Protecting Life and Property and Reducing Injuries From Fires Originating on Home Ranges

Prepared by the
International Association of Fire Chiefs
Fire and Life Safety Section

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Contents

Foreword

Home fires and losses dominate the North American fire problem. Fires beginning with cooking appliances account for the largest shares of home structure fires and associated fire injuries in the United States and Canada. Electric ranges are by far the leading cause of home cooking appliance fires.

The International Association of Fire Chiefs, Fire and Life Safety Section formed a task group to analyze the characteristics of the home fire problem, assess the potential of various protection technologies to reduce these fire losses, and develop recommendations to reduce these fire losses. This report summarizes the task group's work.

Executive summary

Call to action – As a Fire Chief it is important to understand the nature of cooking fires and the injuries, death and damage they cause. This report provides you with the data and information needed to understand the problem, along with potential solutions that can reduce the occurrence of these injuries and deaths. It is important for your staff and you to be knowledgeable in this area so effective action can be taken to address the problem. The attached report provides the information you need to know along with action that can be taken to address this problem. Consider the following.

Cooking fires are the leading cause of home fires and home fire injuries - Fires beginning with cooking appliances account for the largest shares of home structure fires and associated fire injuries in the United States and Canada. Electric ranges are by far the leading cause of home cooking appliance fires.

Most home cooking fires involve frying on electric ranges - Range (cooktop) fires were involved in 77% of home structure fire injuries involving cooking equipment and accounted for 84% of all fire deaths involving cooking appliances. 74% of range fire injuries involve stovetop cooking, and frying accounted for 59% of range fires.

Unattended cooking is a major cause of range fires - Unattended cooking is a factor in the majority of home electric range fires. Physical conditions such as falling asleep, impairment by alcohol or drugs, or limitations of the cook due to age are one contributing factor. Distractions that pull the cook outside of the kitchen (doorbell, screaming child, social interactions) are another. Due to the nature of these behaviors, public education cannot be the sole means of addressing the cooking fire problem. An engineering solution can make it less likely that those lapses in safe behavior will result in tragedy.

Technologies that can address the cooking fire problem – There are several technologies designed to prevent fires or mitigate cooking fires, each with its advantages and disadvantages, as follows.

Detection - Smoke alarms can warn occupants of a cooking fire, but are often subject to nuisance activation during normal cooking operations, which leads to these devices being frequently disabled. There are also products that include a smoke or fire detector that shuts off electricity or gas to range top burners when fire or smoke is detected. While these systems have their advantages, they can also be subject to nuisance activations during normal cooking operations. Another concern with a detection based solution is that 61% of home electric range fire injury victims are injured while trying to fight the fire, which could be a result of actions such as throwing water on a pan of burning grease.

Suppression – Residential extinguishing systems are available that mount in the exhaust hood and automatically releases an extinguishing agent upon activation of some kind of thermal heat sensor. These include both extinguishing systems or “tuna can” type one-shot extinguishers. Extinguishing systems are listed to a UL 300A standard which insures effective performance, but the systems must be maintained and serviced to ensure reliable long term performance, which cannot be enforced by code officials in a private dwelling unit. Portable fire extinguishers can also be used to extinguish cooking fires. When properly used portable extinguishers can be effectively used by occupants to suppress small fires in their incipient stages. However, when it comes to fire injuries, misuse of a portable extinguisher by “blasting” a pan of burning grease can also contribute to burn injuries for those attempting to fight the fire.

Home fire sprinklers are intended to aid in the early detection and the quick control of residential fires, and thus provide improved protection against injury and life loss. Home fire sprinklers are designed to prevent flashover in the room of fire origin and to improve the chance for occupants to escape or be evacuated. They are not intended to quickly extinguish cooking fires so occupant intervention is avoided to completely extinguish the fire.

Ignition prevention – Given the nature of fire injuries associated with range top fires, the best way to eliminate these injuries and range top fires is to prevent ignition from occurring in the first place. One way to reduce the frequency of ignition is to design the range top so it will not readily ignite oils, greases and cooking materials. This can be done by limiting range top temperatures, including automatic shut off timers on heating elements that require manual intervention to reset, or other similar means. Temperature limiting technologies may be the best solution to reducing cooking fire injuries and range top fires. Around the world, several companies produce temperature limiting electric and gas burners and appliances that have been shown to not ignite cooking materials placed on them. One concern with temperature limiting solutions is whether the cooking appliance can meet the user’s cooking expectations, such as being able to sear meat and boil water quickly. Trial installations of the temperature limiting burner suggest that users are satisfied with the cooking performance.

Product standards and regulations - Electric ranges sold in the U.S. and Canada are listed by organizations such as UL and CSA in accordance with their electric range product standards. Neither UL nor the CSA standards include limits on cooking element or cooking vessel temperatures. The consensus bodies used to develop requirements in these standards, which include significant industry representation, have not adopted any mandatory temperature limiting requirements for the standards. The Consumer Product Safety Commission is interested in temperature limiting solutions, and over the past fifteen years a number of fire safety organizations, including the CPSC have been researching issues related to temperature limits for electric ranges.

Observations, conclusions and recommendations. The IAFC Fire and Life Safety Section reviewed a large quantity of data and studies on this subject, and documented 12 key observations and conclusions that fire chiefs need to know to understand this problem. They also developed an action plan with eight actions that can be taken by the IAFC and fire chiefs to address range top fire safety concerns. Read the report, get your staff involved and become a force to help address this real life problem that tragically affects citizens in our communities on an all-too-frequent basis.

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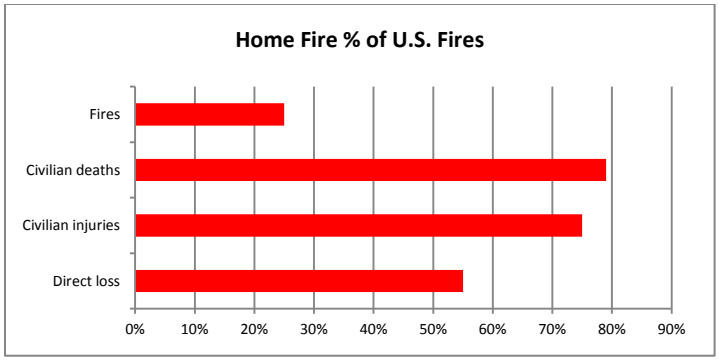
Home structure fires - the leading cause of fire deaths

U.S. fire departments responded to an estimated 373,900 home structure fires per year during 2005-2009. These reported fires caused an annual average of 2,650 civilian fire deaths, 12,890 civilian fire injuries and $7.1 billion in direct property damage. (R-1)

The documents used as a basis for the data cited in this report are listed in Appendix A. End-note numbers, cited throughout this report (e.g. R-1) refer to the Appendix A list.

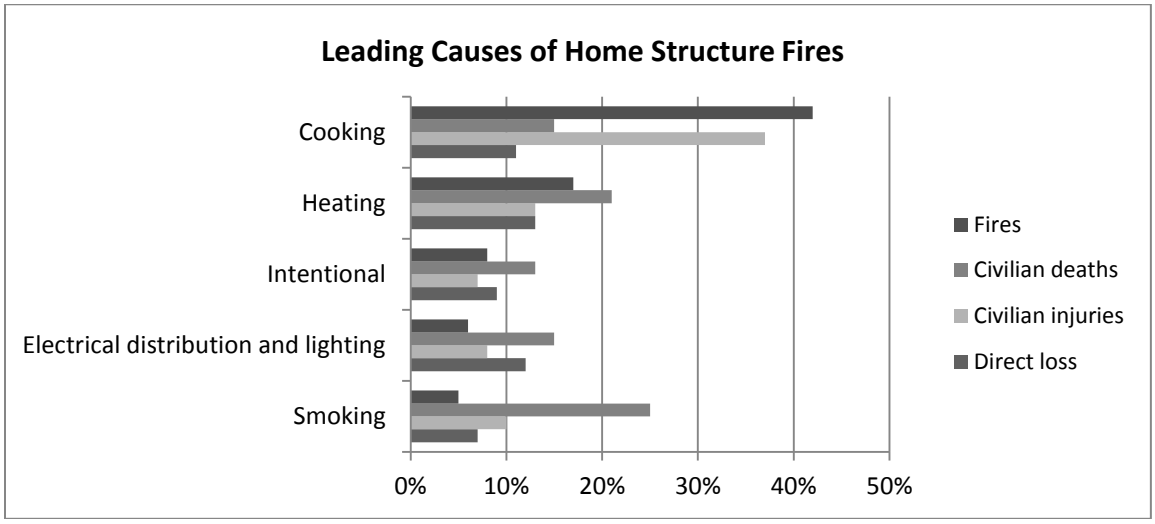
Home structure fires are only 25% of the total U.S. reported fires, and yet they account for 79% of civilian fire deaths, 75% of civilian fire injuries and 55% of direct property damage attributed to fires.



Cooking equipment is the leading cause of home fires

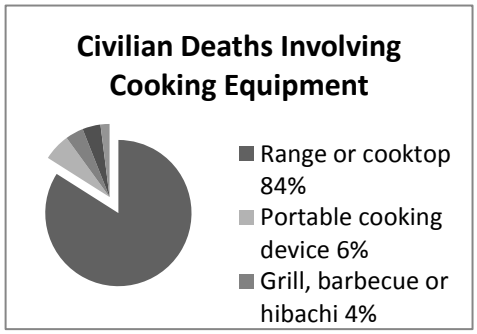
Terminology – For the purposes of this report, the term "home" is used to represent all forms of residential dwelling units. The term "range" refers to all cooking appliances that include a cooktop, and may also include an oven or other cooking appliance.

Cooking equipment accounted for 155,400 reported structure fires per year, or 42% of total home structure fires. These fires caused an annual average of 390 civilian fire deaths, 4,800 civilian fire injuries, and $771 million in direct property damage. (R-1)



Most home cooking fires involve electric ranges

In 2005-2009, ranges accounted for 90,100 reported structure fires per year. Range fires caused an annual average of 330 civilian fire deaths, 3,700 civilian fire injuries (or 77% of total home structure fire injuries involving cooking equipment), and $548 million in direct property damage. Ranges accounted for 84% of all fire deaths involving cooking appliances. (R-2)



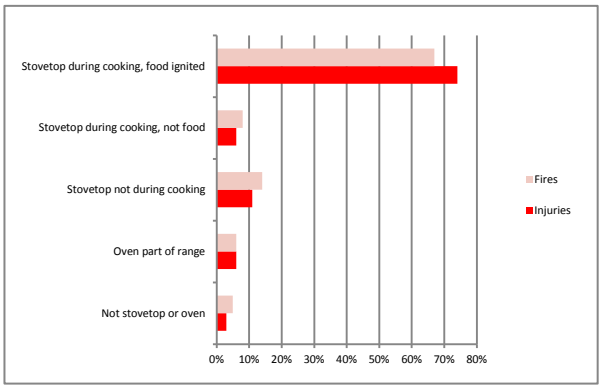
Electric ranges comprise about 60% of all ranges in use, but accounted for 83% of all reported range fires, the other 17% being attributable to gas ranges. (R-2)

Actual cooking fire losses are much greater than statistics indicate

Cooking equipment is also involved in an estimated 4.7 million home fires per year that are never reported to fire departments, or two-thirds of all unreported home fires. These unreported home cooking fires are 50 times as common as reported home

cooking fires and account for about 100,000 fire injuries a year, or eight times as many injuries as in reported home fires. (R-2)

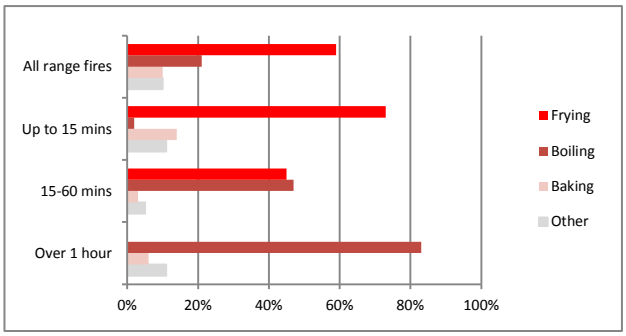
74% of range fire injuries involve stovetop cooking



Fires attributed to stovetop cooking are by far the most prevalent sources of fire injuries, so any effort designed to reduce cooking fires should focus on reducing these fires. In looking at these statistics further, 67% of reported home electric range fires and 74% of fire-related injuries originate from food cooking on a burner. Another 8% of these fires and an additional 6% of these injuries start on the stovetop during cooking, but involve ignition of something other than food, such as a towel or clothing. An additional 13% of these fires and 11% of injuries originate on the stovetop, but not during cooking as when a child or pet inadvertently turns on the burner. Only 6% of cooking fires and injuries are attributed to oven cooking. (R-3)

Most cooking fires involve frying

Of the various different types of cooking, which includes frying, boiling, baking, roasting, and so forth, frying dominates the range fire problem, accounting for 59% of range fires studied by the U.S. Consumer Product Safety Commission in 1999. (R-4)
Of all range fires, 66% began during the first 15 minutes of cooking, and of those fires, 73% involved frying. Frying fires often ignited because the temperature of the cooking materials exceeded safe levels. Overheating during frying creates the type of scenario where smoke and splattering could have been observed and the burners turned down if the cook was present and observant. In these fires it is likely that the temperature of the cooking oils exceeded their autoignition temperature, which for vegetable oil is approximately 763 °F (406 °C). (R-8)

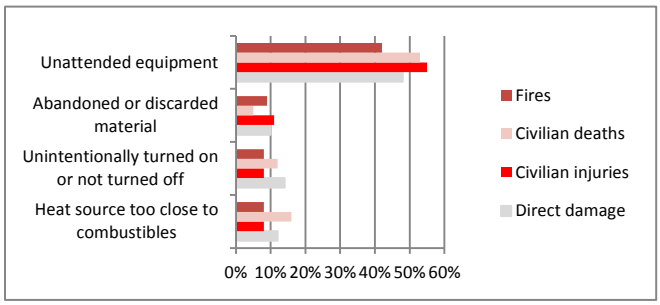


Boiling dominated fires that took over an hour to start, which typically started when the water in a pot boiled away and the pot and or its contents heated to an unsafe temperature. An attentive cook could have stepped in and intervened to prevent the fire.

Unattended cooking is a major cause of range fires

Unattended cooking is a factor in more than 40% of home electric range fires and half or more of associated fire deaths and injuries. (R-2) A special study by CPSC found that

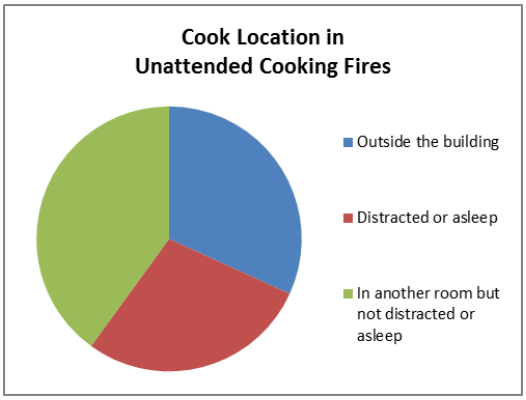
85% of range fires involving ignition of food occurred when the cook was not in the kitchen. (R-4)



An attentive cook can prevent the development of hazardous conditions that could lead to a fire, such as cooking materials overheating or water boiling away, but the question is how these human behaviors can be addressed.

Public safety education can be an effective tool for affecting fire safety related human behaviors, and a robust public education campaign can raise awareness about the dangers associated with unattended cooking. However, several factors may limit the effectiveness of public safety education with regard to unattended cooking.

Physical conditions such as falling asleep, impairment by alcohol or other drugs, or limitations of the cook due to age was reported for one-fifth of all home cooking fires involving injuries. (R-2). It is a challenge for public education to address situations where the cook is medicated, impaired or drowsy.



Distractions that pull the cook outside of the kitchen and turn their attention away from cooking often make a bad situation worse. Public education may be more effective in keeping the cook in the kitchen, or reducing the time they are out of the kitchen. However, there are some situations such as a screaming child, a ringing phone, or a doorbell that are difficult to ignore.

For all these reasons, fire and life safety education cannot expect to achieve consistently safe behaviors among America's cooks. Education cannot be the sole basis for an effective strategy of addressing the cooking fire problem. An engineering solution can make it less likely that those lapses in safe behavior result in tragedy.

Technologies that can address the cooking fire problem

There are a number of existing technologies designed to prevent fires or mitigate cooking fires, some of which are discussed below. Each of these technologies have advantages and disadvantages. An assessment of many of these technologies was recently documented in a Fire Protection Research Foundation report. (R-3)

Smoke alarms – Smoke alarms that are required to be installed in homes have the potential to warn occupants of a cooking fire, which may allow action to be taken much

earlier than without the alarm notification. However, smoke alarms located in kitchens are often activated by cooking vapors during normal cooking operations, which is by far the leading source of nuisance alarms. These activations may lead the occupants to ignore the alarm, or disable the device to prevent further nuisance alarms. (R-5)

By themselves smoke alarms will not prevent the ignition of a cooking fire, and would require intervention by the occupant to address the fire condition. Also, alerting occupants of a cooking fire may result in an inappropriate action. In fact 61% of home electric range fire injury victims are injured while trying to fight the fire, including 18% who were not in the area of the fire at ignition.

Detection and burner control – This type of product consists of a detector that shuts off electricity to the electrical range top burners when products of combustion are detected. It can also be configured to shut off burners based on activation of gas detectors, heat detectors, smoke detectors, or other initiating devices.

A Norwegian installation standard NEK 400:2010 cl 823.421.01 requires a means to be provided to ensure the disconnection of the power supply to the cooktop if overheating occurs. Several manufacturers offer products claiming to satisfy these requirements, which are reportedly being considered for inclusion in European CENELEC standard no. 60335-2-6. No information was obtained on the effectiveness of this measure. While these systems have some advantages, they could also be subject to nuisance activations due to cooking vapors produced during normal cooking operations, may not activate in time to prevent the ignition of cooking materials, and may result in occupant injuries while fighting the cooking fires.

Hood extinguishing systems – There is equipment that mounts in the exhaust hood and automatically releases an extinguishing agent upon activation of some kind of thermal heat sensor. These can be categorized in either extinguishing systems or “tuna can” type extinguishers.

Two companies currently have UL listings for dry and wet chemical residential range top extinguishing systems. The units are intended to be installed in or above the hood above the range. It consists of containers for storing an extinguishing agent, detection and discharge assemblies that automatically release the extinguishing agent, and devices to shut off gas valves or electric power to the range. The UL Subject 300A Outline of Investigation for Fire Testing of Extinguisher Units for Residential Range Top Cooking Surfaces is used to evaluate these systems.

“Tuna can” type extinguishers are small cans of extinguishing agent that attach to the range hood using a magnet. One can is recommended for each element or heating surface. The presence of a fire releases the extinguishing agent by melting the temperature sensitive container seal. These products are not currently listed, nor do they shut off power/fuel to the range.

Range top extinguishing systems provide effective protection against range top fires, provided they are installed and maintained in an operable condition. They also have the ability to quickly extinguish a cooking fire, perhaps before intervention is attempted by the occupant. The weakness of this solution is long-term reliability which depends on regular inspection and maintenance which is not enforceable in a home.

The tuna can type units have experienced some success in extinguishing small fires. However, since they have not been independently investigated and listed to any equipment or performance standards, their ability to extinguish typical range top fires is questionable, along with their long-term reliability. They also do not shut off the range power/fuel before or after discharge.

Portable fire extinguishers – When properly used portable fire extinguishers can be effectively used by occupants to suppress small fires in their incipient stages. However, there are several concerns with these being used as the main solution to extinguish home cooking fires. Considerations include properly rated extinguisher positioned where it can be accessed quickly, properly maintained extinguisher in an operable condition, and an occupant trained on proper use of the extinguisher. There have been anecdotal incidents where users blasted a skillet full of flaming cooking grease with an extinguisher, increasing the size of the fire resulting in serious burn injuries.

Home fire sprinklers – Home fire sprinkler systems installed per NFPA 13D and IRC Section P2904 are intended to aid in the early detection and the quick control of residential fires, and thus provide improved protection against injury and life loss. Home fire sprinklers are designed to prevent flashover in the room of fire origin and to improve the chance for occupants to escape or be evacuated. (R-5)

Home fire sprinklers will control rapid room fire growth originating on the range top. Home fire sprinklers are not designed to respond so quickly that they extinguish a cooking pan grease fire on the range top before it causes a burn injury to the cook. Home fire sprinklers greatly reduce deaths and property damage in cooking fires, since the majority of fatal fire victims involving cooking fires are not in the area of origin when the fire begins.

Ignition prevention – Given the nature of fire injuries associated with range top fires, the best way to eliminate these injuries and range top fires is to prevent ignition from occurring in the first place. One way to reduce the frequency of ignition is to design the range top so it will not readily ignite oils, greases and cooking materials. This could conceivably be done in a number of ways such as limiting range top temperatures, pan sensors, including automatic shut off timers on heating elements that require manual intervention to reset, or other similar means. Temperature limiting technologies may be the best solution to reducing cooking fire injuries and range top fires.

At least one manufacturer produces temperature limiting electric burners that have been shown to not ignite cooking materials placed on them. Trial installations of the

temperature limiting burner suggest that users are satisfied with the burners cooking performance.

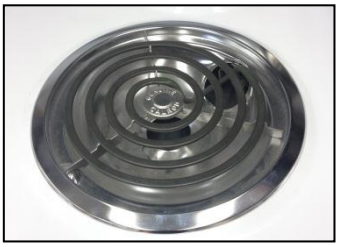
One concern with temperature limiting technology is that the cooking appliance needs to meet the user's cooking expectations. For example, a range with temperature limiting burners that takes an hour to boil a liter of water, or cannot sear a steak, would not meet the user's expectations. Japanese range top standards have required temperature-limiting controls on gas fueled ranges in homes for more than a decade. This suggests the technology meets the needs of Japanese cooks, and is able to be manufactured and implemented commercially on a mass scale.

To date there are no North American electric range safety standards that provide credible criteria for investigating ignition resistance burners to verify that they are indeed ignition resistant.

Current range top cooking technologies

Electric ranges usually include one of the following range top heating technologies, each with its own unique characteristics.

Electric coil range top elements consist of a resistive heating element in a circular coil shape. The heat from the burner is transferred to the pot by a combination of conduction, convection, and radiation, depending on how well the pot contacts the burner. Burner temperatures can reach over 1700 °F, which far exceeds auto-ignition temperature of cooking oils, which is in the 750 °F range.



Electric glass ceramic range tops have electric resistance heating elements located under a sealed, ceramic surface. The element radiates heat through the glass ceramic surface and subsequently heats the bottom of the pan. The temperature under the glass ceramic surface is significantly higher than the temperature of the pot. Because the ceramic/glass construction is subject to cracking at higher heats, a temperature limiting control is used to prevent failure.

Induction range tops heats a pot by creating a magnetic field which in turns induces a current in a ferrous metal cooking vessel. There is no heating element under the glass ceramic surface that is thermally hot and transferring its heat through the ceramic surface to the pot above. With the induction cooktop, the pot is the hottest part of the system, and the glass ceramic surface is heated by the pot.

Product standards, rules and codes

Electric ranges sold and installed in the U.S. are usually investigated and listed in accordance with the Standard for Safety for Household Electric Ranges, UL 858. UL 858 includes both construction and performance requirements. Electric ranges destined for Canada are usually listed in accordance with the Canadian Standards Association C22.2 NO. 61-08 - Household Cooking Ranges standard. Neither UL nor the CSA standards include requirements to limit cooking element temperatures or the cooking vessel temperatures.

Requirements in both UL and CSA standards are developed and updated using consensus bodies, which are weighted by industry representation. If industry is largely opposed to a change in one of these standards, it is unreasonable to expect timely change unless the non-manufacturing portions of the consensus bodies strongly

support such changes, or potential federal rule making or legislation convinces industry that making the changes using the voluntary standards approach is a preferred solution.

The CPSC is interested in temperature limiting solutions

During the past fifteen years a number of fire safety organizations, including the U.S. Consumer Product Safety Commission (CPSC) have been researching issues related to temperature limits for electric ranges. The CPSC recently issued a 180 page contractor report that was conducted in support of their efforts to implement strategies to reduce the likelihood of the occurrence of cooking fires. (R-6)

The report clearly indicated that the contractor was able to develop heating element/burner control systems that limit pan temperature to a 700°F threshold while still allowing normal high heat input cooking to occur without noticeable degradation of food quality or increases in cooking time. The systems were developed for an electric coil element, gas burner, and electric element under a glass ceramic cooktop.
It is surprising that the CPSC contractor developed relatively simple systems that achieved the CPSC's desired performance criteria with temperature limiting controls when North American voluntary standard developers' and industry were unable to achieve this over a fifteen year period. The lack of timely progress is also surprising since Japanese cook stove standards have required temperature-limiting controls on ranges for more than a decade. This suggests the technology meets the needs of Japanese cooks, and is able to be manufactured and implemented commercially on a mass scale.

Observations and conclusions

1. Range fires, mostly on the cooktops of electric ranges, account for the largest percentage of fires of any product used in the home and injure almost 4,000 civilians per year.
2. Most home range fires involve frying and most start within 15 minutes of the initiation of cooking activities.
3. Most fire injuries involve occupants who are in close proximity to a cooktop fire, or who attempt to fight a cooktop fire. Fighting a fire by throwing water on burning grease or blasting it with a strong fire extinguisher stream may cause a stovetop fire to grow. Any technology that encourages people to fight the fire themselves risks ineffective actions that may spread the fire and injure the occupant.
4. Unattended cooking contributes to about half of home cooking fires, and prevents occupants from sensing dangerous cooking conditions and taking action before ignition occurs.
5. Public safety education can help raise awareness about cooking safety, and attempt to reduce unattended cooking, but the occupant's physical condition/impairment and normal distractions in the home make it unlikely that unattended cooking can be significantly reduced through education.
6. Home fire sprinklers and smoke alarms play a key role in protecting lives and property, but are not intended to prevent ignition of cooking fires, and are not shown to be effective in preventing injuries to those attempting to fight cooking fires.
7. Range hood extinguishing systems and portable fire extinguishers can be effective solutions to extinguishing fires, but may not provide protection for persons in the proximity to the fire when it starts, or who are trying to fight the fire. This equipment also needs to be properly maintained to ensure it is operational long after it is installed.
8. Ignition prevention is the only strategy likely to be effective in preventing home cooking fire injuries with these characteristics, and injury prevention should be the priority for any strategy focusing on home cooking fires.
9. Research contracted by the CPSC demonstrated that heating element/burner control systems that limit pan temperature to a 700 °F threshold while still allowing normal high heat input cooking to occur without noticeable degradation of food quality or increases in cooking time could be built. Prototypes were developed for protecting electric coil element, gas burner, and electric element under a glass ceramic cooktops that successfully passed laboratory tests.
10. Japanese cook stove standards have required temperature-limiting controls on gas ranges for more than a decade. This suggests the technology meets the needs of Japanese cooks, and is able to be manufactured and implemented commercially on a mass scale.
11. It is clear that temperature limiting technologies are available that meet all reasonable performance criteria and significantly reduce home cooking fires and the thousands of injuries they cause each year. The technical case is strong enough and

complete enough that proposals to appropriate consensus standards developing organizations, notably CSA and UL, should be successful.

12. The lack of progress on the very promising temperature limiting cooktop solution has many similarities to the lack of progress that was made in developing a fire safe cigarette solution, both of which represent significant fire safety concerns. The fire safe cigarette fire problem was eventually resolved by a three prong approach involving development of a performance based fire test, a united fire service front, and legislative support. A similar approach might address this issue.

Goals, objectives and action plan

Our goal is to reduce cooking fires and associated fire injuries

Commit the organization to take actions to achieve this goal, and call on our fire service members and other stakeholders to join in the efforts.

Establish objectives to achieve these goals

In order to achieve the goal of reducing home cooking fires and related injuries, the IAFC supports the following objectives:

1. In recognition of the patterns of these fires and injuries, focus on the pursuit of solutions that prevent range fires from starting in the first place, with a focus on requiring electric ranges to comply with temperature limiting performance criteria that will reduce the possibility of ignition of cooking materials.
2. Increase awareness that home electric range fires constitute a serious fire safety problem for our citizens and commit the organization to actively work to reduce these fires and related injuries.
3. Support other solutions that can help mitigate the fire problem, including other engineered solutions, public education efforts, and other innovative approaches that compliment the primary focus on ignition prevention.

Recommended IAFC action plan to achieve these objectives

1. Increase fire service awareness of the problem and solution
    a. IAFC will publish this report and the related position statement on the IAFC website.
    b. FLSS will work with IAFC staff to publish a concise FAQ on the subject to educate fire chiefs.
    c. The IAFC will distribute the FAQ to IAFC members via a member alert.
    d. Produce a You Tube video on the subject.

e. IAFC will distribute the report and FAQ list on Linkedin, Facebook and other social media venues.
f. FLSS BOD shall publish an article on the topic in On Scene and other fire safety publications.
g. FLSS will provide a presentation(s) on the topic at FRI 2013 and other fire safety conferences as opportunities present

2. Collaborate with other fire service organizations to consolidate support for the effort.
    a. FLSS BOD will reach out to the IAFF, IFMA, NASFM, CCFM&FC, USFA and Vision 20/20 to gain their buy-in on achieving this goal.
    b. Coordinate efforts between these organizations to accomplish the objectives described in this plan.
    c. FLSS BOD will contact Japanese fire chiefs to better understand the impact that gas cooktop temperature limiting technology had on fires in Japan.

3. Work with fire safety organizations to help achieve plan objectives.
    a. FLSS BOD will attempt to partner with NFPA, ICC, and the IFE to obtain their buy-in on achieving this goal and plan objectives that relate to their operations.
    b. Encourage these organizations to spread the word about this effort.

4. Work with standards developers to revise electric cooktop standards so they include performance tests to prevent ignition by limiting electric cooktop temperatures.
    a. Meet with the leadership of UL and CSA to discuss concerns.
    b. Ask for the opportunity to have IAFC representation on the consensus standards bodies that develop electric range safety standards.
    c. Encourage our fire service partners to also request representation on these committees.
    d. Submit proposals to UL 858 and CSA C22.2 No. 61-08 to include temperature limiting performance tests into the standards, using acceptance criteria included in recent CPSC research efforts.

5. Encourage industry to participate in this effort to achieve the plan goals.
    a. Explore partnership opportunities with the Association of Home Appliance Manufacturers and other industry organizations.
    b. Reach out to individual range manufacturers to make sure they understand the nature of the problem and to identify manufacturers willing and able to be lead innovators in this effort.

6. Work with the CPSC to help achieve the plan goal.

a. Meet with CPSC officials to share information on cooking fires, and gain their views on performance criteria to determine acceptable temperature limiting product performance.
b. Discuss option for CPSC to adopt rules requiring electric ranges to comply with temperature limiting performance criteria while continuing to put primary emphasis on working through voluntary UL and/or CSA standards in a reasonable time frame.

7. Take actions to ensure elected officials and the media understand the problem and the potential solutions being advocated by the IAFC.
    a. IAFC legislative staff will distribute FAQs and links to legislators during CFSI 2013 and other outreach opportunities.
    b. Make sure these parties understand the similarities between the fire safe cigarettes situation and this initiative, and the positive outcome of that effort.
    c. Encourage legislators and the media to support efforts to have voluntary standards and/or CPSC rules adopted to require temperature limiting solutions.
    d. Consider a legislative solution for this problem.

8. Partner with public safety educators and other organizations to increase public education efforts on cooking safety.
    a. Execute initiatives to address unattended cooking behaviors and to improve educational strategies and methods available to achieve such behavior change.
    b. Provide education on temperature limiting technologies, when this becomes available.

Appendix A - Referenced Documents

The referenced documents that the task force selected to use as a basis for their work are included below. Sources referenced in this report

R-1 Home Structure Fires, NFPA Fire Analysis & Research Division, Marty Ahrens, May 2011.
R-2 Home Fires Involving Cooking Equipment, NFPA Fire Analysis & Research Division, Marty Ahrens, November 2011.
R-3 Fire Scenario Structure Specification Task, Appendix C of Home Cooking Fire Mitigation: Technology Assessment, Fire Protection Research Foundation, Joshua Dinaburg and Daniel Gottuk, Appendix C, October 2011
R-4 Range Fires, Characteristics Reported in National Fire Data and a CPSC Special Study, Linda Smith, Ron Monticone, and Brenda Gillum, January 1999.
R-5 Smoke Alarms in U.S. Home Fires, NFPA Fire Analysis & Research Division, Marty Ahrens, September 2011.
R-6 From Purpose statement, NFPA 13D, Section 1.2.
R-7 Contractor Report on Development and Testing of a Temperature-Sensing Control System for Preventing Cooking Fires on Ranges and Status of Staff Cooking Fire Reduction Efforts, CPSC, August 2012.
R-8 Auto-Ignition of Cooking Oils, Krystyna Buda-Ortins, University of Maryland, 2010

Additional range top safety related documents:

Vision 20/20 Kitchen Fire Prevention Technologies Workshop Report November 2010
http://strategicfire.org/images/userfiles/files/kitchen%20Final%20Report.pdfhttp://strategicfire.org/images/userfiles/files/kitchen%20Final%20Report.pdf

NFRF report on range-top fires July 2011
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Appendix B - Work Group Members

The IAFC Fire and Life Safety Section work group that developed the initial electric range report draft for IAFC Board included the following individuals. The work group held seven conference calls between June 2012 and October 2012 to discuss the project and develop the report.

Howard Hopper, UL LLC # - Co-Chair
Wayne Senter, South Kitsap Fire Rescue – Co-Chair
Tony Apfelbeck, Altamonte Springs Building and Fire #
Meri-K Appy, #
Dan Finnegan, Siemens #
John Hall, NFPA
Dan Madrzykowski, NIST
Brian Maltby, Brampton, Ontario Fire Department
Alan Perdue, Guilford County Fire Rescue #
Joe Pierce, Dallas Fire Department #

- IAFC Fire and Life Safety Section Board Member