years (14.6 years). About four-in-ten have had their insert for less than 10 years (42%) and roughly one-quarter for less than 5 years (27%).

Those living in an urban setting are more likely than their rural counterparts to have had their fireplace insert longer, with an average age of approximately 17 years (mean of 16.9 years compared with 12.4 among rural homes).

Certified Low-Emission Wood Burning Insert



Base: Total have a wood burning insert (n=276)

*Q.12) Is your wood burning insert either U.S. EPA emission certified or CSA B415 emission certified?
2012 Wording: Is your fireplace or insert a cleaner burning low-emission appliance which is certified? It could be emissions certified with either the United States Environmental Protection Agency (EPA) or the Canadian Standards Association (CSA).*

Approximately two-thirds of wood burning inserts are known to be U.S. EPA emission certified or CSA B415 emission certified (67%), while about one-in-twenty are not certified under either standard (6%) and roughly one-quarter don't know (27%).

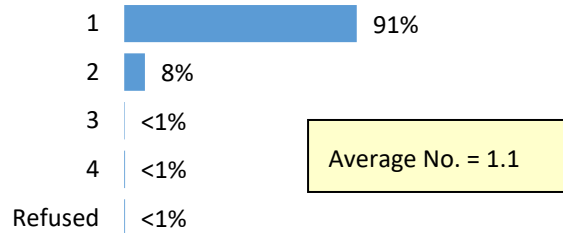
Regionally, awareness is lowest among residents of the South Coast, Metro Vancouver, and Cariboo (31-50% don't know).

Awareness of emission certification does not differ between residents in urban and rural areas.

1.6 Wood Stoves

Of those who currently have a wood stove in their home, the majority have just one (91%).

Number of Wood Stoves

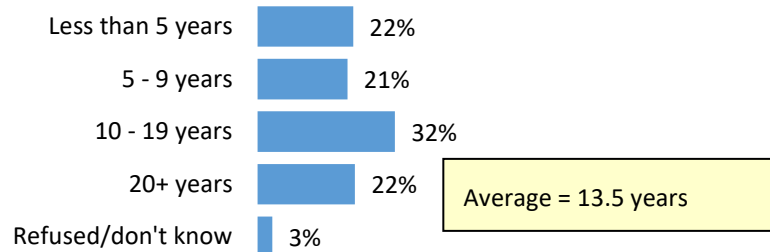


Base: Total have a woodstove (n=872)

Q.13) How many wood stoves do you currently have in your home?

On average, users of wood stoves have had them for nearly 14 years (mean average 13.5 years). About four-in-ten users have had their fireplace or insert for less than ten years (43%), with one-in-five less than 5 years (22%).

Approximate Age of Wood Stove



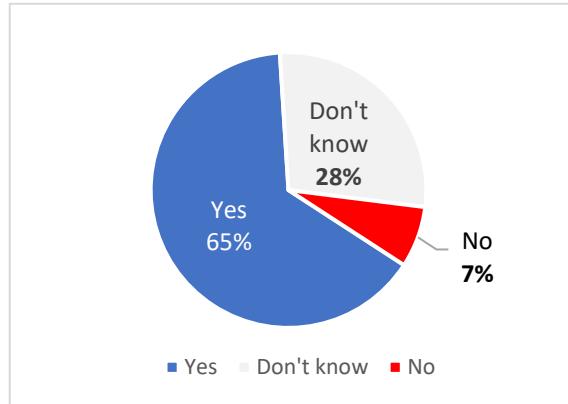
Base: Total have a woodstove (n=871)

Q.14) Approximately how old is your woodstove?

Approximately two-thirds of wood stoves are thought to be U.S. EPA emission certified or CSA B415 emission certified (65%), and about 7% are not. More than one-quarter don't know whether their wood stove is emission certified (28%).

Households in Metro Vancouver, Fraser Valley, and the West Coast are more likely than those living elsewhere in the province to have stoves that are not emissions certified (10-13% not certified).

Certified Low-Emission Woodstove



Base: Total have a woodstove (n=871)

*Q.15) Is your woodstove either U.S. EPA emission certified or CSA B415 emission certified?
2012 Wording: Is your fireplace or insert a cleaner burning low-emission appliance which is certified? It could be emissions certified with either the United States Environmental Protection Agency (EPA) or the Canadian Standards Association (CSA).*

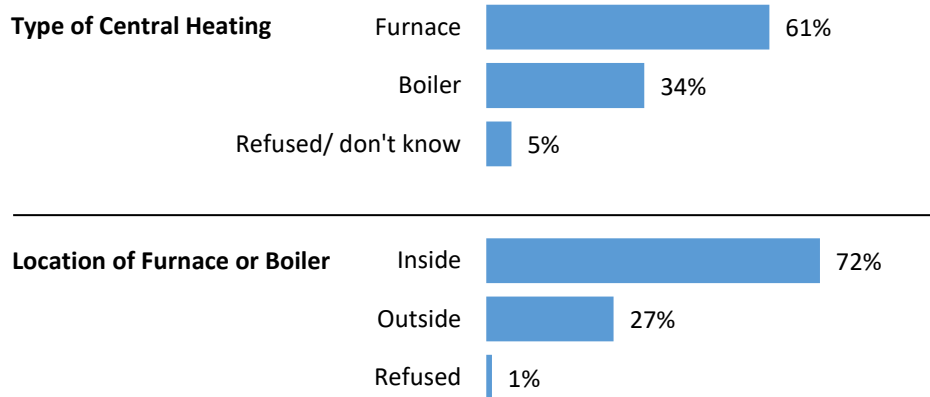
1.7 Wood Burning Central Heating

Among households that use a wood burning central heating system, the majority – approximately six-in-ten – have a warm air furnace (61%). About one-third have a boiler (34%) and roughly one-in-twenty are not aware of the type of system they have (5%).

Those living in the Cariboo, Northern, and South Coast regions are more likely, on average, to have a warm air furnace (72-75%).

Most furnaces and boilers are located inside (72%).

Type of Wood Burning Central Heating Appliance and Location



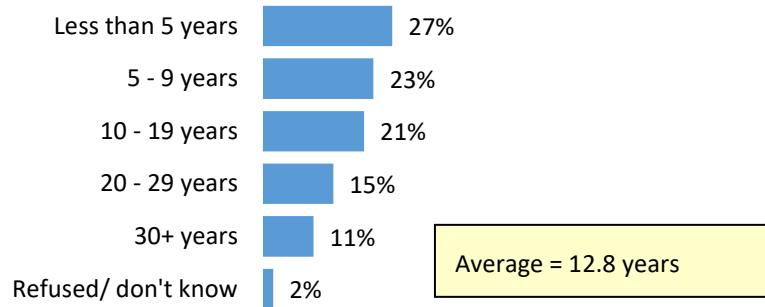
Base: Total have a wood burning furnace or boiler (n=176)

Q.16) Is your wood burning central heating system a warm air furnace or a boiler?

Q.17) Is your wood burning furnace or boiler located inside or outside your house?

On average, users of wood burning furnaces or boilers have had them for about thirteen years (mean average 12.8 years). About one-half of users have had them for less than ten years (51%), and about one-quarter less than 5 years (27%).

Approximate Age of Wood Burning Furnace or Boiler

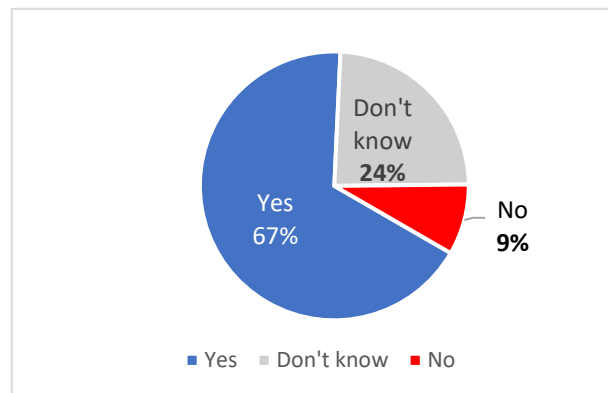


Base: Total have a wood burning furnace or boiler (n=168)

Q.18) Approximately how old is your wood burning furnace or boiler?

About two-thirds of wood burning furnaces and boilers are known to be emission certified appliances (67%), while about one-in-ten are not (9%). Approximately one-quarter are unsure whether their furnace or boiler are emissions certified (24%).

Certified Low-Emission Wood Burning Furnace or Boiler



Base: Total have a wood burning furnace or boiler (n=176)

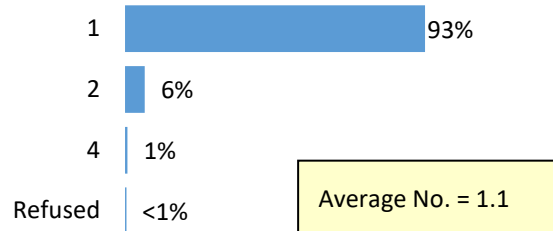
Q.19) Is your furnace or boiler either U.S. EPA emission certified or CSA B415 emission certified?

2012 Wording: Is your furnace or boiler a cleaner burning low-emission appliance which is certified? It could be emissions certified with either the United States Environmental Protection Agency (EPA) or the Canadian Standards Association (CSA).

1.8 Pellet Stoves

Among households with a pellet stove, the large majority have just one in their home (93%).

Number of Pellet Stoves

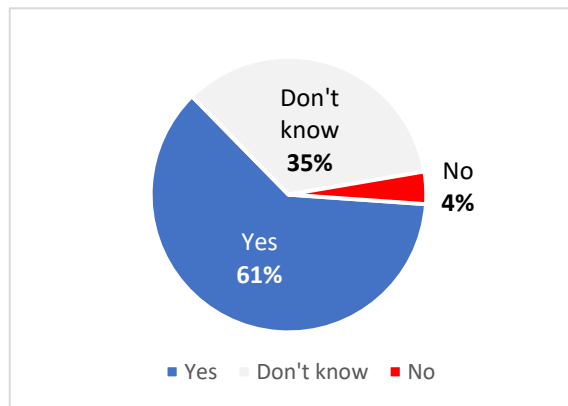


Base: Total have a pellet stove (n=184)

Q.20) How many pellet stoves do you currently have in your home?

Approximately two-thirds of pellet stoves are known to be emissions certified (62%), while just 4% are not. About one-third are unsure (35%).

Certified Low-Emission Pellet Stove



Base: Total have a pellet stove (n=184)

Q.21) Is your pellet stove either U.S. EPA emission certified or CSA B415 emission certified?
2012 Wording: Is your pellet stove a cleaner burning low-emission appliance which is certified? It could be certified with either the United States Environmental Protection Agency (EPA) or the Canadian Standards Association (CSA).

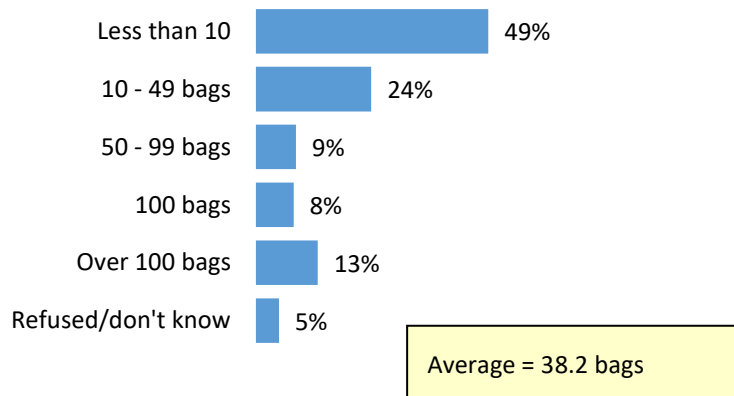
2. Wood as a Fuel

2.1 Volume Burned – Pellet Stoves

On average, users of pellet stoves burn about thirty-eight standard (40 pound) bags of pellets over the course of twelve months. About one-in-five will burn 100 or more standard bags in a year (21%), while about one-half will burn fewer than ten (49%).

Homes situated in a rural setting burn considerably more pellets than those in an urban one (approximately 45 vs. 24 standard bags over 12 months on average), with those living in the Northern and Cariboo regions most likely to burn 100 or more bags during that period.

Amount of Pellets Burned Over the Past 12 Months



Base: Total have a pellet stove (n=183)

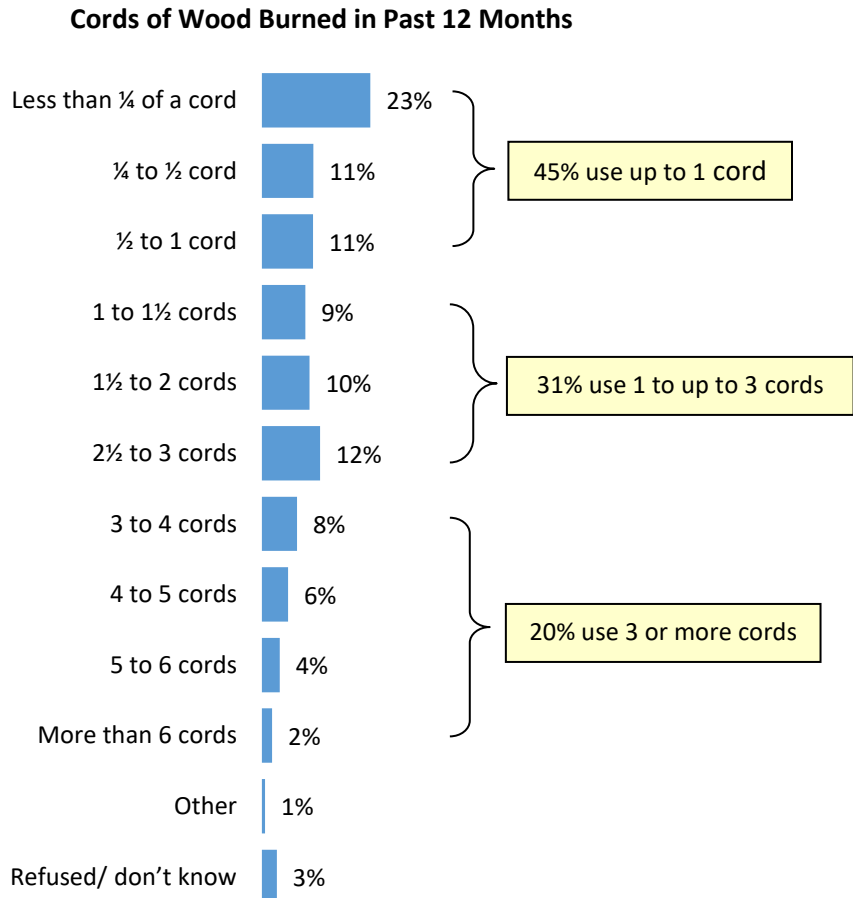
Q.22) A standard bag of pellets weighs 40 pounds. Approximately how many bags of pellets did you burn over the past 12 months?

2.2 Volume Burned – Other Wood Burning Appliances

Close to one-half of those who use a wood burning appliance will burn one cord of wood or less over the course of a year (45%), while about one-third will burn between one and three cords (32%); approximately one-in-five users burn more than three cords (20%).

The median average for the province is one to one and a half cords of wood over the past twelve months.

Households in the Cariboo and Kootenay Boundary regions are more likely to burn a larger volume of wood - 3 or more cords each year (45% and 46% respectively), while households in Metro Vancouver are the most likely to burn smaller quantities (71% burn less than one cord every 12 months). Homes in rural areas are also more likely to burn a larger volume of wood (28% burn 3 or more cords per year compared with 7% of homes in urban areas).



Base: Total wood burners (n=1,750)

Q.23) Approximately how many cords of wood did you burn in your wood-burning equipment over the past 12 months? Please stop me when I have reached your category. Would you say you used?

In the past year, of all wood burned in homes excluding pellets, more than forty percent was burned in wood stoves (44%), about one-third in fireplaces (36%), 14% in wood burning inserts, and the remaining 6% in wood furnaces or boilers.

Approximate Overall Percentage of Wood Burned – Past Year

	Wood Burners by Region							
	West Coast	Kootenay Boundary	Thompson Okanagan	Cariboo	Northern	South Coast	FVRD	Metro Vancouver
	(350)	(214)	(245)	(164)	(217)	(119)	(106)	(335)
	%	%	%	%	%	%	%	%
<i>Base: Total wood burners (n=1,750)</i>								
Wood stove(s)	51	63	39	62	57	60	36	11
Wood fireplaces (s)	28	18	42	14	21	26	41	73
Wood Insert(s)	20	10	10	6	8	11	15	13
Wood furnace or boiler(s)	2	10	9	19	14	3	8	4

Q.24) Of all the wood burned in your home over the past year, excluding pellets, approximately what percentage did you burn in your:

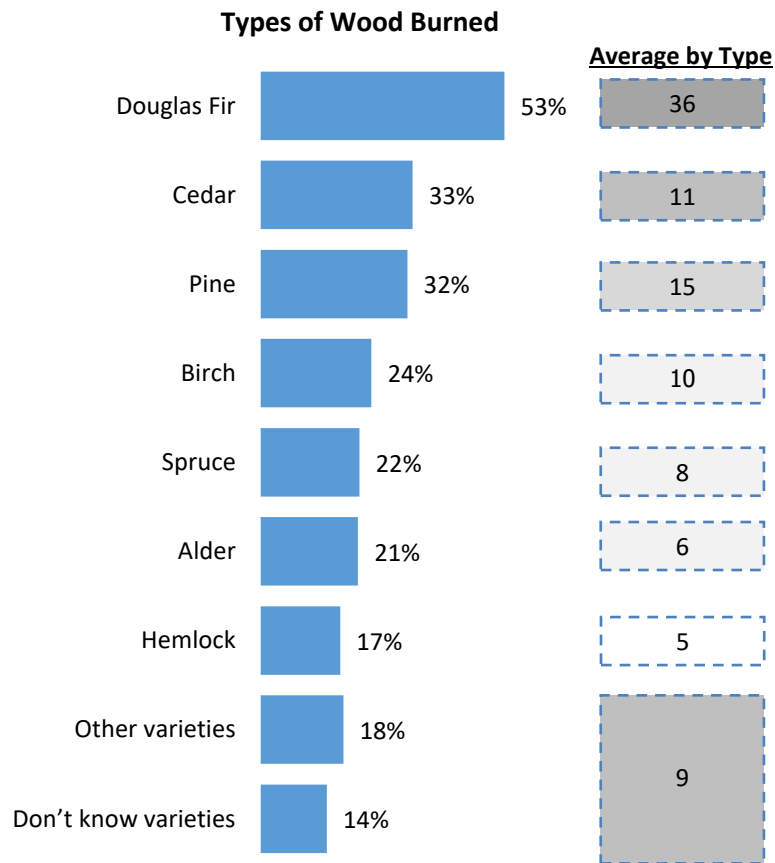
2.3 Species of Wood Burned

The most common species of wood burned in British Columbia are Douglas Fir (53%), Cedar (33%) and Pine (32%). Next most common are Birch, Spruce, and Alder, each burned by between one-in-five and one-quarter of wood burning appliance users (21-24%). Hemlock and other varieties make up the remaining species.

Households in rural areas are more likely to burn Douglas Fir, Pine, Birch, and Spruce compared to those in urban areas.

Metro Vancouver residents are the least familiar with the types of wood species they burn (34% don't know compared with 4-19% don't know among all other areas).

Among households who burn multiple types of wood, the proportions of each type burned generally follow the order of popularity (proportions shown as "Average by Type").



Base: Total wood burners (n=1,750)

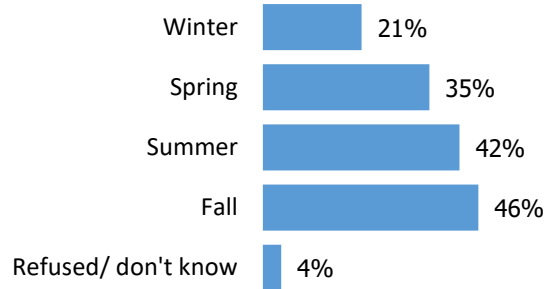
Q.25) Which if any of the following types of wood do you burn?

Q.26) And of those different types of wood that you burn, what percentage would be:

2.4 Timing of Wood Collection and Seasoning

Close to one-half of all users of wood burning appliances gather or purchase their firewood during the Fall (46%). Approximately four-in-ten do so in the Summer (42%), one-third in the Spring (35%), and one-in-five during the winter (21%).

Frequency of Gathering Firewood by Season



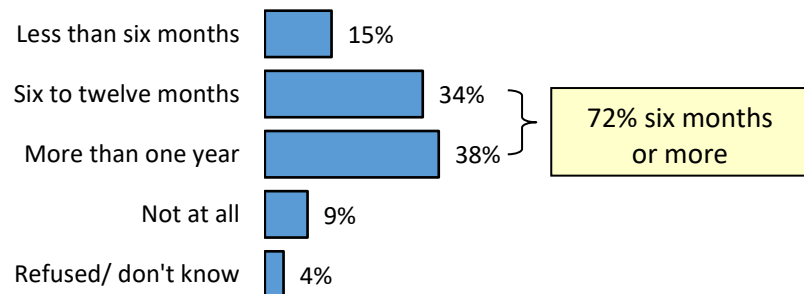
Base: Total wood burners (n=1,750)

Q.27) In what season(s) do you mainly gather or purchase your firewood?

The majority of those who burn wood will typically dry or season the wood for six months or more (72%); while about 15% will dry their wood for less than six months. Close to one-in-ten do not bother with this process at all (9%).

Rural residents are more likely than those living in urban areas to dry or season their firewood for more than a year (42% compared with 33% among urban residents).

Length of Time to Dry/Season Firewood



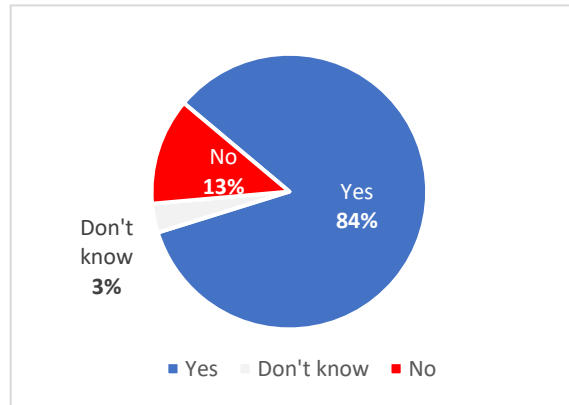
Base: Total wood burners (n=1,750)

Q.28) How long do you typically dry/season your firewood before the heating season?

2.5 Splitting and Storage

The majority of those who dry or season their wood prior to the burning season will usually have it split before they dry or season it (84%). This practice is more common among those living in rural areas versus urban ones (88% of households compared with 78% respectively).

Have Firewood Split Before Drying/Seasoning



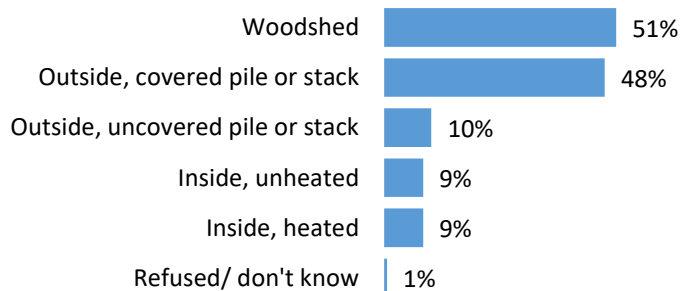
Base: Total wood burners who dry/season wood before burning (n=1,562)

Q.29) Do you usually have your firewood split before drying/seasoning it?

Across all wood burning households, firewood is most commonly stored in a woodshed (51%) or outside in a covered pile or stack (48%). About one-in-ten keep their firewood outside but uncovered (10%) and a further 17% store it inside, split evenly between those who keep it heated and unheated.

Those in the Thompson Okanagan region are somewhat more likely than other regions to keep their wood outside uncovered (15%), whereas those in the Fraser Valley and Metro Vancouver regions are more likely to keep their wood inside, which may be due to the relatively low quantities of wood burned in these areas compared to the rest of the province.

Storage of Wood



Base: Total wood burners (n=1,750)

Q.30) How do you store the majority of your wood? Would it be:

3. Wood Burning Behaviour

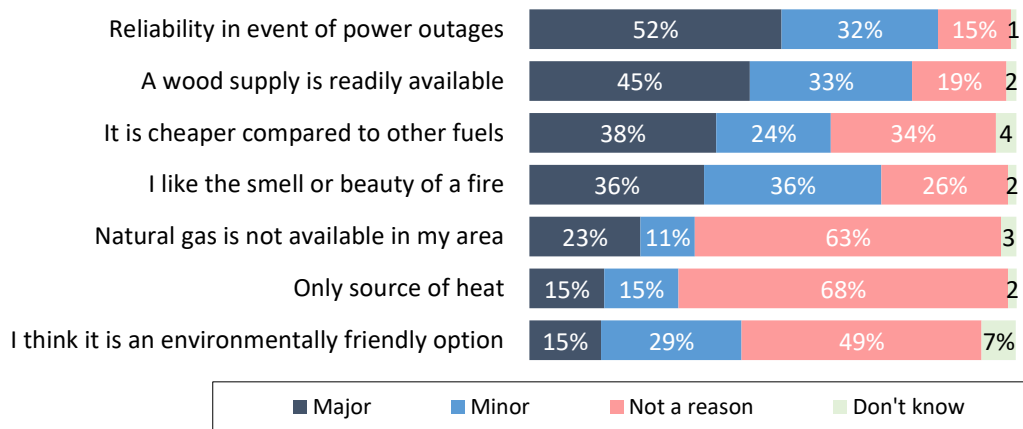
3.1 Reasons for Using Wood Burning Appliances

Among the reasons tested for why people burn wood in their homes, two stand out equally strong, with about one-half considering them major reasons for their choice of fuel: respondents value the reliability of using wood as a heat source in the event of power outages and appreciate that wood supply is readily available.

About one-third consider the smell or beauty of a fire a major reason for burning wood in their homes, while close to one-quarter cite the lack of availability of natural gas as a major reason. For approximately 15% of the population, a major reason is that wood is the only source of heat available, and for about the same amount, burning wood is an environmentally friendly option.

Those living in rural communities are more likely than their urban counterparts to rate each of the following a major reason: wood supply readily available, cheaper than other fuels, environmentally friendly, natural gas unavailable, reliable during power outages, and only source of heat, while urban residents are more likely than rural residents to rate the smell or beauty as a major reason.

Reasons for Burning Wood

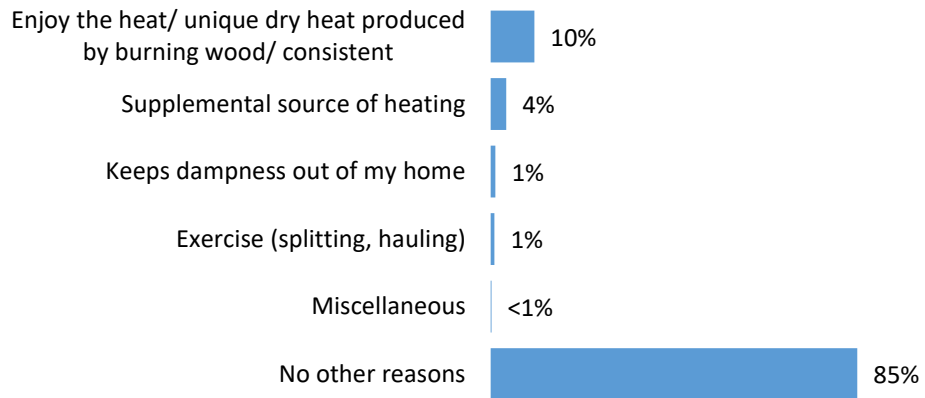


Base: Total users (n=1,840)

Q.31) For which of the following reasons do you burn wood?
 2012 Wording: People have mentioned to us several reasons for burning wood or pellets in their home. As I read each reason, please tell me if this is NOT A REASON, A MINOR REASON OR A MAJOR REASON for burning wood in your home.

Other reasons people burn wood include the unique dry heat produced by wood (10%), and that it's used as a supplemental source of heating (4%).

Other Reasons for Burning Wood



Base: Total users (n=1,840)

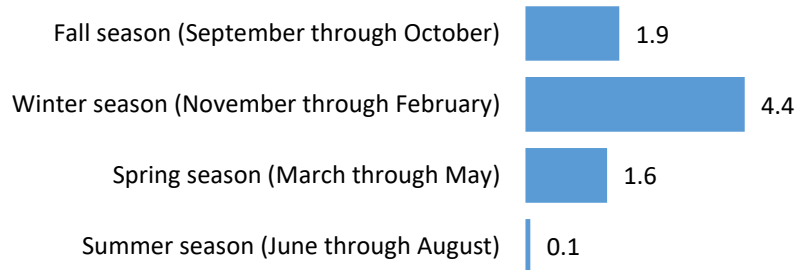
Q.31h) Any other reasons?

3.2 Frequency of Using Wood Burning Appliances – Time of Year

Over the past year, those with wood burning appliances in their home would have a fire burning an average of just over four days per week during the winter months (4.4), and slightly less than two days during the fall and spring (average of 1.9 and 1.6 days respectively), with little to no use during the summer months.

Those living in a rural setting are more likely to keep their fires going longer on average than those in urban areas: 2.4 days in fall compared with 1.2 days for urban residents, 5.1 days during winter versus 3.5 for urban residents in winter, and 2.1 days versus 1 day in spring.

Average # Days Per Week Burning a Fire - by Season



Base: Total users (n=1,840)

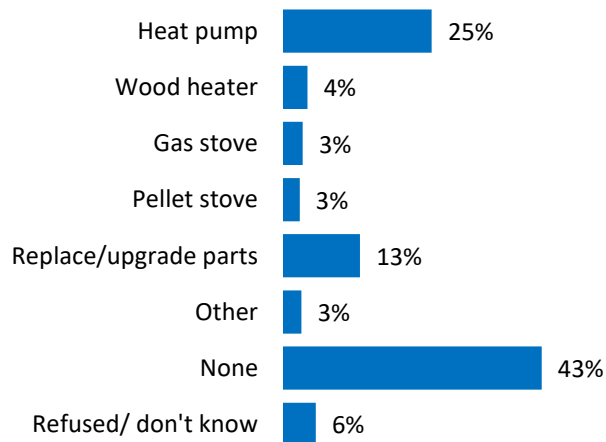
Q.32) Thinking back over the seasons in the past year, approximately how many days per week would you have had a fire going in your wood burning equipment (at least one of your wood or pellet burning appliances):

4. Installation of New Appliances

4.1 Intentions to Install New Equipment

Among the equipment residents would most seriously consider installing in the next three years, the most common is a heat pump, mentioned by one-quarter of residents (25%). Less than one-in-ten would consider a wood heater or pellet stove (7%), and roughly 3% would consider a gas stove. About 13% would consider replacing or upgrading parts of existing heating equipment.

Appliance Most Likely to Install – Next 3 Years



Base: Total users (n=1,840)

Q.33) Which ONE of the following types of equipment do you think you would most seriously consider installing in the next 3 years? Would it be a:

Among those likely to install new equipment over the next three years, the most common reasons cited are to improve fuel efficiency, replace aging equipment, and for the cost savings that new equipment will bring.

Other common reasons include environmental/air quality concerns and failure of old equipment.

Reasons for Installing New Equipment Over Next Three Years		
	Total likely to purchase new equipment over the next three years	
	<u>First Mention</u> (986) %	<u>Total Mentions</u> (986) %
<i>Base: Users who are likely to purchase new equipment over the next three years</i>		
Fuel efficiency – old equipment	20	29
Age of old equipment	15	17
Cost savings	12	19
Failure of old equipment	11	14
Environmental/air quality concerns	10	16
Health or safety reasons	4	8
Easy to use	4	7
Inconvenient to use old equipment	3	5
Government provides incentives	2	3
High prices for electricity	1	2
Enjoy burning wood	1	1
Electricity supply unreliable	1	1
Home insurance purposes	1	1
Appearance	<1	<1
Gas is not available in my area	<1	<1
Refused/ don't know	15	15
<i>34) What would be the single most important reason why you would install new equipment?</i>		

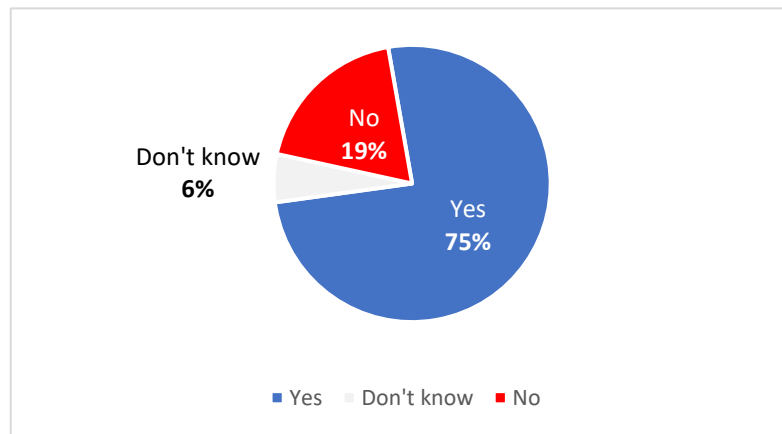
5. Incentives, Programs and Bylaws

5.1 Cash Incentives

About three-quarters of all users are aware of the cash incentives available in many BC communities for upgrading to newer, more efficient, cleaner home heating appliances such as a heat pump or certified wood or pellet stove (75%).

On average, awareness of these incentives is higher on the West and South Coast (84% and 83% respectively).

Awareness of Cash Incentives



Base: Total users (n=1,840)

Q.35) Are you aware that there are cash incentives in many BC communities for upgrading to newer, more efficient, cleaner home heating appliances such as heat pumps, certified wood or pellet stoves?

2012 Wording: Are you aware that there are cash incentives in many BC communities for upgrading to newer, more efficient, cleaner burning wood or pellet stoves?

	Region							
	West Coast (367) %	Kootenay Boundary (220) %	Thompson Okanagan (266) %	Cariboo (179) %	Northern (234) %	South Coast (121) %	FVRD (110) %	Metro Vancouver (343) %
Yes	84	73	71	63	69	83	63	72
No	11	21	23	34	26	13	26	22
Refused/ don't know	5	7	6	3	5	4	11	7

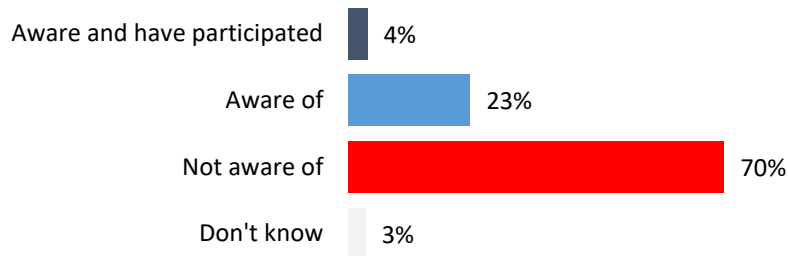
Q.35) Are you aware that there are cash incentives in many BC communities for upgrading to newer, more efficient, cleaner home heating appliances such as heat pumps, certified wood or pellet stoves?

5.2 Provincial Wood Stove Exchange Program

Overall awareness of the provincial wood stove exchange program is relatively low, with just one-quarter aware of it (26%), including 4% who have participated in the program.

Awareness and participation are highest in the Northern region (41% overall awareness and participation) and tends to be higher in rural areas compared with urban ones (30% versus 22% overall awareness and participation).

Aware of/Participated in Provincial Wood Stove Exchange Program



Base: Total users (n=1,840)

Q.36) Are you aware of or have you participated in the Provincial Wood Stove Exchange Program?

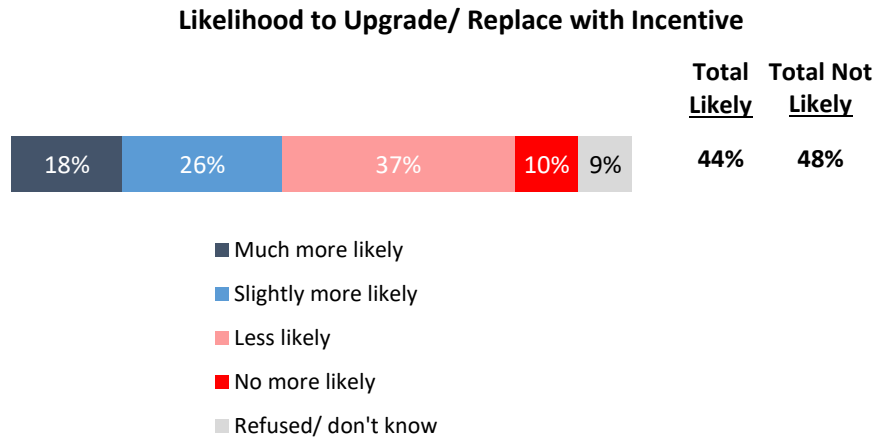
Base: Total users (n=1,840)	Region							
	West Coast (367) %	Kootenay Boundary (220) %	Thompson Okanagan (266) %	Cariboo (179) %	Northern (234) %	South Coast (121) %	FVRD (110) %	Metro Vancouver (343) %
Aware and have participated	1	6	5	5	7	2	6	4
Aware of	21	25	23	15	34	22	20	20
Not aware of	74	67	69	79	58	74	72	72
Refused/don't know	4	2	2	2	1	3	3	4

Q.36) Are you aware of or have you participated in the Provincial Wood Stove Exchange Program?

5.3 Upgrade Incentive

When presented with a series of incentives for replacing or upgrading existing wood burning equipment, approximately four-in-ten residents would be more likely to upgrade or replace their wood burning equipment should these incentives be offered (41%), including 18% who would be “very” likely to.

On average, residents in the Fraser Valley are the most likely to replace current equipment if incentives were provided (57% total likely).



Base: Total users (n=1,840)

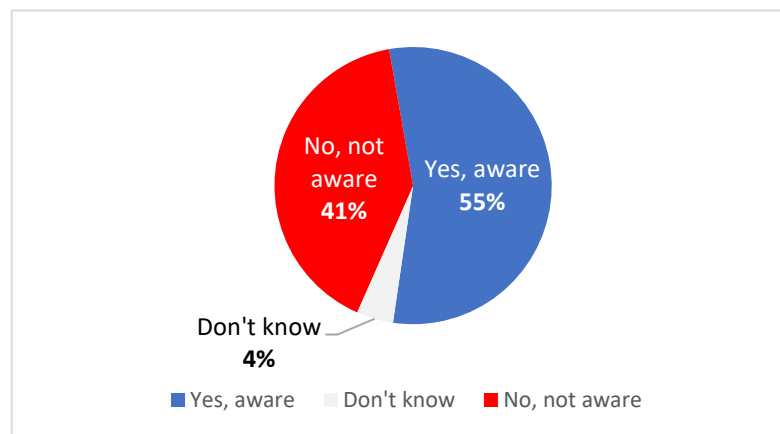
Q.37) Assuming there was a \$600 incentive for changing from an old uncertified wood stove to a certified wood stove, \$1000 for changing to a wood pellet stove, and \$1500 for changing to a heat pump available in your community, how would this affect your decision to upgrade or replace your existing wood burning

5.4 Smoke Emission Bylaw

Overall, just over one-half of users are aware that all new wood burning stoves sold in British Columbia are mandated by law to be certified to lower emission levels to reduce smoke (55%).

Awareness of this requirement tends to be somewhat higher in rural areas compared with urban ones (61% versus 48% in urban areas). It is lowest in the Fraser Valley and Metro Vancouver.

Awareness of Mandated Low Smoke Emission Rates for Wood Stoves in BC



Base: Total users (n=1,840)

Q.38) Are you aware that all new wood burning stoves sold in British Columbia are mandated by law to be certified to lower emission levels to reduce smoke?
2012 Wording: Were you aware that most new stoves sold in British Columbia are mandated by law to have low smoke emissions rates?

6. Smoke Emissions

6.1 Chimney Smoke

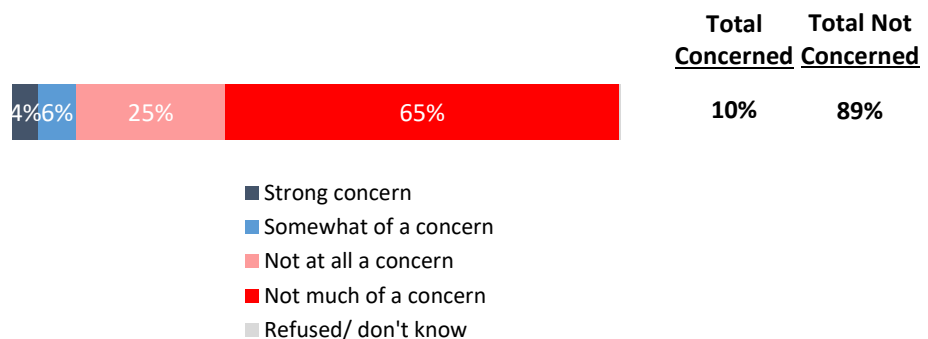
Chimney smoke is currently a concern for about one-in-ten residents across the province (10% total concerned), while close to nine-in-ten states it is either not much of a concern (25%) or not a concern at all (65%).

Those living in the Kootenay Boundary and South Coast regions are more likely to express concern about chimney smoke, with about one-in-five households in each mentioning that it's either somewhat of a concern or a strong one (22% and 20% total concerned, respectively).

Residents in rural areas are also more likely to be concerned about chimney smoke in their area, with 16% expressing at least some concern versus just 9% among urban residents.

Overall concern about chimney smoke is higher among users than non-users (15% compared to 10% respectively).

Level of Concern Regarding Chimney Smoke



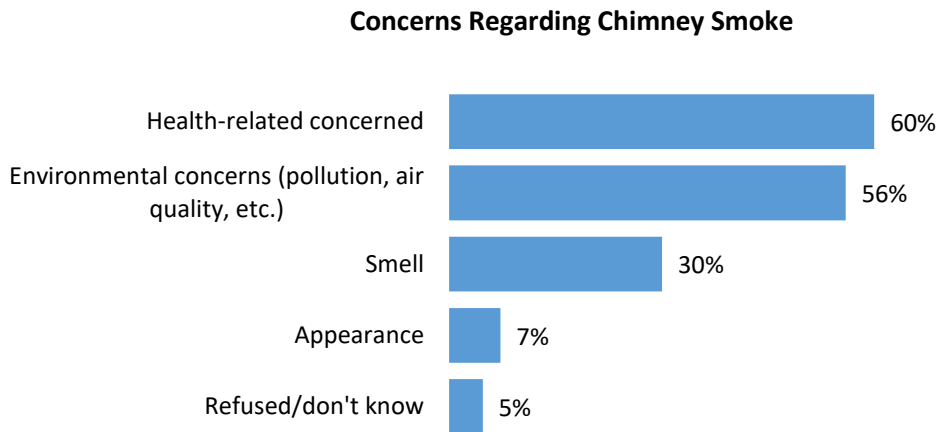
Base: Total (n=2,927)

Q.41) To what extent is chimney smoke in your local area a concern to you and your family?

The foremost concerns about chimney smoke are health-related concerns (60%), concern for the impact to the environment (56%), and concerns about the smell of smoke (30%), with non-users more likely to express concern for each of these.

On average, residents in the Metro Vancouver and Fraser Valley regions are the least likely to be concerned about the health-related impacts of chimney smoke but the most likely to express concern for impact to the environment.

Those living in urban areas are somewhat more likely than those in rural areas to be concerned about the smell of chimney smoke.



Base: Total respondents who are concerned about chimney smoke (n=462)

Q.42) Why is chimney smoke a concern to you?

Of the suggested actions to reduce the amount of smoke from residential wood burning, all actions garnered support from nearly one-half of residents, with “Providing a cash back incentive for removing old wood stoves and wood inserts” receiving the most support overall (59% support, 33% strongly and 25% somewhat), and “Establishing emission control requirements through a local bylaw” receiving the least support (45% support, 23% strongly and 23% somewhat).

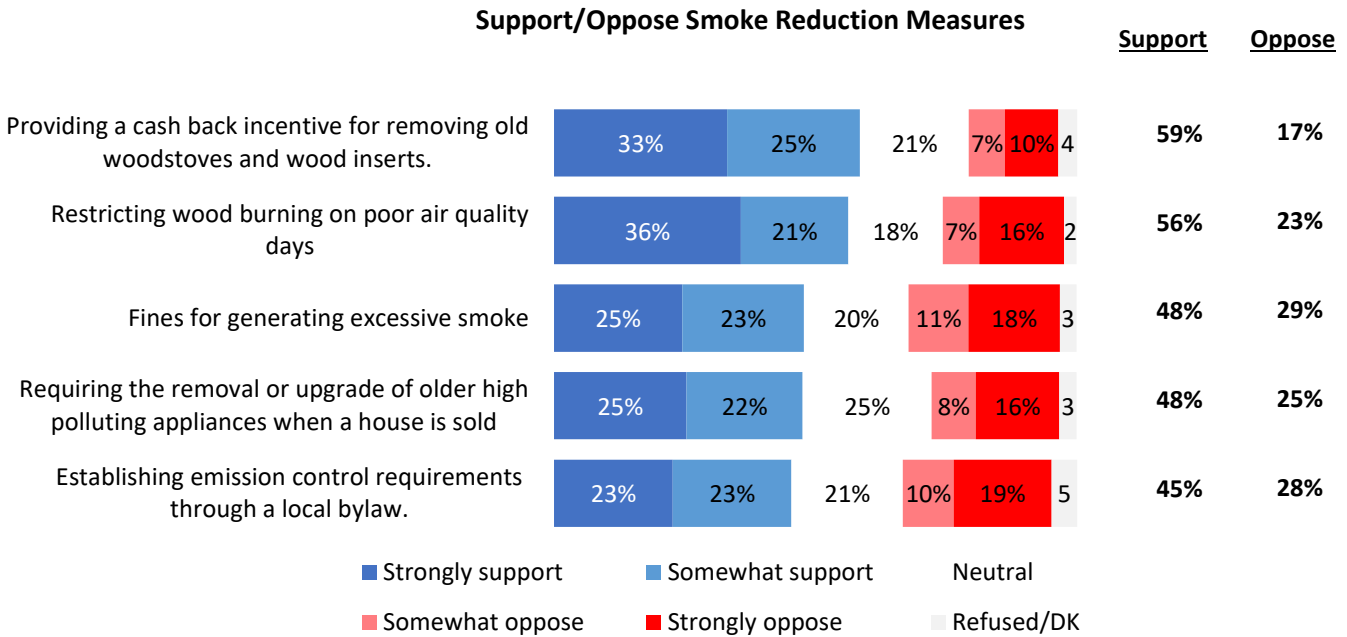
Strength of support is highest for “Restricting wood burning on poor air quality days”, with 36% strongly supporting this action, followed closely by “Providing a cash back incentive for removing old wood stoves and wood inserts” (33% strongly support).

Apart from providing a cash back incentive for removing old wood stoves and inserts, support for any action to reduce smoke from residential wood burning is highest in Metro Vancouver.

Support for “Establishing emission control requirements through a local bylaw” is highest in Metro Vancouver (53% support including 27% who strongly support) and lowest in the Cariboo region (26% total support, including 8% who strongly support). Overall opposition to this action is highest in the South Coast (41%), Cariboo (43%), and Kootenay Boundary regions (45%).

Non-users are more likely to support this action than users (48% versus 31%), as are those living in an urban setting (48% versus 36% total support among rural residents).

Support for fines for generating excessive smoke and restricting wood burning on poor quality air days are highest among residents of Metro Vancouver, Fraser Valley, and the West Coast, and lowest among those living in the Cariboo region. Non-users are more likely than users to support these measures, as are those living in an urban setting.



Base: Total (n=2,546)

Q.43a-e) There are several actions that can be taken to reduce the amount of smoke from residential wood burning. Please tell me if you would support or oppose the following measures

2012 Wording: There are a number of actions that can be taken to reduce the amount of smoke from wood burning equipment. Please tell me if you would support or oppose the following measures:

6.2 Sources of Air Pollution

Residents were asked to rate the perceived level of air pollution from four potential contributors.

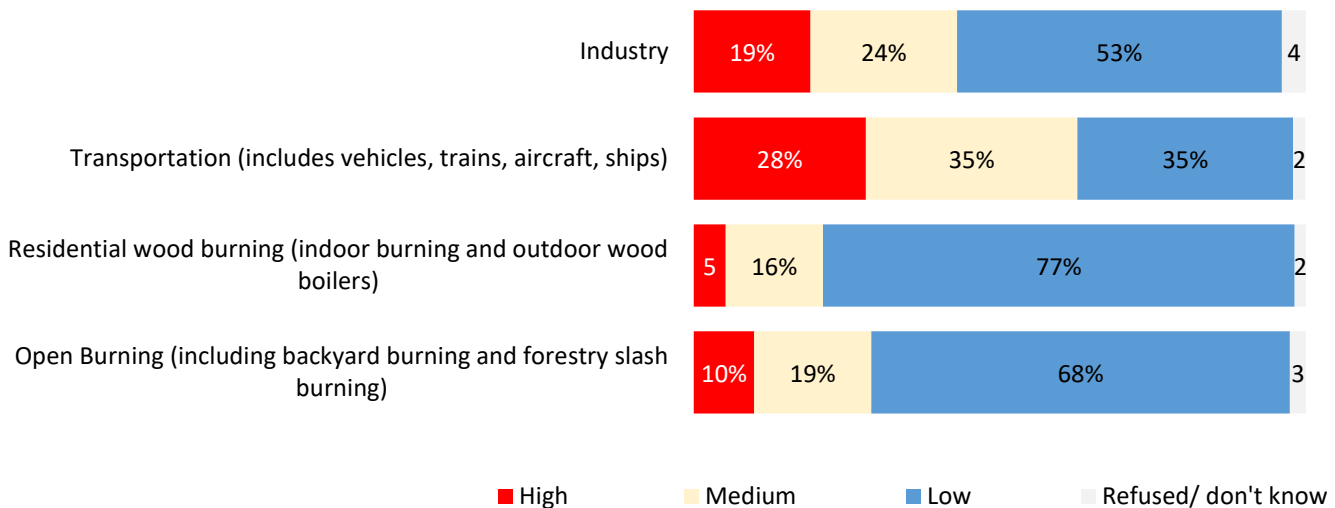
About six-in-ten residents rate “Transportation” as a medium to high contributor to air pollution (63%), while approximately four-in-ten rate “Industry” as such (43%). Roughly three-in-ten rate “Open Burning” as a medium to high contributor, and one-in-five rate “Residential wood burning” as a medium to high contributor to air pollution in their area (21%).

Residents living in the Northern region are more likely than others to rate “Industry” as a high contributor to air pollution (30%), with rural dwellers most likely to rate it this way (23% high contributor versus 18% among urban dwellers), while those living on the South Coast are most likely to rate it a low contributor (69%).

Residents of Metro Vancouver are far more likely than those living elsewhere in the province to view Transportation as a high contributor (35% compared with 9-23% in all other areas), while those living in the Cariboo region are more likely to see Transportation as a low contributor (65% low contributor compared to 26-57% among all other regions).

On average, residents living in rural areas are far more likely to rate wood burning as a medium to high contributor to air pollution (43% medium to high compared with 25% among urban dwellers).

Rating of Sources of Air Pollution



Base: Total (n=2,927)

Q.44) How would you rank the following sources – Low, Medium or High – for their contribution to air pollution in your area (Wildfire air pollution is excluded because wildfires are natural events that cannot be directly controlled by human activities)?

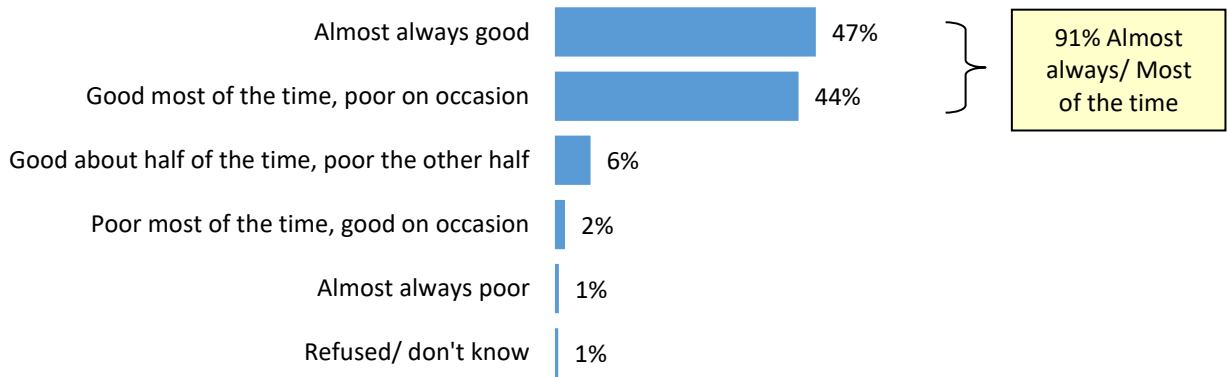
2012 Wording: How would you rate the following sources – Low, Medium or High – for their contribution to air pollution in your area?

6.3 General Attitudes to Air Quality

The majority of residents across the province describe the air quality in the area in which they live as good (91%), including nearly one-half who rate it as “almost always good” (47%), and more than four-in-ten who rate it as “good most of the time, poor on occasion” (44%).

Attitudes vary somewhat by region, with perception of air quality particularly positive on the West Coast (94% good, including 63% almost always good), South Coast (97% good, including 68% almost always good), and Metro Vancouver (94% good, including 45% almost always good) and least positive among residents of the Northern region, where 76% rate their air quality as good, including 39% almost always good and 36% good most of the time.

Statement to Best Describe Local Air Quality



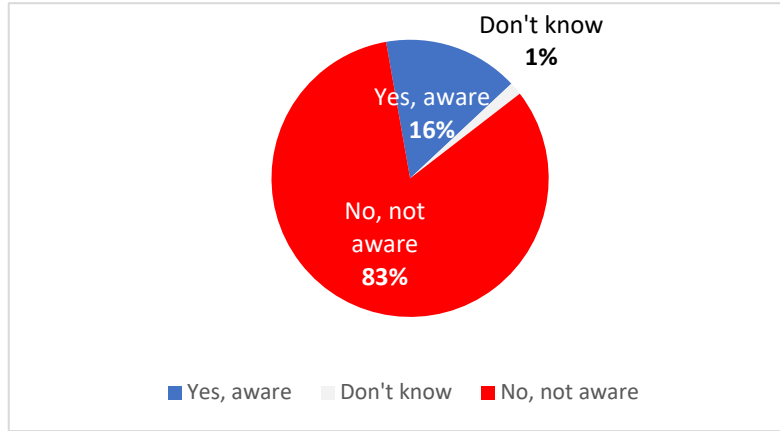
Base: Total (n=2,927)

Q.45) Which of the following statements best describes how you feel about the air quality in the area where you live? Would you say the air quality in the area where I live is:

6.4 Awareness of Metro Vancouver Residential Indoor Wood Burning Bylaw

Awareness of Metro Vancouver’s Residential Indoor Wood Burning Bylaw is quite low, with just 16% of Metro Vancouver residents aware of it. Unsurprisingly, awareness is considerably higher among wood burning households in the region (29% aware compared with 15% of non-wood burning households).

Awareness of Metro Vancouver Residential Indoor Wood Burning Bylaw



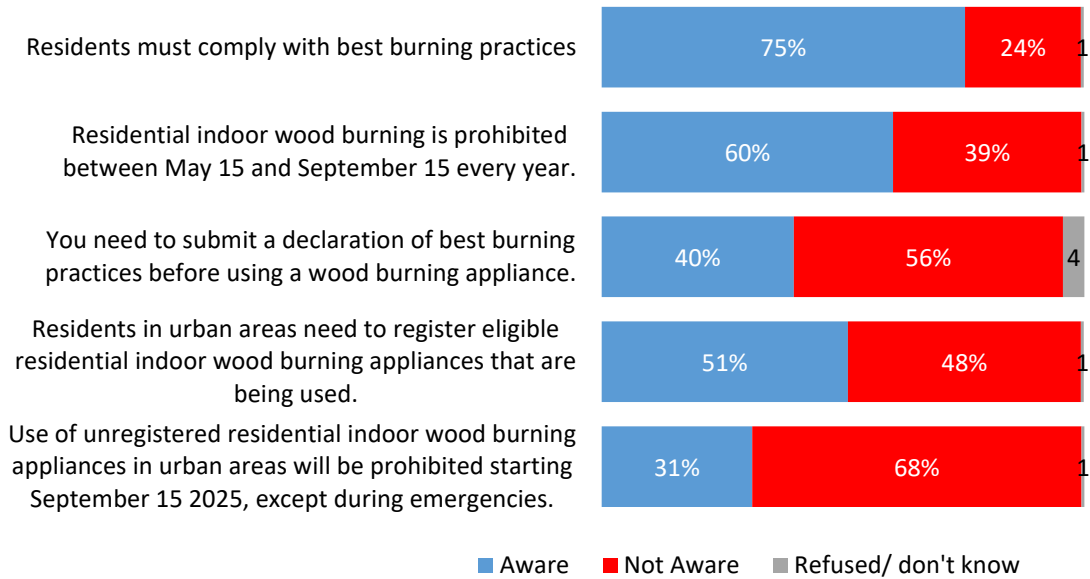
Base: Total Metro Vancouver (n=646)

Q.46) Are you aware of Metro Vancouver’s Residential Indoor Wood Burning Bylaw that was adopted in 2020?

Among the 16% of Metro Vancouver residents aware of the Indoor Wood Burning Bylaw, the majority are aware of the requirement to comply with best burning practices (75%) and the residential wood burning prohibition between May 15 and September 15 every year (60%).

Awareness of the other requirements is lower, with just one-half aware of the need to register wood burning equipment in use (51%), four-in-ten aware of the need to submit a declaration of best burning practices before using an appliance (40%), and just three-in-ten aware of upcoming prohibition on the use of unregistered residential wood burning appliances in urban areas (31%).

Awareness of Metro Vancouver Bylaw Requirements



Base: Total Metro Vancouver residents that are aware of Metro Vancouver's Residential Indoor Wood Burning Bylaw (n=646)

Q.47) Are you aware of the following requirements?

7. Demographic Profiles

Demographic Profile			
	<u>Total</u> (2,927) %	<u>Wood Burning</u> <u>Households</u> (1,840) %	<u>Non-Wood</u> <u>Burning</u> <u>Households</u> (1,087) %
Main Source of Heat			
Natural gas	47	29	50
Electricity	37	27	39
Heat pump	8	14	7
Wood or wood pellets	4	24	-
Fuel oil or heating oil	1	2	1
Propane	1	3	1
Other	2	1	2
Refused/ don't know	<1	<1	1
Burn Wood or Pellets			
Yes	15	100	-
No	85	-	100
Unused Wood Burning Appliances			
Yes	11	-	11
No	89	-	89
Rural Area			
Yes	24	59	18
No	76	40	82
Refused/don't know	<1	1	-

Appendix

Questionnaire





British Columbia (B.C.) Residential Wood Burning Survey Questionnaire

Good afternoon/evening, my name is NAME, and I am calling from Mustel Research Group on behalf of BC Lung Foundation regarding a Residential home heating Survey. May I please speak to the person in your household who is most knowledgeable about your home heating equipment?

Please be assured that we are not selling or soliciting anything. This survey takes between 10 to 15 minutes to complete, depending on your answers.

IF NECESSARY, REPEAT INTRO, THEN READ:

We are conducting a province-wide survey to gather information on residential home heating. The information collected in this survey will assist in the design of programs and services to help residents use their equipment more efficiently, save money on fuel costs and keep our air clean. All participants in this survey will remain anonymous.

- 1) To ensure that we are representing all areas of the province, may I please have your postal code? **COLLECT FULL 6 DIGITS**

- 2) Please note that the questions I am going to be asking you refer to the residence you are in right now. Is this residence in a rural area, that is, in a country setting?
 1. Yes
 2. No
 9. Don't know

- 3) What is the main source of heat in your home? **(READ LIST) [ACCEPT 1 MENTION] [RANDOMIZE]**
 1. Electricity
 2. Natural gas
 3. Fuel oil or heating oil
 4. Wood or wood pellets
 5. Propane
 6. Heat Pump
 - 96 Other [specify] **[ALWAYS LAST]**
 - 99 Don't Know

*IF WOOD OR WOOD PELLETS IS THE MAIN SOURCE GO TO QUESTION 6,
OTHERWISE CONTINUE*

- 4) Do you ever burn wood or wood pellets in a fireplace, woodstove or other wood burning appliance at your residence?
1. Yes **GO TO QUESTION 6**
 2. No **CONTINUE**
 9. Don't know **CONTINUE**
- 5) You indicated that you do not burn wood or wood pellets at all. Does your home have any wood burning appliances, such as fireplaces, woodstoves, that you don't use?
1. Yes **GO TO Q39**
 2. No **GO TO QUESTION Q40**

IF DON'T KNOW ASK FOR HOUSEHOLD MEMBER MORE KNOWLEDGEABLE ABOUT WOOD BURNING, BACK TO INTRO

- 6) Of all the heat used in your home, approximately what percentage comes from burning wood or wood pellets:
1. A small amount
 2. About one quarter
 3. About one half
 4. About three quarters
 5. All or nearly all
 - 999 Don't know
- 6b) Does your household burn more, less, or the about same amount of wood as in recent years?
1. More than in the past
 2. Less than in the past
 3. About the same
 9. Don't know/can't recall
- 7) Which of the following types of wood burning appliances did you use in your home in the past 12 months? **READ, CHECK ALL THAT APPLY**

IF NEEDED: A fireplace insert is a cast iron or steel device that is inserted into an existing wood burning fireplace and has glass doors that allow the flames of the fire to be viewed while the insulated doors remain closed.

Wood fireplace	1 YES	2 NO	9 Don't know
Wood burning insert	1 YES	2 NO	9 Don't know
Wood stove	1 YES	2 NO	9 Don't know
Wood burning central heating system (furnace or boiler)	1 YES	2 NO	9 Don't know
Pellet stove or furnace	1 YES	2 NO	9 Don't know
Other wood burning appliance: SPECIFY	1 YES	2 NO	9 Don't know

IF YES TO FIREPLACE IN Q7 ASK QUESTIONS Q8 - 9, OTHERWISE SKIP

8) How many wood burning fireplaces do you currently have in your home?
This includes fireplaces that have an open hearth as well as fireplaces with doors.
Record number _____

9) Approximately how old is your fireplace?
Record years _____ 999 Don't Know

REPEAT QUESTION 8 AND 9 IF THE RESPONDENT INDICATED > 1 FIREPLACE

IF YES TO WOOD BURNING INSERT IN Q7 ASK QUESTION Q10-12,

OTHERWISE SKIP

10) How many wood burning inserts do you currently have in your home?
Record number _____

11) Approximately how old is your wood burning insert?
Record years _____ 999 Don't Know

12) Is your wood burning insert either U.S. EPA emission certified or CSA B415 emission certified?
1. Yes
2. No
9. Don't know

REPEAT QUESTION 11 AND 12 IF THE RESPONDENT INDICATED > 1 INSERT.

IF YES TO WOOD STOVE IN 7 ASK QUESTIONS 13-15, OTHERWISE SKIP.

13) How many wood stoves do you currently have in your home?
Record number _____



14) Approximately how old is your woodstove?

Record years _____ 999 Don't Know

15) Is your woodstove either U.S. EPA emission certified or CSA B415 emission certified?

1. Yes
2. No
9. Don't know

REPEAT QUESTION 14 AND 15 IF THE RESPONDENT INDICATED >1

WOOD STOVE.

IF YES TO WOOD BURNING CENTRAL HEATING IN 7 ASK QUESTIONS 16-19, OTHERWISE SKIP.

16) Is your wood burning central heating system a warm air furnace or a boiler?

1. Boiler
2. Furnace
9. Don't Know

17) Is your wood-burning furnace or boiler located inside or outside your house?

1. Inside
2. Outside
9. Don't know

18) Approximately how old is your wood-burning furnace or boiler?

Record years _____ 999 Don't Know

19) Is your furnace or boiler either U.S. EPA emission certified or CSA B415 emission certified?

1. Yes
2. No
9. Don't know

IF YES TO PELLET STOVE IN 7 ASK QUESTIONS 20 TO 22, OTHERWISE SKIP.

20) How many pellet stoves do you currently have in your home?

Record number _____



21) Is your pellet stove either U.S. EPA emission certified or CSA B415 emission certified?

- 1. Yes
- 2. No
- 9. Don't know

22) A standard bag of pellets weighs 40 pounds. Approximately how many bags of pellets did you burn over the past 12 months?

ENTER NUMBER OF BAGS OF PELLETS: _____

998 Don't know

REPEAT QUESTION 21 AND 22 IF THE RESPONDENT INDICATED MORE >1

PELLET STOVE.

AMOUNT OF WOOD BURNED

ASK IF ANY WOOD BURNING APPLIANCE OTHER THAN A PELLET STOVE IN QUESTION 7.

IF A PELLET STOVE IS THE ONLY APPLIANCE GO TO NUMBER 31.

I am now going to ask you a few questions about the wood you burn in your home.

23) Approximately how many cords of wood did you burn in your wood-burning equipment over the past 12 months? Please stop me when I have reached your category. **Please answer based on all your wood burning appliances. Definition of a cord of wood:** One full cord is a stack of firewood that measures 4 feet in width, 8 feet in length, and 4 feet in height.

Would you say you used?

- | | | | |
|--------------------------|-----------------------|-----------------|-------------------|
| 1) less than ¼ of a cord | 2) ¼ to ½ cord | 3) ½ to 1 cord | 4) 1 to 1 ½ cords |
| 5) 1 ½ to 2 cords | 6) 2 to 3 cords | 7) 3 to 4 cords | 8) 4 to 5 cords |
| 9) 5 to 6 cords | 10) more than 6 cords | | |
| 96) Other | 98) Don't know | | |

24) Of all the wood burned in your home over the past year, excluding pellets, approximately what percentage did you burn in your: **ASK ONLY THOSE THAT APPLY FROM QUESTION 7**

- 1. Wood fireplace(s) _____%
- 2. Wood insert(s) _____%
- 3. Wood stove(s) _____%
- 4. Wood furnace or boiler(s) _____%
- 5. Other appliance _____%
- 9. Don't know



25) Which if any of the following types of wood do you burn? **(READ)**

1. Pine
2. Spruce
3. Douglas fir
4. Birch
5. Alder
6. Hemlock
7. Cedar
96. Other
98. Don't know varieties

26) And of those different types of wood that you burn, what percentage would be:

1. Pine _____%
2. Spruce _____%
3. Douglas fir _____%
4. Birch _____%
5. Alder _____%
6. Hemlock _____%
7. Cedar _____%
96. Other _____%
98. DON'T KNOW

27) In what season(s) do you mainly gather or purchase your firewood?

1. Winter
2. Spring
3. Summer
4. Fall
9. Don't Know

28) How long do you typically dry/season your firewood before the heating season?

1. Not at all **SKIP Q29**
2. Less than six months
3. Six to twelve months
4. More than one year
9. Don't know

29) Do you usually have your firewood split before drying / seasoning it?

1. Yes
2. No
9. Don't know

30) How do you store the majority of your wood? Would it be:

READ, CHECK ALL THAT APPLY

1. Woodshed
2. Outside, covered pile or stack
3. Outside, uncovered pile or stack
4. Inside, heated
5. Inside, unheated
9. Don't know

I am now going to ask you a few questions on wood burning practices.

31) For which of the following reasons do you burn wood or wood pellets?

1 NOT A REASON **2 MINOR** **3 MAJOR** **9**
NOT SURE

- a) A wood supply is readily available
- b) It is cheaper compared to other fuels
- c) I like the smell or beauty of a fire
- d) I think it is an environmentally friendly option
- e) Natural gas is not available in my area
- f) Reliability in event of power outages
- g) Only source of heat

- h) Any other reasons?

1. ENJOY THE HEAT/UNIQUE DRY HEAT PRODUCED BY BURNING WOOD/
CONSISTENT
2. SUPPLEMENTAL SOURCE OF HEATING
3. EXERCISE (I.E. SPLITTING, HAULING)
4. KEEP DAMPNESS OUT OF MY HOME
96. MISCELLANEOUS REASONS
97. NO OTHER REASONS

32) Thinking back over the seasons in the past year, approximately how many days per week would you have had a fire going in your wood burning equipment (at least one of your wood or pellet burning appliances): **READ, ONE ANSWER ONLY FOR EACH SEASON**

	NUMBER OF DAYS PER WEEK
A. Fall Season (September through October)	0 1 2 3 4 5 6 7 (9 DK)
B. Winter Season (November through February)	0 1 2 3 4 5 6 7 (9 DK)
C. Spring Season (March through May)	0 1 2 3 4 5 6 7 (9 DK)
D. Summer Season (June through August)	0 1 2 3 4 5 6 7 (9 DK)

33) Which ONE of the following types of equipment would you most seriously consider installing in the next 3 years? Would it be a: **READ, CHECK ONE ANSWER ONLY**

1. Wood heater
2. Pellet stove
3. Gas stove
4. Heat pump
5. Replace/Upgrade parts
96. Other
97. None
- 98 DON'T KNOW

34) What would be the single most important reason why you would install new equipment? **DO NOT READ, CHECK ONE ONLY**

And any other reasons?

- 01 APPEARANCE
- 02 AGE OF OLD EQUIPMENT
- 03 ELECTRICITY SUPPLY UNRELIABLE
- 04 ENVIRONMENTAL/AIR QUALITY CONCERNS
- 05 FAILURE OF OLD EQUIPMENT
- 06 GAS ISN'T AVAILABLE IN MY AREA
- 07 HIGH PRICES FOR ELECTRICITY, GAS OR OTHER FUEL
- 08 HOME INSURANCE PURPOSES
- 09 INCONVENIENT TO USE OLD EQUIPMENT
- 10 ENJOY BURNING WOOD
- 11 HEALTH OR SAFETY REASONS
- 12 FUEL EFFICIENCY - OLD EQUIPMENT USES TOO MUCH FUEL
- 13 COST SAVINGS
- 14 EASY TO USE
- 15 GOVERNMENT PROVIDES INCENTIVES

- 96 MISCELLANEOUS
- 98 DON'T KNOW

35) Are you aware that there are cash incentives in many BC communities for upgrading to newer, more efficient, cleaner home heating appliances such as heat pumps, certified wood or pellet stoves?

1. Yes
2. No
9. Don't know

- 36) Are you aware of or have you participated in the Provincial Community Wood Smoke Reduction Program previously called the Woodstove Exchange Program?
1. Aware and have participated
 2. Aware of
 3. Not aware of
 9. Don't know
- 37) Assuming there was a \$600 incentive for changing from an old uncertified wood stove to a certified wood stove, \$1000 for changing to a wood pellet stove, and \$1500 for changing to a heat pump available in your community, how would this affect your decision to upgrade or replace your existing wood burning equipment?
1. Much more likely to replace
 2. Slightly more likely to replace
 3. No more likely to replace
 4. Less likely to replace
 9. Don't know
- 38) Are you aware that all new wood burning stoves sold in British Columbia are mandated by law to be certified to lower emission levels to reduce smoke?
1. YES, AWARE
 2. NO, NOT AWARE
 9. Don't Know

ASK NON-BURNERS

- 39) **IF YES TO Q5** Has your household used those wood-burning appliances in the recent past?
1. Yes, in the past 2 years
 2. Yes, in the past 3 years
 3. Yes, in the past 5 years
 4. No
- 40) **IF NO TO Q5** Have you removed any wood burning appliances from your household in the last ten years?
1. Yes
 2. No
 9. Don't know

ASK EVERYONE

41) To what extent is chimney smoke in your local area a concern to you and your family? Is it...

READ

- | | |
|-------------------------|--------------------------|
| 1 A strong concern | CONTINUE |
| 2 Somewhat of a concern | CONTINUE |
| 3 Not much of a concern | GO TO QUESTION 43 |
| 4 Not at all a concern | GO TO QUESTION 43 |
| 9 DON'T KNOW | GO TO QUESTION 43 |

42) Why is chimney smoke a concern to you? **DO NOT READ, CHECK AS MANY AS APPLY. PROBE**

1. Health-related concerns
2. Appearance
3. Smell
4. Environmental concerns (pollution, air quality, etc.)
96. Miscellaneous
98. Don't know

43) There are several actions that can be taken to reduce the amount of smoke from residential wood burning. Please tell me if you would support or oppose the following measures: **READ**

5 Strongly support 4 Somewhat support 3) Neutral
2 Somewhat oppose 1 Strongly oppose

- a) Establishing emission control requirements through a local bylaw.
- b) Providing a cash back incentive for removing old woodstoves and wood inserts.
- c) Fines for generating excessive smoke
- d) Restricting wood burning on poor air quality days
- e) Requiring the removal or upgrade of older high polluting appliances when a house is sold

44) How would you rank the following sources – Low, Medium or High – for their contribution to air pollution in your area (Wildfire air pollution is excluded because wildfires are natural events that cannot be directly controlled by human activities)?

1 Low 2 Medium 3 High 9 DON'T KNOW

- a) Industry
- b) Transportation (includes vehicles, trains, aircraft, ships)
- c) Residential wood burning (indoor burning and outdoor wood boilers)
- d) Open Burning (including backyard burning and forestry slash burning)

45) Which of the following statements best describes how you feel about the



air quality in the area where you live? The air quality in the area where I live is: **READ AND ROTATE, ONE ANSWER ONLY**

1. Almost always good
2. Good most of the time, poor on occasion
3. Good about half of the time, poor the other half
4. Poor most of the time, good on occasion
5. Almost always poor
9. DON'T KNOW

FOR ALL METRO VANCOUVER RESIDENTS WHETHER OR NOT THEY BURN WOOD

- 46) Are you aware of Metro Vancouver's Residential Indoor Wood Burning Bylaw that was adopted in 2020?
1. Yes, aware
 2. No, not aware
 9. Don't Know

IF YES TO Q46, ASK Q47, OTHERWISE SKIP TO FINAL STATEMENT

- 47) With respect to Metro Vancouver's Residential Indoor Wood Burning Bylaw, are you aware of the following requirements?
YES/NO TO EACH REQUIREMENT
1. Residents must comply with best burning practices.
 2. Residential indoor wood burning is prohibited between May 15 and September 15 every year.
 3. You need to submit a declaration of best burning practices before using a wood burning appliance.
 4. Residents in urban areas need to register eligible residential indoor wood burning appliances that are being used.
 5. Use of unregistered residential indoor wood burning appliances in urban areas will be prohibited starting September 15, 2025, except during emergencies.

If you are interested in learning more about Metro Vancouver's Residential Indoor Wood Burning Bylaw, please visit www.metrovancouver.org and search for 'about wood burning bylaw'.