


Preparing Your Community
for
Residential Sprinklers

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Ron Brown

- U S Air Force
- Dana Corp.
- R.J Reynolds Corp

- Fort Wayne Fire Department
(Political Career Begins)
- Eau Claire Fire Department
- County Chiefs , State Chiefs,
Great Lakes Division IAFC
- State Senate Seat
31st Senate District (33 Senators 99 Representatives)

NFSA Regional Manager MI – OH – IN – KY – WV

A Little Slow

- ❑ Command and Control (FF Deaths)
PIC CIR ICS
- ❑ Smoke Detectors 1982 18 Civilian Deaths
12 Children
- ❑ Detectors / Sprinklers

Ask yourself where fire deaths occurred?
Are you surprised?

Goals

- Arguments for and against residential sprinklers
- What role can you play in the code adoption process
- Where are the resources
- Basic fire life safety information
- Thinking different



Vidio

- MN News Report
- Marble MT. Burn Demo.



Preparing Your Community for Residential Sprinklers

- What Does that mean in Michigan?
 - Adopting an unamended Code
 - Separate Legislation NAHB effort
- How Can You Help?
 - Educators
 - Coalition Builders
 - Promoters
 - Champions
 - Team Members



8 Top Reasons Why Sprinklers Are Not Installed in All Buildings

1. Too expensive
2. Inadequate water supply
3. Not required by code
4. Possible water damage
5. Not Part of the Building Design
6. Not offered as an option
7. Sprinklers are ugly
8. Delays Construction Project



5 Top Reasons Why Sprinklers Are Installed in Buildings

1. Required by Building Code
2. Required by Insurance Carrier
3. Required by a Separate Ordinance
4. Requested by the Owner
5. Designed in by the Architect



Primary Factors That Contribute to Organizational Success

- Do you care enough to consider the impact of your actions on the future.
- A Champaign (Leader)
- A Plan
- Courage
- Tenacity



Public Policy Choices

- Response
- Prevention and Response
- Prevention, Early Suppression and Response



Who would be most appropriate in your community to influence Policy?

ME ---- NFSA?

Sprinkler Contractor?

YOU?



How do you convince the policy Makers?

- Fire Deaths? -----Property Loss?
- Right Thing to Do!!!
- How many civilian injuries and Deaths per year in Michigan / USA (highest in the World)
- How many Firefighters injuries and deaths
- **Is this what it's about???**



It's ALL About

• **POLITICS!**

• **MONEY!**



Why Do People Install Sprinklers

- The law requires them to install sprinklers




- It is actually less expensive to build with them, than without them



Facts , Evidence & Emotion

- Very Important
- Must be relevant, accurate and correct
- Must be used to lead into and develop the Financial and Political case!!!
- Lets look at some facts that help make the case!



Financial Issues

- Detection, Notification and Response Time
 - How do they contribute to LIFE and PROPERTY LOSS?
 - How do you respond faster with enough resources to safely rescue and extinguish?
- Recruitment and Retention
 - What is the ALTERNATIVE?
- Stations and B R T's



Financial

- Street Width
- Turn a rounds
- Construction Density
- Hydrant spacing
- Main Sizes
- Fire Station Locations
- Increasing cost of Fire Protection Vancouver CA



Politics

- Eau Claire Radisson
- UWEC (Dorms above 60! Towers –
Chancellors Dorm 2% art 8m 160 G's
-- All Dorms)
- CVTC Joint Project
- Community Development Block Grant
- Highrise Retrofit, Louisville KY



Life & Property Safety Residential Fire Sprinklers 101



Presentation by:
Ron Brown – Great Lakes Regional Manager
National Fire Sprinkler Association

Smoke Detectors Save Lives?

- NO!! They Notify
- People must then respond PROPERLY!!
CO effect

Helping others understand how home fire sprinklers:

- Are Cost effective
- Save lives
- Reduce injuries
- Save millions from property loss

And:

Answer questions, concerns and dispel myths about home fire sprinklers.

2005 U.S. Fire Statistics

Source NFPA Fire Journal Sept - Oct - 2006

- Over 1.6 Million Fires
- Almost 3,700 Civilian Deaths
- Over 3,000 Home Fire Deaths
- 17,925 Thousand Civilian Injuries
- Over 10.6 Billion Dollars in Property Loss
- Total Cost of Fire Exceeds 88 Billion Dollars



Additional Fire Facts


- Every 82 seconds fire occurs in a U.S. residence.
- Every 31 minutes a civilian is injured by fire.
- Eight out of ten fire deaths occur in the home.



Fire Death and Injuries in One- & Two-family Dwellings* (Percentage of Residential)

- Fire deaths: 83%
- Fire injuries: 75%
- Fire property damage: 64%
- Fire ground firefighter deaths: 70%

*2005 NFPA




More Fire Facts

- Young children, older adults, and physically and mentally challenged people face the highest risk of injury or death in residential fires.
- Too often, people fail to respond appropriately to the sound of a smoke detector, because they assume it is a false alarm. Rather than exiting the building, they search to confirm the existence of a fire, wasting the few precious minutes they may have to escape.


Fire Victims

Who are the primary victims?

- Children under 10



- Adults over 70



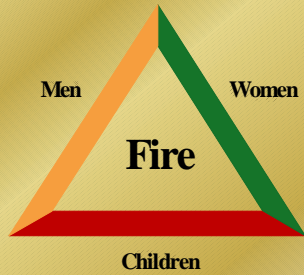
Residential Fire Sprinklers Save Lives



- Installing both smoke alarms and a fire sprinkler system reduces the risk of death in a home by fire by **90%**, relative to having neither.

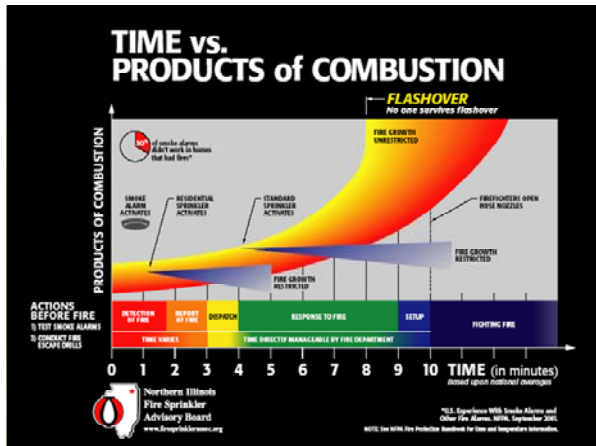


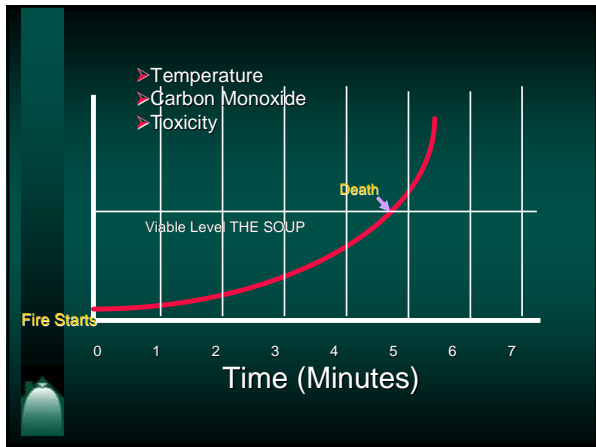
Fire Triangle

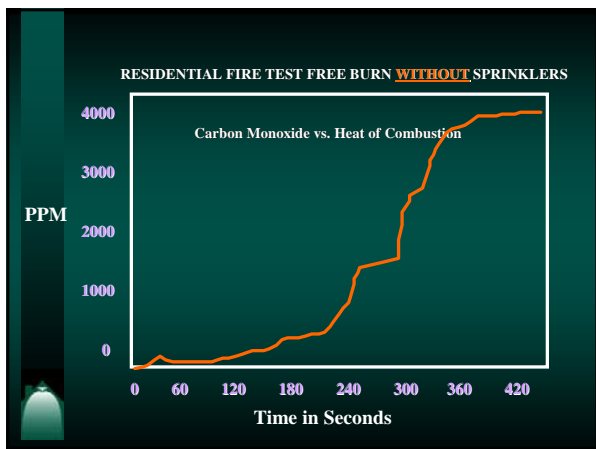


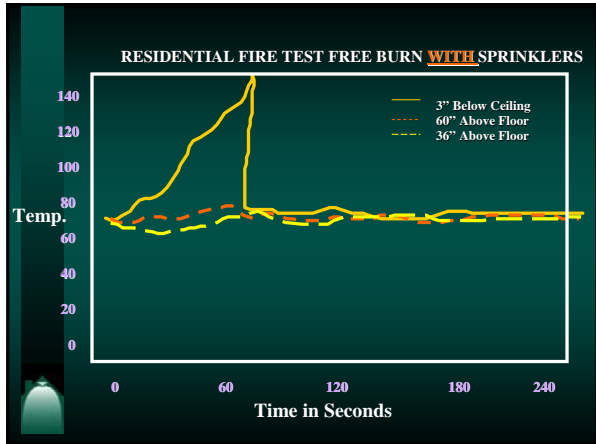
A Review of How People Die in Fires

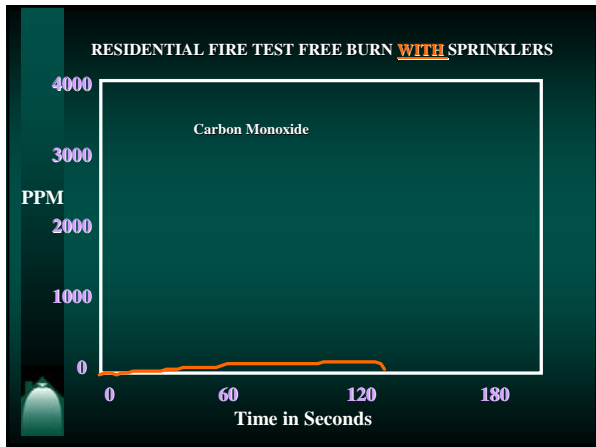















What Does It Take For a Human Being To Survive

An atmosphere that at least has

- $\geq 14\%$ oxygen
- $< 150^{\circ}\text{F}$
- $< 10,000\text{ppm CO}$

NATIONAL FIRE SPRINKLER ASSOCIATION, INC.

Home fire sprinklers reduce property loss

- Can contain and may even extinguish a fire in less time than it would take the fire department to arrive on the scene.
- Life Safety vs Property Protection



Fire Department can benefit from home fire sprinkler systems.

- Fire is being controlled while fire department is responding to call.
- Reduces firefighter injuries and deaths.



Home fire sprinklers reduce water damage

- Only the sprinkler closest to the fire will activate, spraying water directly on the fire.
- 90% of fires are contained by the operation of just one sprinkler.
- Tell your water Department Official



Home fire sprinkler cost

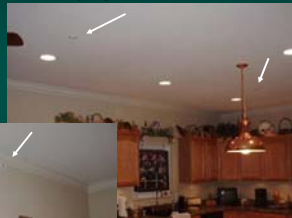
Nationally, on average, cost in new construction is between 1 and 1.5% of the total building cost.

Fireteamusa.com Comparison



Home fire sprinklers are inconspicuous

- Can be mounted flush with walls or ceilings.



What impact does Residential Fire Sprinklers make on a community

15 Years of Experience –
Scottsdale Arizona



Scottsdale Report: A 15-year study

- Scottsdale Sprinkler Ordinance implemented 1/1/86 and evaluated through 1/1/01
 - **41,408** homes have sprinklers (more than 50%)
- **598** home fires, **49** fires in sprinklered homes
 - No deaths in sprinklered homes
 - **13** people died in homes without sprinklers
 - **92%** controlled with two heads or less

Scottsdale Report: A 15-year study

- Less water damage in sprinklered homes
 - Sprinkler systems discharged an average of **341** gallons of water/fire
 - This compares to an average of **2,935** gallons of water/fire that would have been released by firefighter hoses

Scottsdale Report: A 15-year study

- Less fire damage in sprinklered homes
 - Average fire loss per single family sprinklered fire incident: **\$2,166** (15 yrs, 49 fires)
 - Average fire loss per unsprinklered residential incident: **\$45,019** (1998-2001 86 fires)


 **Sprinkler Protection
for Dwellings**
(it's not rocket science)





 **WHAT We Need To Do
The Rules**

NFPA 13 vs. NFPA 13D



 **Challenges to Technology
or
How Do You Go from Protecting
Property to Protecting People?**





Built for life video







Let's Start with a Brief History

Sprinklers were originally developed for property protection

- **Woolen mills**
- **They only addressed heat absorption**
- **Not really concerned with life safety**





NFPA 13D

Installation of Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes





NFPA 13D Purpose

- Aids in detection and control of residential fires
- *Protects against injury, loss of life and property damage*
- Prevent flashover in the room of origin





Rules Governing 13-D Systems





WHEN CAN NFPA 13D BE USED?

- To be used for one and two family dwellings and manufactured housing.

Not intended to protect multi family housing that exceeds **two units per building**. A town house complex that contains multiple dwelling units (More than two), even though the structure contains single family units, is beyond the scope of 13D.





What Type of systems allowed by NFPA 13D

- Network System. A type of multipurpose system utilizing a common piping system supplying domestic fixtures and fire sprinklers where each sprinkler is supplied by a minimum of three separate paths.
- Wet Pipe Sprinkler System. A sprinkler system employing automatic sprinklers attached to a piping system containing water and connected to a water supply so that water discharges immediately from sprinklers opened by heat from a fire.





What Type of systems allowed by NFPA 13D

- Network System.





What Type of systems allowed by NFPA 13D

- Wet Pipe Sprinkler System (stand alone system)





NFPA 13D Definitions Not the same as the Building Code





Dwelling

- Building containing not more than two "Dwelling Units"
- Owned, rented, leased, let and occupied for habitation purposes





Dwelling Unit

- **One or more rooms**
- **Used by one or more persons**
- **Living together as a single housekeeping unit**
- **Provided with cooking, living, sanitary and sleeping facilities**





What Things Did Technology Need To Address

- **How to control the environment**
(not just heat - to be functionally acceptable)
- **How to reduce costs**
(to be politically acceptable)
- **How to improve aesthetics**
(to be socially acceptable)



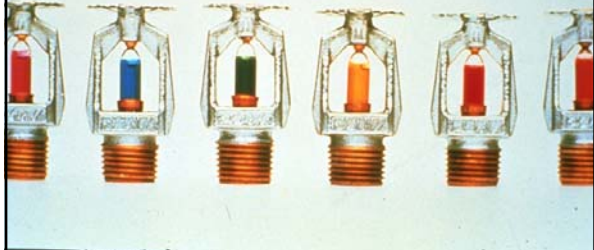


In Order to Control the Environment They Must

- **Be fast response**
- **Have a unique water distribution pattern**
(high wall wetting capability)



**Standard Response
Links**



Fast Response Links

A row of five fast response fire sprinkler links. The links have a more compact design than standard response links. They feature glass bulbs in blue, orange, white, orange, and blue. The metal frames are more robust and have a different shape compared to standard response links.

**Fast Response
Capability**

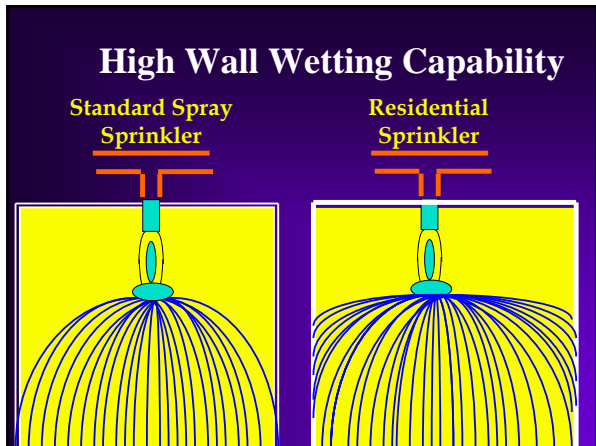
**Standard
Response**

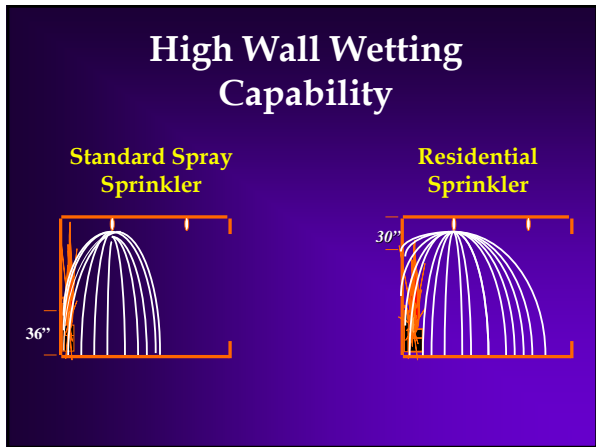
Fast Response

A row of six standard response fire sprinkler links with colored glass bulbs (red, blue, green, orange, red, red).

A row of five fast response fire sprinkler links with various colored glass bulbs (blue, orange, white, orange, blue).

**NATIONAL
FIRE
SPRINKLER
ASSOCIATION, INC.**





How Are We Going to Reduce Costs?

➤ **Reduce the number of sprinklers in the design to two**

We know over 90% of the time only two go off, and when tested for their listing no more than two sprinklers can activate and control the fire, so you only design for two

- ✓ This results in less water required
- ✓ This results in less pressure required to push it
- ✓ This results in smaller (less expensive) pipe





How Else Are We Going to Reduce Costs?

➤ Reduce the cost of materials and installation

- ✓ Lower schedules of steel pipe
- ✓ Copper Tube
- ✓ CPVC or PEX plastic pipe

Use non listed components where not critical to life safety (tanks, pumps, hangars, waterflow detection devices & waterflow valves)





How Else Are We Going to Reduce Costs?

➤ Omit sprinklers in certain locations *Areas not critical to life safety*

- How do we know where to omit them
We need to know, not just where fires start, but where fires start that KILL people





Where Fires Start That KILL People in 1 & 2 Family Dwellings & Manufactured Housing

- Living Room 41%
- Bedroom 25.6%
- Kitchen 15%
- Storage Area 4%
- Heating Equipment Room 3%
- Structural Area 2%
-  Areas 8%



Here's What's At the Bottom of the List(other)

- **Sprinklers shall be installed in all areas *Except:***
 - ✓ Bathrooms less than 55 ft.²
 - ✓ Clothes closets, linen closets and pantries less than 24 ft.² least dimension 3 ft.
 - ✓ Garages, carports & open attached porches
 - ✓ **Attic crawl spaces and concealed spaces**





How Else Are We Going to Reduce Costs?

- **Reduce the water supply requirements**
 - ✓ We've already reduced the number of heads in our design to two
 - ✓ Lower the flow requirements from .10 to .05gpm/ft²
 - ✓ Lower the duration requirement to 10 minutes
(7 minutes if it is a single story home ≤ 2000 ft.²)





How Else Are We Going to Reduce Costs?

Regardless of what we do with the water supply,

SPRINKLER SYSTEMS ARE ALWAYS DESIGNED TO MEET THE ABILITIES OF THE WATER SUPPLY, NOT VICE VERSA





Water Supply Arrangements

6.2* Water Supply Sources.

The following water supply sources shall be considered to be acceptable by this standard:

- (1) A connection to a reliable waterworks system with or without an automatically operated pump
- (2) An elevated tank
- (3) A pressure tank designed to American Society of Mechanical Engineers (ASME) standards for a pressure vessel with a reliable pressure source
- (4) A stored water source with an automatically operated pump





Improve Aesthetics

- **Make them smaller**
- **Make them concealed or recessed**



From this



To These



What Can I Do?

Look for speaking opportunities

Form or Join support groups

Conduct or Sponsor Seminars

Elected Officials

Builders

Water Officials

Planners – Get Involved

Become a Build for Life Fire Department HFSC

Conduct Sprinkler trailer demo's / Side by Side burns

What Resources are Available?

Inspectors Association

Fire Chiefs Association

Sprinkler Contractors

Local 669

NFSA

NFPA

League of Municipalities

WEB Sites

Fire Team USA

<http://www.fireteamusa.com>

Fire Team Tennessee

<http://www.fireteamentennessee.com/>

Home Fire Sprinkler Coalition

<http://www.homefiresprinkler.org>

National Fire Sprinkler Association

<http://www.nfsa.org/index2.htm>

National Fire Protection Association

<http://www.nfpa.org/index.asp?cookie%5Ftest=1>



Protect What You Value Most



How Does a Bill Become a Law?

- ◆ Importance of the two party system
- ◆ System is designed for failure
- ◆ Where are decisions made
- ◆ Trust





Three Myths

- ❖ Only paid Lobbyist are successful at managing the political environment.
- ❖ You can only manage effectively if you live in Lansing





First Step

- ◆ Idea (*)
- ◆ Drafting (Legislative Council Draft Early)
 - ◆ Lawyers Become Involved here. OH MY GOD!
- ◆ Introduction
 - ◆ Bill receives a number
 - ◆ Referred to Committee (*)
 - ◆ Fiscal Analysis (*)





Action in Assembly or Senate Body of Origin?

- ◆ Committee Action (*) Who Decides?
 - ◆ Kill (no hearing) What can you do?
 - ◆ Amend
 - ◆ Pass
 - ◆ Hear with no executive action (*)
 - ◆ Joint hearings possible (fast track)





Action in Assembly or Senate

- ◆ Second Reading
 - ◆ Read on the Floor for later Debate
- ◆ Floor debate and vote Third Reading (*)
 - ◆ Voice or Roll Call





Action in Second House

- ◆ Read the first time Referred to Committee (*)
- ◆ Same as previous Committee Possibilities (*)
- ◆ Second reading scheduled for Floor Debate
- ◆ Third reading debate and vote (*)





Resolving Differences

- ◆ Concurrence between Houses (*)
 - ◆ One house agrees to the other houses version
- ◆ Conference Committee
 - ◆ Both Houses Must approve a compromise bill (*)





Governors Action

- ◆ The Governor can:
 - ◆ Sign the bill (*)
 - ◆ Allow it to become law
 - ◆ Veto Bill (*)





Legislative Action

- ◆ Do Nothing
- ◆ Override the veto (2/3 vote in both houses)
- ◆ Amend the Bill to meet the Governors needs





Legislative Action

- ◆ Do Nothing
- ◆ Override the veto (2/3 vote in both houses)
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Sprinklers: Part of the Package

- Prevention: Education
- Early Warning: Smoke Alarms
- Exit: Home Escape Plans
- Control: Sprinklers



Protect What You
Value Most

Thank You
