



2009

Alberta Fire Commissioner's Statistical

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Government  
of Alberta ■



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# Messages



## Minister's Message

### Greetings from the Honourable Hector Goudreau, Minister of Municipal Affairs

The Alberta Emergency Management Agency, through Alberta's Fire Commissioner's office, is committed to working with fire and emergency service responders to help keep our residents and communities safe.

Part of this commitment is publishing the Fire Commissioner's annual statistical report. It is an important resource to focus fire prevention and safety efforts for residents, local officials and firefighters alike. Understanding these statistics is an important way to generate awareness and encourage people to make changes in their daily lives that will enhance safety for their families. Although not captured in this report, the May 2011 wild fire in Slave Lake is a stunning reminder of the devastating effects of fire.

My Ministry continues to work with communities, industry and our other government partners to help protect Albertans from the effects of emergency events, including fire. Strong partnerships are vital to the promotion of fire prevention and safety.

By working together we can help make Alberta a safer place and reduce the harmful and devastating effects of residential and business fires.

A handwritten signature in black ink, appearing to read "Hector Goudreau".

Hector Goudreau  
Minister of Municipal Affairs  
MLA, Dunvegan-Central Peace



## Fire Commissioner's Message

A total of 5,227 fires were reported to the Fire Commissioner for 2009. These fires resulted in 28 deaths, 208 injuries and a total of \$506 million in direct property losses. This is the highest single-year dollar loss since 2000 and was primarily due to higher property losses in both residential and industrial manufacturing properties.

On average, there was 1.0 fire death per 100,000 population (range 0.7 to 1.5) in Alberta. Most fire deaths and injuries happen in places where Albertans feel the safest – their homes. Although only 33 per cent of all fires occurred in homes, 68 per cent of all fire deaths, 64 per cent of all fire injuries and 44 per cent of all property losses from fires occurred in these property classes. Home fire safety continues to be a priority for fire and emergency services in Alberta.

Safety related decisions that affect all Albertans are based primarily on good information. I encourage all reporting agencies to continue their valuable contribution to the collection and dissemination of fire statistics to keep Albertans safe.

Yours in safety!

A handwritten signature in black ink, appearing to read "Trent West".

Trent West  
Fire Commissioner

## Fire Deaths and Injuries 2000 to 2009 (Alberta and Canada)

Year	Population*	Fire Deaths	Alberta Fire Death Rate†	Canada Fire Death Rate**	Fire Injuries	Alberta Fire Injury Rate‡
2000	2,932,963	27	0.9	1.1	341	11.6
2001	2,962,664	43	1.5	1.1	393	13.3
2002	3,050,889	31	1.0	1.0	307	10.1
2003	3,091,831	24	0.8	0.9	323	10.4
2004	3,124,923	27	0.9	1.0	291	9.3
2005	3,242,110	38	1.2	0.9	247	7.6
2006	3,303,762	35	1.1	—	236	7.1
2007	3,416,498	23	0.7	—	212	6.2
2008	3,496,308	33	0.9	—	244	7.0
2009	3,584,648	28	0.8	—	208	5.8
<b>Total</b>		<b>309</b>			<b>2,802</b>	
<b>Average</b>		<b>31</b>	<b>1.0</b>		<b>280</b>	<b>8.4</b>

\* Source: Alberta Municipal Affairs: [www.municipalaffairs.alberta.ca/documents/LGS/2009pop.pdf](http://www.municipalaffairs.alberta.ca/documents/LGS/2009pop.pdf)

\*\* Source: Council of Canadian Fire Marshals and Fire Commissioners.

† Fire Death Rate: Number of fire deaths per 100,000 population.

‡ Fire Injury Rate: Number of fire injuries per 100,000 population.



## FIRE Facts

- ◆ Based on probable causes of death, smoke inhalation accounted for 57%; burns 21%; and other causes (21%) of all fire deaths in 2009. The probable causes of fire injuries were, smoke inhalation (30%); burns (51%); physical injury (13%); and other injury (7%).
- ◆ The annual fire death rates in Alberta (for 2000 to 2009) have fluctuated around an average of 1.0 death per 100,000 population, with a range of 0.7 to 1.5. The annual fire injury rates in Alberta have fluctuated around an average of 8.4 injuries per 100,000 population, with a range of 5.8 to 13.3.



# Alberta Fire Deaths and Injuries

## Location of FIRE Deaths 2009

Calgary	7
County of Camrose No. 22	1
Edmonton	5
Flagstaff County	1
Fort Saskatchewan	1
Kitscoty	1
Lethbridge	2
County of Lethbridge	1
McLennan	1
Red Deer	1
Smoky Lake County	1
County of Stettler, No. 6	1
Sundre	1
Fishing Lake Metis Settlement	1
Kikino Metis Settlement	1
Driftpile River Band	1
Yellowhead County	1
<b>Total</b>	<b>28</b>

## Causes of Fire Deaths

### One and Two Family Dwellings, Apartments, Travel or Camping Trailers

Electrical equipment related fire	1
Arson/set fire ignited clothing	1
Cigarette ignited upholstered furniture (1), clothing (1), flammable gas (1)	3
Portable space heater ignited upholstered furniture (3), clothing on victim impaired (suspect alcohol/drugs/medication)(1)	4
Food caught fire in pan heated on stove top burner, victim impaired (suspect alcohol/drugs/medication)	1
Cooking oil overheated in deep-fat fryer (1), in other circumstance (1) on stove-top burner	2
Unknown ignition scenario, victim impaired (suspect alcohol/drugs/medication)	1
Electrical equipment ignited building component	1
Unknown	7

### Home for Aged (without nursing staff)

Smoker's material ignited upholstered furniture	1
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### Garage (individual residential parking)

Motor Under 1 H.P. ignited gasoline due to human failing (unclassified)	2
Unknown	1

### Shed (includes implement shed/workshop)

Wood burning appliance ignited building components	1
Unknown source of ignition ignited gasoline	1

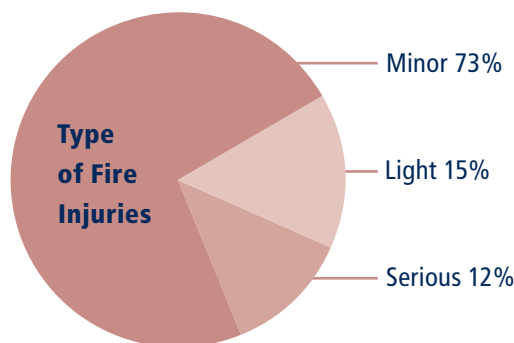
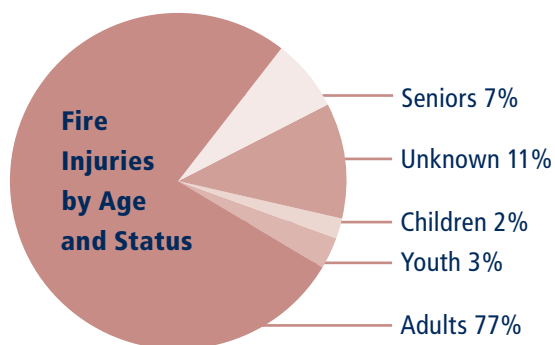
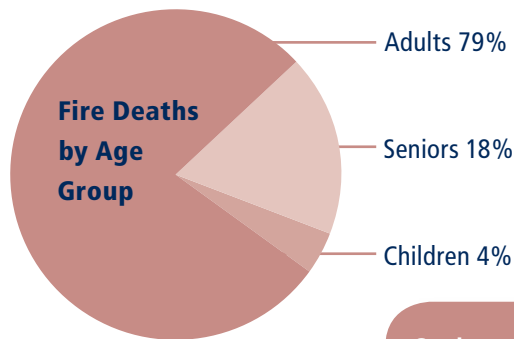
### Truck

Vehicle accident ignited gasoline	1
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**Total Fire Deaths 28**



## Fire Deaths and Injuries by Age and Status



**Seniors:** 65 years of age and older

**Adults:** 18 - 64 years

**Youth:** 12 - 17 years

**Children:** 11 years and under

**Note:** No firefighters died in 2009 fires

*Definitions of injuries are provided in the glossary, page 18.*

## FIRE Facts

- ◆ On average, a fire related death occurred every 13 days in Alberta in 2009.
- ◆ Of the 28 fatalities, 18% were impaired (alcohol/drugs/medication); 14% were awake and normal; 7% were asleep; and 7% were bedridden/physically handicapped at the time of fire. The condition of other fatalities is unknown or unclassified. Where known, actions of fatalities were: Injured while attempting escape (14%); entered/remained for firefighting (4%); over-exertion/heart attack (4%).
- ◆ Of the 208 injuries, 53% were awake and normal; 13% were asleep; 8% were impaired (alcohol/drugs/medication); and 3% were children left unattended. Actions of the injured were: Entered/remained for firefighting (39%); injured while attempting escape (19%); entered/remained to save personal property (4%); and entered/remained for rescue purposes (3%).
- ◆ There were 0.6 fire injuries reported per day, on average, in Alberta in 2009.
- ◆ The civilian adult male to female ratio was 2:1 for fire deaths and 3:1 for fire injuries.

## Risk of Fire Deaths and Injuries

The risk of dying or being injured in a fire can be calculated as the fire death rate or fire injury rate – the number of casualties in an age group divided by the population of the age group. When fire deaths or injuries were calculated for the five-year period, 2005 to 2009, as rates per 100,000 population, per annum, using the above formula, it was found that:

- Seniors 65 years and older had the highest risk of dying in fires (fire death rate of 1.2), followed by adults 35 - 49 years (1.1), adults 50 - 64 years (1.0), adults 18 - 34 years (0.9), children 5 years and under (0.2), children 6 - 11 (0.3), and youth 12 - 17 (0.3).
- Civilian adults 35 - 49 had the highest risk of being injured in fires (fire injury rate of 8.2) followed by adults 18 - 34 (7.2), adults 50 - 64 (5.7), youth 12 - 17 (4.3), seniors 65 years and older (3.8), children 6 - 11 (1.8) and children 5 years and under (0.8).

Population data source: *Interactive Health Data Application*, Alberta Health and Wellness: [www.ahw.gov.ab.ca/IHDA\\_Retrieval](http://www.ahw.gov.ab.ca/IHDA_Retrieval)

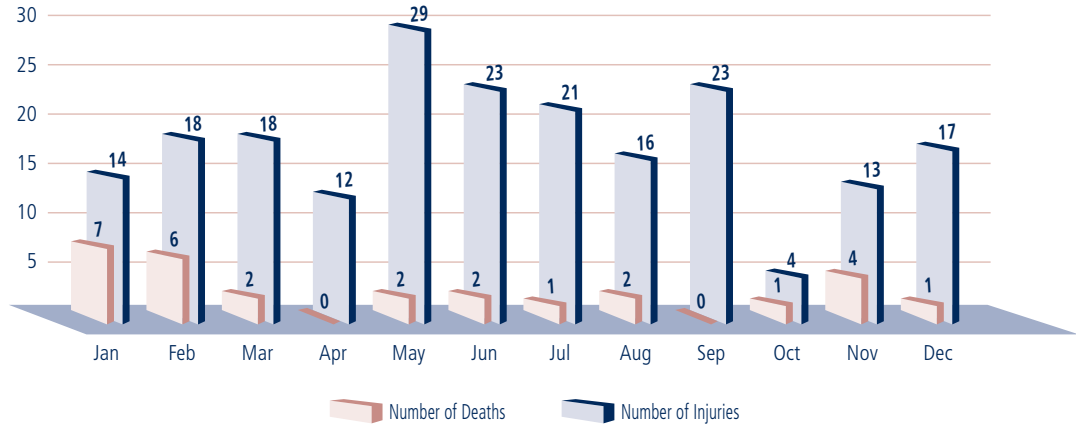
# Alberta Fire Deaths and Injuries



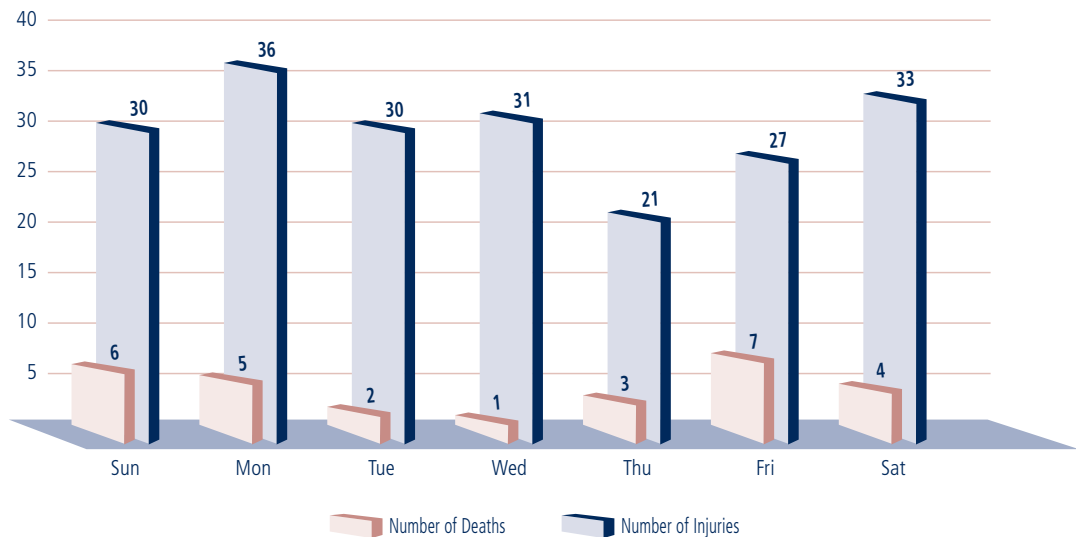
## FIRE Facts

- ◆ The highest number of fire deaths per month occurred in January (7) and February (6), while the highest number of fire injuries were in May (29), June (23), and September (23). A five-year (2005-09) analysis revealed most fatalities occurred in January (15%) and February (12%) and most injuries happened in January, February and December (10% each).
- ◆ The highest number of fire deaths per day of week occurred on Fridays (7) followed by Sundays (6) and Mondays (5), while the highest number of fire injuries was on Mondays (36) and Saturdays (33). A five-year analysis revealed most fatalities occurred on Fridays (21%) and Thursdays (17%), and most injuries on Tuesdays and Fridays (16% each).
- ◆ Sixty-one per cent of all fire deaths occurred during sleeping hours between 10:30 p.m. and 6:29 a.m. The majority of fire injuries (36%) occurred between 2:30 and 10:29 p.m. A five-year analysis revealed most fatalities (50%) occurred between 10:30 p.m. and 6:29 a.m., while most injuries (40%) happened between 2:30 and 10:29 p.m.

## Fire Deaths and Injuries by Month



## Fire Deaths and Injuries by Day of Week



## Fire Deaths and Injuries by Time of Day

Time Periods	Type			
	Injuries		Fire Deaths	
	No.	%	No.	%
2:30 p.m. to 10:29 p.m.	74	35.6	7	25.0
10:30 p.m. to 6:29 a.m.	61	29.3	17	60.7
6:30 a.m. to 2:29 p.m.	64	30.8	3	10.7
Unknown	9	4.3	1	3.6
<b>Total</b>	<b>208</b>	<b>100</b>	<b>28</b>	<b>100</b>



## Fire Deaths by Major Property Classification

Property Classification		Fire Deaths	
		No.	%
Residential	One and Two Family Dwellings	17	60.7
	Apartments	2	7.1
	Camping Trailer (Includes tent trailer)	1	3.6
	Travel Trailer	1	3.6
	<b>Sub Total</b>	<b>21</b>	<b>75.0</b>
Storage Properties	Garage (Individual residential parking)	3	10.7
Miscellaneous Property	Shed (Includes implement shed and workshop)	2	7.1
Special Property – Transportation Equipment	Trucks (Including light trucks/van/single body units)	1	3.6
Institutional	Home For Aged (Without nursing staff)	1	3.6
<b>Total</b>		<b>28</b>	<b>100.0</b>



## FIRE Facts

- ◆ Residential properties accounted for 75 per cent of fire deaths in 2009 and 76 per cent in the five-year period, 2005 to 2009.



# Alberta Fire Deaths and Injuries



## Fire Injuries by Major Property Classification

Property Classification	No.	%
<b>Residential</b>		
One and Two Family Dwellings	81	38.9
Apartments	47	22.6
Mobile Home	9	4.3
Motor Home, Travel/Camping Trailer	6	2.9
Motel, Hotel	3	1.5
Other Residential	3	1.5
<b>Sub Total</b>	<b>149</b>	<b>71.6</b>
<b>Special Property and Transportation Equipment</b>		
Outdoor Property-Unclassified	8	3.8
Farm Tractor and Equipment, Grain Dryer, Harvester, Picker, Etc.	5	2.4
Trucks, Cars	9	4.3
Buildings Under Construction/Renovation	4	1.9
Other Properties	5	2.0
<b>Sub Total</b>	<b>31</b>	<b>14.9</b>
<b>Industrial Manufacturing Properties</b>	10	4.8
<b>Storage Properties</b>	5	2.4
<b>Assembly</b>	3	1.4
<b>Mercantile</b>	3	1.4
<b>Miscellaneous Property</b>	3	1.4
<b>Business and Personal Service</b>	2	1.0
<b>Institutional</b>	2	1.0
<b>Total</b>	<b>208</b>	<b>100.0</b>

## FIRE Facts

- ◆ Most fire injuries occurred in residential properties (72%), particularly in one and two family dwellings (39%) and apartments (23%). In the five-year period, 2005 to 2009, residential properties accounted for 64 per cent of fire injuries, mostly in one and two family dwellings (36%) and apartments (17%).
- ◆ The majority of fire injuries were inflicted in fires related to stove-top cooking (17%), smoking (11%), followed by ignition of flammable liquids/gases (10%).

## Major Causes of Fire Injuries

Causes	No.	%
Stove Top Fire in Pan/Deep Fryer	35	16.8
Cigarette/Smoker's Material Igniting a Variety of Combustibles	23	11.1
Ignition of Flammable Liquids/Gases	21	10.1
Electrical Wiring, Switches, Panels, Extension Cords, Power Bars Igniting a Variety of Combustibles	20	9.6
Arson/Vandalism	14	6.7
Central Furnaces and Water Heaters	13	6.3
Space Heaters, Chimney	10	4.8
Candles Igniting a Variety of Combustibles	10	4.8
Child Fire-Play with Matches, Lighters, Smoker's Materials, Etc.	9	4.3
Cutting, Welding, Other Torches	7	3.4
Incandescent Lamp, Bulb, Heat Lamp, Halogen Lamp	7	3.4
Hot Ashes/Embers Too Close to Combustibles	6	2.9
Internal Combustion Engine, Mostly Igniting Flammable Liquids/Gases	4	1.9
Other	6	2.9
Unknown	23	11.1
<b>Total</b>	<b>208</b>	<b>100.0</b>

## Fire Losses in Alberta 2000 to 2009

Year	Fires	Deaths	Injuries	\$ Losses	Adjusted \$ Losses*
2000	6,457	27	341	158,724,441	167,962,371
2001	7,021	43	393	229,231,932	237,054,738
2002	5,994	31	307	272,588,413	272,588,413
2003	5,647	24	323	348,481,771	333,794,799
2004	5,140	27	291	202,740,018	191,444,776
2005	5,197	38	247	450,426,713	416,675,960
2006	5,136	35	236	214,029,638	190,587,389
2007	5,301	23	212	332,719,373	282,204,727
2008	5,703	33	244	392,456,872	322,744,138
2009	5,227	28	208	505,608,864	416,138,983
<b>Total</b>	<b>56,823</b>	<b>309</b>	<b>2,802</b>	<b>3,107,008,035</b>	<b>2,831,196,294</b>
<b>Average</b>	<b>5,682</b>	<b>31</b>	<b>280</b>	<b>310,700,803</b>	<b>5,662,392,588</b>

\*Adjusted losses were calculated from actual losses using the Annual Consumer Price Index (C.P.I.) figures for Alberta obtained from Statistics Canada (2002 CPI = 100), <http://www40.statcan.ca/l01/cst01/econ09j-eng.htm>



## FIRE Facts

- ◆ During the 10-year period 2000 to 2009, the annual number of fires reported to the Fire Commissioner averaged 5,682. 2002 marks the first year in which the number of fires declined below 6,000. This decline probably represents sub-standard reporting.
- ◆ The numbers of all fire related deaths and fire injuries have fluctuated between 23 - 43 (average 31) and 208 - 393 (average 280), respectively.
- ◆ From a total of 5,227 fires during 2009, there were 3,098 structural fires (59%); 1,631 vehicle fires (31%) and 498 outdoor fires (10%).
- ◆ There were 14 destructive fires reported per day, on average, in Alberta during 2009. Direct property losses from fires were on average \$1,385,229 per day and \$96,730 per fire.



## FIRE Facts

- ◆ The province has experienced an average fire rate of 1.8 during the period 2000 to 2009.
- ◆ As a percentage of gross domestic product, fire losses have increased from 2008 to 2009 by 54%. This increase reflects a number of large industrial fires in 2009. As a percentage of personal income, fire losses have increased by 30% over the same period.
- ◆ On average, 435 fires (range = 326 to 603) were reported to the Fire Commissioner each month during 2009. This average was exceeded in May (+38%) followed by June (+21%). On average, direct property losses averaged \$42.1 million per month (range = \$22 million to \$78 million). This average was exceeded in September (+86%).
- ◆ On average there were 747 fires per day of week (range = 672 to 869). Property losses averaged \$72 million per day of week (range = \$46 million to \$103 million).
- ◆ Where the time of fire was known, the number of fires was highest between midnight and 4 a.m. (21%) and 4 to 8 p.m. (19%). Dollar losses were highest between 12 mid night and 4 a.m. (28%).

## Fire Rates and Per Capita Losses 2000 to 2009

Year	Population	Fires	Fire Rate*	Loss Estimate	\$ Loss/Capita
2000	2,932,963	6,457	2.2	158,724,441	54.1
2001	2,962,664	7,021	2.4	229,231,932	77.4
2002	3,050,889	5,994	2.0	272,588,413	89.3
2003	3,091,831	5,647	1.8	348,481,771	112.7
2004	3,124,923	5,140	1.6	202,740,018	64.9
2005	3,242,110	5,197	1.6	450,426,713	138.9
2006	3,303,762	5,136	1.6	214,029,638	64.8
2007	3,416,498	5,301	1.6	332,719,373	97.4
2008	3,496,308	5,703	1.6	392,456,872	112.2
2009	3,584,648	5,227	1.5	505,608,864	141.0

\*Fire Rate = Number of fires per 1,000 population.

## Fire Losses Related to Economic Indices 2000 to 2009

Year	Fire Losses (\$)	Gross Domestic Product (\$ million)*	% of GDP	Personal Income (\$ million)*	% of Personal Income
2000	158,724,441	144,789	0.11	89,094	0.18
2001	229,231,932	151,274	0.15	98,131	0.23
2002	272,588,413	150,594	0.18	101,072	0.27
2003	348,481,771	170,113	0.20	105,664	0.33
2004	202,740,018	189,743	0.11	115,269	0.18
2005	450,426,713	219,810	0.20	128,285	0.35
2006	214,029,638	238,886	0.09	146,058	0.15
2007	332,719,373	255,787	0.13	160,149	0.21
2008	392,456,872	291,577	0.13	172,209	0.23
2009	505,608,864	247,184	0.20	171,342	0.30

\*Sources: Statistics Canada, *Provincial and Territorial Economic Accounts: Data Tables*, catalogue number 13-018-X. Table 18. Selected Economic Indicators, Alberta; [www.statcan.gc.ca/pub/13-018-x/2010001/t/tab1848-eng.htm](http://www.statcan.gc.ca/pub/13-018-x/2010001/t/tab1848-eng.htm)

## FIRE Facts

### Fire Losses by Major Property Classification

Major Property Classification	Fires	%	\$ Losses	% of \$ Losses
Special Property – Transportation Equipment	2,126	41	37,276,544	7
Residential	1,908	37	231,353,487	46
Storage Properties	396	8	36,073,083	7
Miscellaneous Property	336	6	19,298,117	4
Mercantile	130	2	23,483,852	5
Assembly	128	2	22,015,657	4
Industrial Manufacturing Properties	108	2	124,305,574	25
Business and Personal Service	62	1	8,324,809	2
Institutional	33	1	3,477,741	1
<b>Total</b>	<b>5,227</b>	<b>100</b>	<b>505,608,864</b>	<b>100</b>

### Fire Losses by Major Sources of Ignition

Major Sources of Ignition	Fires	%	\$ Losses	% of \$ Losses
Smoker's Material and 'Open' Flames	942	18	68,599,178	14
Electrical Distribution Equipment	572	11	143,174,197	28
Exposure	554	11	17,929,946	4
Miscellaneous	496	9	30,521,027	6
Cooking Equipment	393	8	20,450,486	4
Heating Equipment	276	5	73,660,200	15
Other Electrical Equipment	200	4	15,823,251	3
Appliances and Equipment	146	3	10,623,448	2
No Igniting Object	25	0	1,078,870	0
Not Determined	1,623	31	123,748,261	25
<b>Total</b>	<b>5,227</b>	<b>100</b>	<b>505,608,864</b>	<b>100</b>

- ◆ The largest number of fires occurred in one/two family dwellings (25%) and ground transport vehicles (23%), followed by apartments (7%) and individual residential parking garages (4%).
- ◆ Property classes with the highest dollar losses were one and two family dwellings (\$132 million or 26%), petroleum refineries (\$91 million or 18%) and apartments (\$81 million or 16%).
- ◆ The most frequent known areas of fire origin were in vehicle (30%) [engine: 14%; passenger area: 5%; control and cargo areas: 2% each; fuel area: 1%, and unclassified: 6%]. Other known areas were, outside (10%), kitchen-cooking (8%) and trash/rubbish (5%).
- ◆ The most common sources of ignition in Alberta fires in 2009 were: Exposure fires from detached structures, vehicles, outdoor properties, etc. (10%); electrical distribution equipment, wiring, lamps (9%); cooking equipment, primarily stoves and other cooking appliances (5%); smoker's materials such as cigarettes (5%); internal combustion engine (3%). The highest property loss was attributed to fires where sources of ignition were unknown (\$124 million or 31%).
- ◆ Where known, the most common fuel or energy associated with the source of ignition were:
  - Electricity (21%)
  - Exposure Fire (11%)
  - Match/Lighter – Not Related to Smoking (7%)
  - Propane, natural gas, other gas (7%)
  - Smokers Material-cigarette/cigar/pipe/match/lighter (5%)
  - Coal/Wood/Coke/Paper, etc. (4%)
  - Gasoline (3%).



## FIRE Facts

- ◆ Arson and vandalism accounted for 20% of all fires in Alberta in 2009. This means that approximately one out of five fires was deliberately set.
- ◆ The other common acts or omissions were mechanical, electrical failure, malfunction (11%); electrical short circuit (8%), ignorance of hazard (6%); misuse of smoker's material (4%); overheated cooking oil, grease, wax (2%); distracted/preoccupied (2%) and combustible placed too close to heat (1%). Acts or omissions could not be determined in 19% of fires (\$81 million) while arson or other set fires could not be determined in another 7% of fires (\$29 million).
- ◆ Where known, materials most commonly ignited first were building components (9%); garbage/trash/rubbish (4%); gasoline (4%); Electric insulation in electric equipment (3%); cooking oil/fat (3%), and grass/brush/leaves (3%). Materials first ignited were not determined in 33% of the fires and these fires accounted for \$153 million in property losses.

## Fire Losses by Major Acts or Omissions

Major Acts or Omissions	Fires	%	\$ Losses	% of \$ Losses
Mechanical/Electrical Failure/Malfunction	1,257	24	158,510,518	31
Arson or 'Set' Fires	1,048	20	70,333,848	14
Not Determined	1,013	19	80,664,790	16
Human Failing	666	13	43,211,684	9
Misuse of Source of Ignition	381	7	28,446,842	6
Misuse of Material Ignited	251	5	65,927,053	13
Act or Omission Not Applicable	208	4	8,639,999	2
Miscellaneous	132	3	6,518,106	1
Construction, Design, Installation Deficiency	93	2	37,704,970	8
Misuse of Equipment	91	2	4,401,581	1
Vehicle Accident	87	2	1,249,473	0
<b>Total</b>	<b>5,227</b>	<b>100</b>	<b>505,608,864</b>	<b>100</b>

## Fire Losses by Major Materials First Ignited

Major Materials First Ignited	Fires	%	\$ Losses	% of \$ Losses
Building Components	636	12	106,889,117	21
Flammable/Combustible Liquids	603	12	77,505,872	15
Wood, Paper Products	445	9	28,807,690	6
Agricultural Products	297	6	10,683,478	2
Chemicals	291	6	9,220,622	2
Furniture, Furnishings	168	3	12,416,228	3
Clothing, Textiles	164	3	11,775,970	2
Flammable Gases	95	2	5,270,563	1
Miscellaneous	793	15	90,580,898	18
Not Determined	1,735	33	152,458,426	30
<b>Total</b>	<b>5,227</b>	<b>100</b>	<b>505,608,864</b>	<b>100</b>

## Initial Detection of Fires

Method of Initial Detection	Fires	%
Visual Sighting/Personal Detection	4,482	86
Smoke Alarm – Single Station	156	3
Smoke Detector – Linked to Alarm System	89	2
No Initial Detection – Burnt Out	75	1
Automatic Sprinkler System	26	0
Heat Detector – Linked to Alarm System	10	0
Heat Alarm – Single Station	7	0
Automatic System – Other Than Sprinkler	5	0
Initial Detection – Unclassified	78	1
Initial Detection – Unknown	299	6
<b>Total</b>	<b>5,227</b>	<b>100</b>



## Fires by Method of Fire Control and Extinguishment

Method of Fire Control and Extinguishment	Fires	%
Fire Department – Water	2,941	56
Hand Fire Extinguisher	500	10
Makeshift Fire Fighting Aid	394	8
Burned Out	384	7
Fire Department – Other Than Water	267	5
Standpipe System	71	1
Sprinkler System	31	1
Fixed System – Other Than Sprinklers	6	0
Miscellaneous – Unclassified	109	2
Miscellaneous – Unknown	524	10
<b>Total</b>	<b>5,227</b>	<b>100</b>

### FIRE Facts

- ◆ Visual sighting or other means of personal detection (86%) was the primary means of initial detection of fires in 2009, while smoke alarms/detector devices accounted for 5%.
- ◆ Where the method of fire control and extinguishment is known, fire departments extinguished 56% of all reported fires. The other common methods of fire extinguishment were hand fire extinguishers (10%) and "makeshift" fire fighting aids (8%).



## FIRE Facts

◆ Thirty-three per cent of all fires in Alberta occurred in homes. Home fires accounted for 68% of all fire deaths (19 out of 28), 64% of all fire injuries (132 out of 208) and 44% of all property losses (\$220 million out of \$506 million) from fires.

◆ Most Alberta home fires started in kitchens (20%), bedrooms and living rooms (7% each), court/patio/terrace and exterior walls (6% each).

## Home Fires by Type of Home

Type of Home	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	\$ Losses	% of \$ Losses
One and Two Family Dwellings	1,300	75	17	89	81	61	132,253,723	60
Apartments, Tenements and Flats	354	21	2	11	47	36	81,416,997	37
Mobile Homes	72	4	0	0	4	3	6,068,914	3
<b>Total</b>	<b>1,726</b>	<b>100</b>	<b>19</b>	<b>100</b>	<b>132</b>	<b>100</b>	<b>219,739,634</b>	<b>100</b>

## Home Fires by Major Areas of Fire Origin

Area of Origin	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	\$ Losses	% of \$ Losses
Kitchen/Cooking Area	353	20	3	16	34	26	15,941,913	7
Sleeping (Under Five Occupants)	129	7	2	11	21	16	18,543,176	8
Lounge/Living Room	121	7	7	37	19	14	20,526,526	9
Court/Patio/Terrace	104	6	0	0	4	3	9,284,738	4
Exterior Wall	102	6	0	0	1	1	15,058,520	7
Vehicle (Garage)	70	4	0	0	3	2	6,931,156	3
Exterior Balcony/Porch	60	3	0	0	4	3	4,433,910	2
Wall Assembly (2%), Ceiling and Floor Assembly (1%)	53	3	0	0	1	1	5,389,190	1
Open area/Lawn/Field/Park	49	3	0	0	0	0	1,596,773	1
Heating Equipment Room	46	3	0	0	8	6	5,247,305	2
Laundry Area	44	3	0	0	3	2	3,912,284	2
Washroom/Locker Room	43	2	1	5	8	6	4,883,907	2
Ceiling and Roof/Ceiling Space-Attic	40	2	0	0	1	1	5,680,780	3
Chimney/Flue Pipe/Gas Vent	32	2	0	0	0	0	8,017,254	4
All Other Areas	361	20	4	22	25	20	80,161,887	37
Area of Origin – Unknown	119	7	2	11	0	0	14,130,315	6
<b>Total</b>	<b>1,726</b>	<b>100</b>	<b>19</b>	<b>100</b>	<b>132</b>	<b>100</b>	<b>219,739,634</b>	<b>100</b>



## Major Known Causes of Home Fires

Fire Causes	Fires	% of Fires	Deaths	Injuries	\$ Losses
Cooking	341	20	3	33	13,541,925
Arson/Set Fire	240	14	1	12	36,908,704
Electrical Distribution Equipment and Light/Fluorescent Bulb	231	13	1	7	67,947,200
Smoking	203	12	3	27	14,590,992
Heating Equipment Related*	157	9	4	10	20,840,400
Exposure Fire**	101	6	0	1	8,043,843
Candle (Accident)	45	3	0	9	6,573,035
Appliance/Equipment Related	36	2	0	3	3,657,822
Clothes Dryer	27	2	0	0	364,458
Flammable/Combustible Liquid/Gas Ignition	25	2	0	9	1,361,176
Welding/Torch Too Close	14	1	0	2	1,578,201
Child Fire-play	13	1	0	2	1,202,062
Other Causes – Unknown	293	17	7	17	43,129,816
<b>Total</b>	<b>1,726</b>	<b>102</b>	<b>19</b>	<b>132</b>	<b>219,739,634</b>

\* Heating equipment includes furnaces, water heaters, fireplaces, wood stoves, space heaters and associated chimneys/vents.

\*\* An exposure fire is a fire that spreads from one property to an adjacent property.



## FIRE Facts

- ◆ Most home fires (20%) and most home fire injuries (25%) were related to cooking.
- ◆ About 25% of all cooking related fires involved the ignition of cooking oil. These fires accounted for 42% of all cooking related fire injuries.
- ◆ The highest percentage of deaths occurred where fires started in the living rooms (37%) and kitchens (16%). Portable heater related fires accounted for 42% of fire deaths in living rooms.
- ◆ Most kitchen fires started on stove/top burners (73%), and these caused 79% of injuries in kitchen fires.
- ◆ Major sources of ignition in bedrooms were electrical wiring/distribution-equipment/lamps/bulbs (26%), candles (16%), cigarettes or smoking materials (15%).
- ◆ Major sources of ignition in living rooms were heating equipment (20%), cigarettes/smoker's material (17%), electrical wiring/distribution-equipment/lamps/bulbs (14%), arson/vandalism (13%), candles (9%).
- ◆ Exterior wall fires were mainly due to exposure fires (49%) and arson/set fires (20%).
- ◆ Fires in garages (for vehicle) were mainly from electrical short circuits (14%) and cigarettes and smoker's materials (10%).
- ◆ Fifty-two per cent of laundry area fires started in clothes dryers.
- ◆ Forty-eight per cent of heating equipment room fires were from furnaces and service water heaters.



## Home Fires by Smoke Alarm Operation

### Smoke Alarm Installation

Status	Fires	% of Fires	Deaths*	% of Deaths	Injuries	% of Injuries	\$ Losses	% of \$ Losses
Not Installed	898	52	10	53	45	34	106,478,520	48
Installed	828	48	9	47	87	66	113,261,114	52
<b>Total</b>	<b>1,726</b>	<b>100</b>	<b>19</b>	<b>100</b>	<b>132</b>	<b>100</b>	<b>219,739,634</b>	<b>100</b>

\*Please refer to the research article titled "Making sense of smoke alarm data and home fire deaths," in the August 2004 issue of *Alberta FIREnews* (pages 16 to 19), for a detailed statistical analysis of home fire deaths in relation to smoke alarms. Previous issues of *Alberta FIREnews* are posted at [www.aema.alberta.ca/ps\\_alberta\\_fire\\_news.cfm](http://www.aema.alberta.ca/ps_alberta_fire_news.cfm)

### Activation of Smoke Alarms

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	\$ Losses	% of \$ Losses
Activated	318	38	2	22	48	55	26,016,894	23
Not Activated	249	30	5	56	21	24	15,798,484	14
Activation – Unknown	261	32	2	22	18	21	71,445,736	63
<b>Total</b>	<b>828</b>	<b>100</b>	<b>9</b>	<b>100</b>	<b>87</b>	<b>100</b>	<b>113,261,114</b>	<b>100</b>

### Alarm Assistance to Occupants

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	\$ Losses	% of \$ Losses
Occupant Evacuation Unknown	15	5	0	0	3	6	792,163	3
Not Applicable/ No Occupants	30	9	0	0	3	6	3,169,427	12
Alarm Assisted Occupants to Evacuate	232	73	0	0	37	77	21,327,368	82
Alarm Did Not Assist Occupants to Evacuate	41	13	2	100	5	10	727,936	3
<b>Total</b>	<b>318</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>48</b>	<b>100</b>	<b>26,016,894</b>	<b>100</b>



## FIRE Facts

- ◆ In 2009, 52% of homes where fire occurred did not have smoke alarms installed. Lack of power source was the major reason the alarms failed to activate (27%).

## Reasons – Alarms Did Not Assist

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	\$ Losses	% of \$ Losses
Alarm Inaudible	1	2	1	50	0	0	1,500	0
Physical/Mental Challenge	2	5	0	0	1	20	265,000	36
Unnecessary to Evacuate	33	80	0	0	1	20	354,181	49
Under the Influence of Drugs/Alcohol	5	12	1	50	3	60	107,255	15
<b>Total</b>	<b>41</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>5</b>	<b>100</b>	<b>727,936</b>	<b>100</b>

## Reasons – Alarms Not Activated

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	\$ Losses	% of \$ Losses
Unsuitable Location*	15	6	0	0	4	19	122,052	1
Dead Battery	29	12	1	20	4	19	927,166	6
No Battery	26	10	4	80	5	24	2,862,828	18
AC Not Connected/ Disabled	12	5	0	0	2	10	451,224	3
Mechanical Failure	12	5	0	0	2	10	6,539,151	41
Not Enough Smoke	155	62	0	0	4	19	4,896,063	31
<b>Total</b>	<b>249</b>	<b>100</b>	<b>5</b>	<b>100</b>	<b>21</b>	<b>100</b>	<b>15,798,484</b>	<b>100</b>

\*Since most of these fires originated in outside areas or structural areas of homes, an adequate amount of smoke did not reach inside the homes to trigger the smoke alarms.



## FIRE Facts

- ◆ Of the 19 home fire fatalities, 10 (or 53%) occurred in homes with no smoke alarms installed, five (26%) occurred in homes where the smoke alarm did not activate and two each (11% each) where smoke alarms activated or activation was unknown.

For a more detailed description of the following variables, please refer to the *Alberta Fire Statistics Reporting Manual* available on the Alberta Emergency Management Agency website at [www.aema.alberta.ca/ps\\_fire\\_reporting.cfm](http://www.aema.alberta.ca/ps_fire_reporting.cfm)

## Act or Omission

*The human element by which someone has done something (an act) or failed to do something (an omission). The act or omission indicates whether the fire was deliberate, neglectful or accidental.*

### **Incendiary or Set fires**

Includes arson, suspected incineration, riot, mischief or vandalism.

### **Misuse of Source of Ignition**

Includes disposal of smoker's material, thawing, inadequate control of an open fire, children playing with source of ignition, welding or cutting too close to combustible material or torch too close to combustible material.

### **Misuse of Material Ignited**

Includes fuel spilled accidentally, improper fuelling technique, cleaning or washing parts, improper container, overheated cooking oil, combustible placed too close to heat, and improper storage.

### **Mechanical and Electrical Failure or Malfunction**

Includes part failure, automatic or manual control failure, electrical short circuit and part worn out.

### **Construction, Design or Installation Deficiency**

Includes construction or design deficiency, installation too close to a combustible, other installation deficiency or over fusing.

### **Misuse of Equipment**

Overfuelling, includes any misuse of equipment or tools.

### **Human Failing**

Includes person asleep, temporary loss of judgement, physical disability, panic, influence of alcohol or drugs and ignorance of hazard.

## Area of Origin

*The area of a building or vehicle where the fire started.*

### **Means of Egress**

The area allowing an individual transit or a way of going out. Includes hallway, stairway, escalator, lobby and elevator.

### **Assembly, Sales Area**

Areas where groups of people gather. Includes theatre, arena, lounge, living room, sales or show room, library, museum and sports facility.



### **Function Area**

The area where a mode of action or activity is undertaken. Includes sleeping area, dining area, bar, washroom, office, laboratory, printing and photographic reproduction area, kitchen, laundry room, operating room, performance area and manufacturing area.



### **Storage Area**

The area inside a building where items are stored. Includes product storage area, closet, equipment area, records storage area, shipping and receiving area, trash and rubbish area, vehicle garage and agricultural product storage area.

### **Service Facilities**

Conveyance items such as dumbwaiters, service shafts, laundry and garbage chutes, heating and cooking ducts and chimneys or gas vents.

### **Structural Area**

Includes crawl space, balcony, ceiling and floor assembly, wall assembly, exterior wall or exterior roof and awning or canopy.

### **Vehicle Area**

Includes engine area, fuel area, control area, passenger area and cargo area.

### **Outside Area**

Includes open area such as lawn, field or park, court, patio, parking area, outdoor storage area and trash or rubbish area.

## Death

*A person killed accidentally as a direct result of a fire or a person who dies from a fire injury within one year following the date on which the injury was sustained.*

## Fire Death

Refers to a person who died as a direct result of a fire, either by smoke inhalation, burns or physical injury. Fire deaths also include persons killed as a result of a motor vehicle collision, an arson fire, an explosion, suicide, etc. where the Medical Examiner's Office has concluded the cause of death was due to fire.

## Fuel or Energy

*The fuel associated with the source of ignition. Includes coal, wood, fuel oil, gasoline, natural gas or other fuel gases, smoker's material, electricity, lightning or exposures.*

## Injuries

*A person accidentally injured as a direct result of a fire (a member of the fire department accidentally injured while in the process of fighting a fire or injured as a result of an accident while en route to or returning from the scene of an actual fire is considered a fire action injury).*

### Minor Injury

An injury that does not require hospitalization of over a 24-hour period or absence from work of not more than one full day.

### Light Injury

An injury that required admission to a hospital of over 24 hours up to 48 hours and/or absence from work for a period of two to fifteen days.

### Serious Injury

An injury that required admission to a hospital for a period of more than 48 hours and/or an absence from work for a period exceeding fifteen days.

## Material First Ignited

*The actual material that ignites and creates the fire condition.*

### Structural Components, Finish Materials

Includes roof covering, wall covering, floor covering, structural component, ceiling covering and insulation.

### Furniture, Furnishings

Includes furniture, ironing board, mattress, bedding, drapery and broom, mop or brush.

### Clothing, Textiles

Includes clothing, fabric, fur and tarpaulin.

### Wood, Paper Products

Includes wood, wood shavings, paper, cardboard and paper stock.

### Flammable Liquids

Includes gasoline, fuel oil, flammable liquids, paint, varnish, tar, asphalt, polish and wax.

### Flammable Gases

Includes natural gas, propane, anaesthetic gas, acetylene and hydrogen.



## Chemicals

Includes starch, flour, cellulose nitrate, plastic, oxidizing material, magnesium and alloys, titanium, natural or synthetic rubber and ammonium nitrate.

## Agricultural, Forestry Products

Includes fibres, grains, hay, trees, felled timber, grass, fertilizer and manure.

## Miscellaneous

Includes coal, garbage, trash, oily rags and artificial trees.

## Property Classification

*The principal use or occupancy of the building.*

### Assembly

Property for the gathering of persons for civic, political, travel, religious, social, educational or recreational purposes. Includes theatres, amusement or recreation places, schools, colleges, universities, churches, social or sport clubs, libraries and museums, eating establishments and passenger terminals.

### Institutional

Property for medical treatment, or care of persons suffering from illness, disease or infirmity, for the care of infants, convalescents or aged persons and for penal or corrective purposes. Includes prisons, jails, reformatories, homes for the aged, children's hospitals, hospitals and clinics.

### Residential

Property in which sleeping accommodation is provided for normal residential purposes. Includes one and two family dwellings, apartments, rooming or boarding houses, hotels, motels, dormitories and mobile homes.



## Business and Personal Service

Property for conducting business. Includes offices, personal services such as hairdressing and data processing or storage facilities.

## Mercantile

Property used for the display and sale of merchandise. Includes food and beverage sales, textile and clothing sales, furniture and appliance sales, books and specialty sales, recreational and hobby supply sales, repair shops, laundries, vehicle and boat sales and department or variety stores.

## Industrial Manufacturing Properties

Property where raw materials are transformed into new products and where the component parts of manufactured products are assembled. Includes chemical, petroleum, paint and plastic manufacturing; wood, furniture, and paper manufacturing; metal product and electrical equipment manufacturing; food processing; beverage, tobacco, soap and margarine manufacturing; textile manufacturing; footwear and wearing apparel manufacturing; and vehicle and related equipment manufacturing.

## Storage Properties

Property used primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals. Includes agricultural product storage; textile, fibre and clothing storage; processed food and beverage storage; flammable liquids, gas and petroleum products storage; wood, furniture, and paper products storage; chemical, paint and plastic storage; metal products, machinery, and electrical appliance storage and vehicle storage.



## Special Property & Transportation Equipment

Mainly outdoor property and transport equipment. Includes outdoor property, piers, buildings under construction or demolition, watercraft, rail transport vehicles, ground transport vehicles, aircraft and other special equipment.

## Miscellaneous

Includes laboratories, farm facilities, outbuildings, utilities, glass and pottery manufacturing, mining, communications and nucleonics.

## Source of Ignition

*The actual equipment, device or object which brings about ignition.*

### Cooking Equipment

Includes stove, range, food warming appliance, deep fat fryer, broiler and portable cooking unit.

### Heating Equipment

Includes central heating unit, service water heater, space heater, fireplace, chimney, flue pipe and steam or hot water pipe.

### Appliances and Equipment

Includes dryer, air conditioning equipment, pressing iron and incinerator. Smoker's Material and "Open" Flames Includes cigarettes, pipes, cigars and/or matches, lighters when used in conjunction with smoking. Includes matches and lighters not associated with smoker's material, candles, cutting torches, welding equipment and hot ashes.

### Exposure

Includes exposure from an attached or detached structure, lumber yard, open fire, forest, grass and brush.

### Miscellaneous

Includes internal combustion engine, heat treatment equipment, industrial oven, tar pot, fireworks, conveyors, commercial and industrial machinery and chemical reactions.

Digital images and photos submitted to enhance this report by fire and emergency services are gratefully acknowledged.

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### Alberta Emergency Management Agency

2810, 10303 Jasper Avenue NW  
Edmonton, AB T5J 3N6  
**Phone:** 780-422-9000  
**Fax:** 780-644-1044

14515 - 122 Avenue NW  
Edmonton, AB T5L 2W4  
**Phone:** 780-422-9000  
**Fax:** 780-422-1549

**Email:** [aema@gov.ab.ca](mailto:aema@gov.ab.ca), **Website:** [www.aema.alberta.ca](http://www.aema.alberta.ca)

### Provincial operations centre (POC)

**24 Hour:** 1-866-618-AEMA (2362), **Email:** [ma.poc@gov.ab.ca](mailto:ma.poc@gov.ab.ca)

### Northwest Region

3201, Provincial Building  
10320 - 99 Street  
Grande Prairie, AB T8V 6J4  
**24 Hour:** 1-866-618-2362

Bag 900, Box 24  
9621 - 96 Avenue  
Peace River, AB T8S 1T4  
**24 Hour:** 1-866-618-2362

### Northeast Region

14515 - 122 Avenue NW  
Edmonton, AB T5L 2W4  
**24 Hour:** 1-866-618-2362

407, Provincial Building  
5025 - 49 Avenue  
St. Paul, AB T0A 3A4  
**24 Hour:** 1-866-618-2362

### North Central Region

14515 - 122 Avenue NW  
Edmonton, AB T5L 2W4  
**24 Hour:** 1-866-618-2362

### Central Region

Suite 207, Provincial Building  
4920 - 51 Street  
Red Deer, AB T4N 6K8  
**24 Hour:** 1-866-618-2362



### East Central Region

4910 - 52 Street  
Camrose, AB T4V 4E8  
**24 Hour:** 1-866-618-2362

Suite 207, Provincial Building  
4920 - 51 Street  
Red Deer, AB T4N 6K8  
**24 Hour:** 1-866-618-2362

### South Central Region

#250, 7015 Macleod Trail SW  
Calgary, AB T2H 2K6  
**24 Hour:** 1-866-618-2362

### Southern Region

360 Provincial Building  
200 - 5 Avenue S.  
Lethbridge, AB T1J 4C7  
**24 Hour:** 1-866-618-2362

### First Nations North and South

407, Provincial Building  
5025 - 49 Avenue  
St. Paul, AB T0A 3A4  
**24 Hour:** 1-866-618-2362

**Interactive website** on fire prevention and safety:  
[www.3minutedrill.alberta.ca](http://www.3minutedrill.alberta.ca)