

REDUCING RESIDENTIAL STOVETOP FIRES IN ONTARIO

ULC Fire Council Meeting
June 3, 2009

Peter Marcucci - Electrical Safety Authority

Doug Crawford - Office of the Fire Marshal

Fire Marshal's Public Fire Safety Council (FMPFSC)

- Established under the Fire Protection & Prevention Act (1997)
- Objectives of the Council include
 - To promote fire safety throughout the province
 - To advise the Fire Marshal on matters of fire safety.

FMPFSC Stovetop Technical Subcommittee

- Peter Marcucci, ESA – *Chair*
- Terry Allen, City of Cambridge
- Brian Murphy, ULC
- Daniel Langlois, CSA
- Wendy McNalley, Health Canada
- Larry Moore, Electro-Federation Canada
- Richard Martel, Electro-Federation Canada
- Pat Burke, OFM
- Doug Crawford, OFM
- Bev Gilbert, OFM
- Ed Gulbinas, OFM

Report

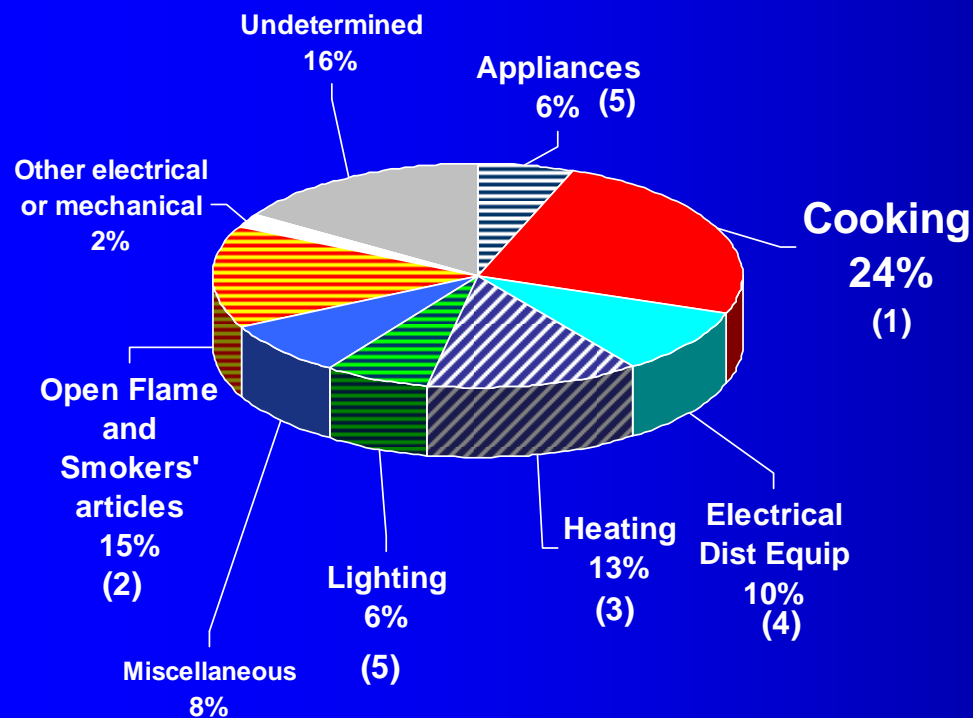
- Executive Summary
- Introduction
- Cooking Fire Loss Statistics
- Residential Ranges in Canada
- 2005-06 Ontario Stovetop Fire Survey
- Fire Safety Concepts Tree
- Stovetop Fire Mitigation Technologies
- Cost of Stovetop Fires
- Conclusions
- Recommendations

Electrocution Fatalities (1998-2005)	Number	Number	Electrical Fire Fatalities (1995-2003)
Occupational Powerline	30	54	Stoves
Non-Occupat'l Powerline	19	9	Other cooking
Electrician/Apprentice	10	7	Space/Water Heaters
Maintenance/Unskilled	8	7	Other equip
Other worker	5	7	Wiring Related
Non Occ – Defect Equip	4	6	Cords/Temp Wiring Ext Cords/Appliance
HVAC	3	5	Lamps/Lighting Equip
Millwright	2	3	Electronic equip
Non Occ – Product Repair	2	2	Elec Blanket/Heating Pad
Non Occ- Improper Wiring	2	1	Dryer
Non Occ – Using Pumps	2	1	Meter
Non Occ - Other	2		
Farmer (non powerline)	1		
Total	90	105	Total

The Issue

- Between 1995-2003 there were 54 fatalities associated with the use of electric stoves in Ontario
- This is the single largest cause of “electricity” related fatalities
- In comparison the 2nd leading cause of fatality was powerline contact with 49 fatalities over a similar period.

Cooking Fire Loss Statistics: Preventable Residential Fires – 1998-2007



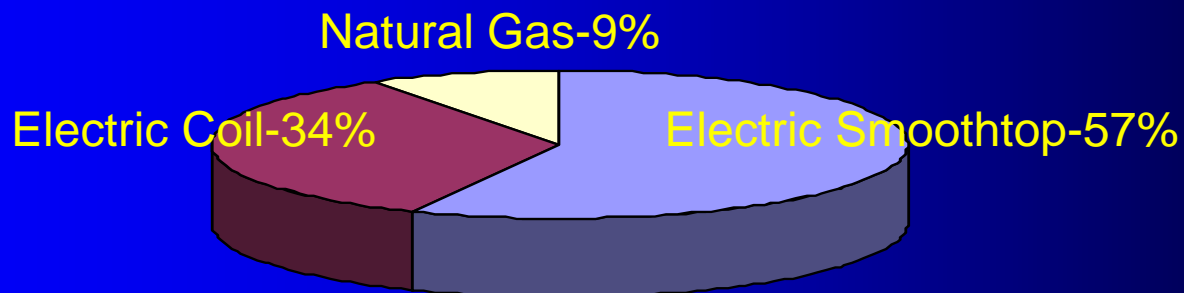
- Cooking is the #1 ignition source in preventable residential fires – 24% of fires
- 74% of these fires started on the stovetop
- Stovetop fires have declined 32% from 1,346 loss fires in 1998 to 920 in 2007
- In 2007 there were 154 injuries and 3 deaths in fires ignited on the stovetop
- These fires resulted in an estimated loss of \$20.5 Million or \$22,362 avg per fire

Impact of Stovetop Fires in Ontario

- 2003-07 average annual stovetop fire losses in preventable residential fires
 - 5 deaths
 - 155 injuries
 - \$17.6 M property loss

Residential Ranges in Canada

- Found in 99% of all households
- Electric (coil, smoothtop)-91%; Nat. gas-8%; Other-1%
- Electric coil in vast majority of homes
- Smoothtops gaining market share

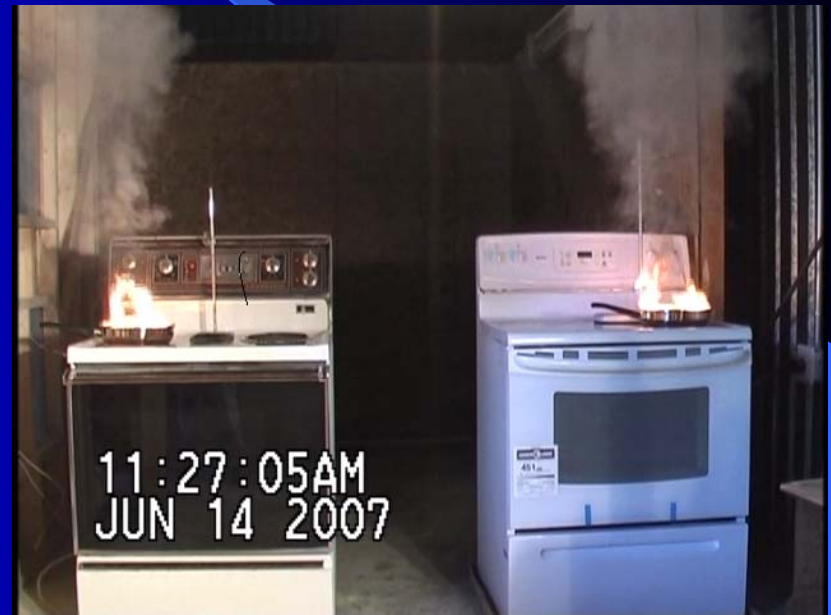


Source: CAMA-2008 range sales

OFM Demonstrations

Coil vs. Smoothtop Ranges

- Heating pot/pan of oil to ignition at max. power
 - Ignition times between 4 to 15 minutes depending on oil quantity
 - No significant difference between range types



OFM Demonstrations

Coil vs. Smoothtop Ranges

- Clothing material placed in direct contact with elements at max. power
 - Immediate ignition with coil element
 - Delayed or non-ignition with smoothtop element
 - Smoothtop provides user with window of opportunity to prevent clothing ignition



OFM Stove Top Fire Survey

- Survey from Aug 1, 2005 to July 31, 2006 to collect detailed info on stovetop fires
- FDs completed survey for every stove top fire they attended in a residential property
- 1244 surveys completed – providing a comprehensive view of all stovetop fires
- 205 injuries and est. loss of \$10.2 million

Key Survey Findings

- Unattended cooking accounted for 69% of fires -“Distracted/forgot” leading factor
- Oil/grease was object 1st ignited in 50% of fires
- 61% of fires did not spread beyond stovetop
- 46% of fires extinguished by occupant
- Occupants who attempted extinguishment were 67% more likely to be injured

Key Survey Findings - cont'd

- >2X cooking fire incident rates in multi-unit buildings vs. detached dwellings
- 3X cooking fire incident rates in subsidized dwellings vs. non-subsidized dwellings
- Stovetop fires peak at 5pm; fatal stovetop fires occur between 11pm-6am
- 20-29 age group highest risk

1995 - 2004 Stovetop Fire Fatalities Stats Analysis

- Seniors (65+) represented 41% of all fatalities
- 69% of seniors deaths due to clothing ignition compared to 5% for other adults
- Alcohol involved in >50% of adult fatal fires

Stovetop Fire Mitigation Technologies

- Effective means of reducing stovetop fires as it eliminates human behavioural factors
- Highest potential include:
 - Detect and extinguish surface cooking fires (fixed extinguishing system)
 - Prevent unattended cooking (motion sensor or timer in combination with alarm and/or power controls)
 - Prevent food ignition in pan (thermostatic controls to limit cooking temp.)
- Consistent with Fire Safety Concept Tree analysis

Stovetop Fire Mitigation Technologies Challenges

- Additional cost
- Technology lifespan should match range's
 - Electric ranges mean lifespan is 22 years
- Time to integrate into all homes
- “Prevent Food Ignition in Pan” technology should meet ANSI/UL Technical Feasibility Performance Goals

Report Recommendations

Recommendation #1

- Provide information to homeowners/building managers to raise awareness of stovetop fire mitigation technologies and encourage retrofitting their appliances
- Focus on products that work on principles of unattended cooking, thermostatically controlled cooking, and detect/extinguish
- Stovetop fire prevention products are preferable to those that manage fire after ignition

Recommendation #2

- Work collaboratively with cooking appliance manufacturers to reduce cooking fires

Recommendation #3

- Request standards development organizations to consider modifications to electric and gas range standards to address mitigation of stovetop fires

Recommendation #3 (cont'd)

- Potential areas of improvement include:
 - General performance based requirement to incorporate stovetop fire mitigation technology
 - Limit max. surface element temp. to 560 C
 - Increase min. height of backsplash control or relocate controls to front with child safety features
 - Provide timer feature to alert user to end of cooking cycle (user must manually reset)
 - Provide labels/markings on range and instructions cautioning consumer on cooking hazards
 - Improve smoothtop ranges' cooking surface durability for better marketability

Recommendation #4

- Interact with insurance industry to provide premium incentives to homeowners that use stovetop mitigation technology devices

Recommendation #5

- Target high risk/high impact populations for public education and installation of stovetop fire mitigation technologies
 - i.e. subsidized housing, age groups, multi-unit dwellings, etc.

Recommendation #6

- Direct public education efforts towards the following themes:
 - unattended cooking prevention
 - use of thermostatically controlled cooking appliances instead of range (i.e. deep fat fryers, electric kettles)
 - appropriate stovetop fire extinguishing techniques (i.e. tight fitting lid, “stop, drop, roll”)
 - clothing ignition prevention

Recommendation #6 (cont'd)

- impaired cooking prevention
- eliminate combustibles accumulations near stovetops
- cooking at lower heat settings
- use timers during cooking
- children safety
- installation/maintenance of smoke alarms and addressing nuisance alarms

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Questions?