



# Residential Fire Sprinklers Initiative A Vision for a Safer Community

## The Arguments and the Facts

# The Fire Problem



- ▶ 80% of fire deaths occur in the home
- ▶ Every 90 seconds a home fire is reported in the United States
- ▶ In 2013 there were 2,800 civilian fire deaths
- ▶ 12,000 civilian fire injuries
- ▶ \$6.9 Billion in direct damages
- ▶ Every 2 hours and 42 minutes a person is killed in a home fire.

**These are the facts and they are indisputable**

# Florida's Fire Truth



- ▶ In Florida for the year 2013 there were 16,691 fires in single family homes resulting in direct damages of **\$210M** and **124** fire deaths.
- ▶ Had sprinklers been installed in all of these homes property damage could have potentially been reduced by 70% (**\$147M**)
- ▶ **100** lives could have potentially been saved.

# Estero's Fire Challenge



- ▶ *67% of our permanent population is over the age of 50 (2010 US Census)*
- ▶ Persons over 50 years of age accounted for 60% of residential fire deaths.(2011-2013)
- ▶ Persons over the age of 50 have a higher chance of fire death

# How did we get here?



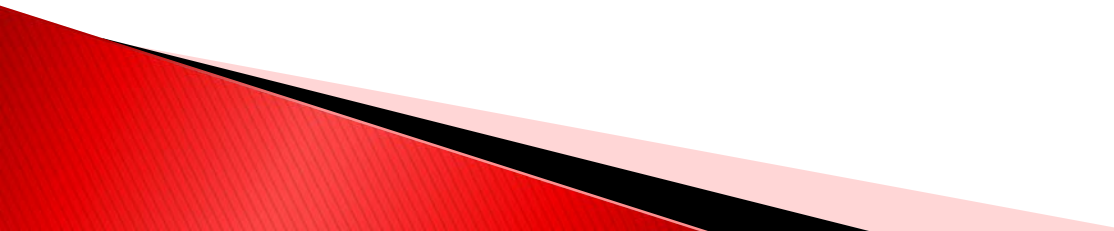
- ▶ Florida Statute 633.208(8) outlines procedure
- ▶ Complete Economic Impact Analysis
- ▶ Notify all current 1 and 2 Family Dwellings property owners
- ▶ Public hearings

# Development Trade Offs



- ▶ Outlined in Resolution Attachment “A”

# Today In Estero

- ▶ All multi-family homes are required to be sprinkled (Florida Building Code)
  - ▶ The installation of fire sprinklers allowed the following projects to be approved:
    - Pebble Point
    - Ultimate Ski Lake
    - Cottages at Old Corkscrew
- 

# Where are sprinklers required?

- ▶ Altamonte Springs, Florida (since 1986)
- ▶ Entire State of California (since 2012)
- ▶ Anne Arundel County, Maryland (since 2009)
- ▶ Prince George's County, Maryland (since 1987)
- ▶ Scottsdale, Arizona (since 1986)

Estero, Florida?





# The Changing Residential Environment

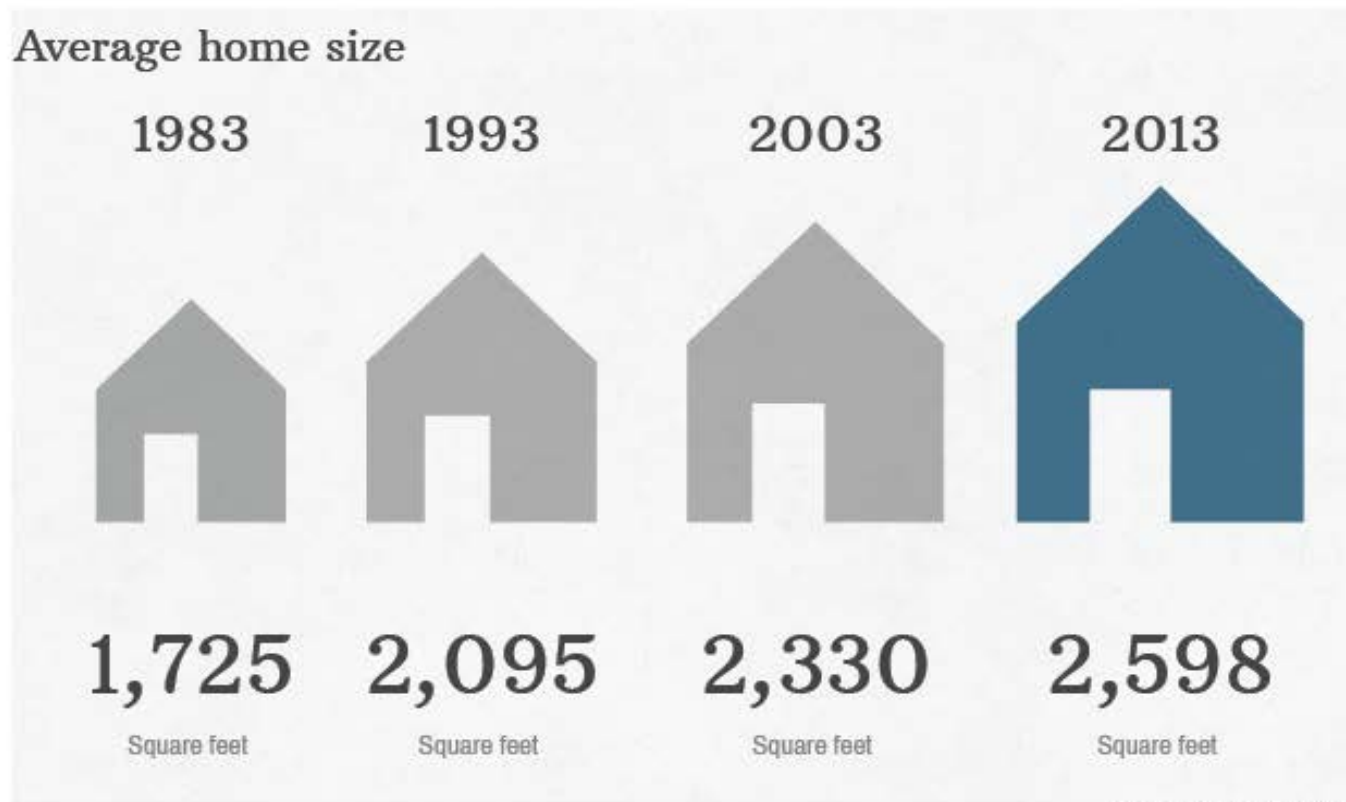


- ▶ Home construction uses lightweight components which fail faster in a fire
- ▶ Home design now emphasizes open space instead of traditional compartments allowing faster fire spread
- ▶ Average size of homes has increased 56% according to Underwriters Laboratory (verified by US Census)
- ▶ Furnishings now mostly consist of synthetics and plastics generating hotter fires and increased toxic by products
- ▶ Flashover now occurs earlier in the fire cycle reducing evacuation time

# The Changing Residential Environment

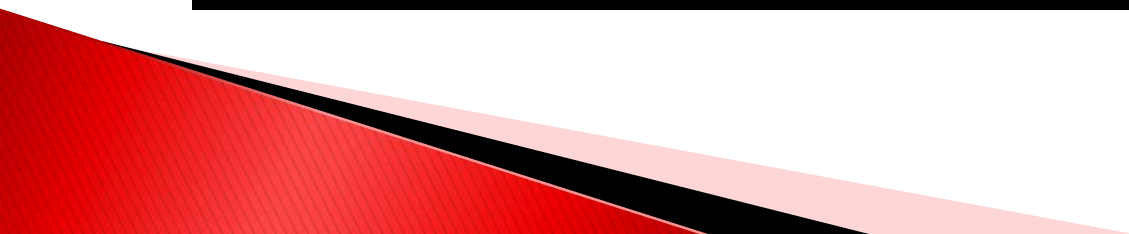
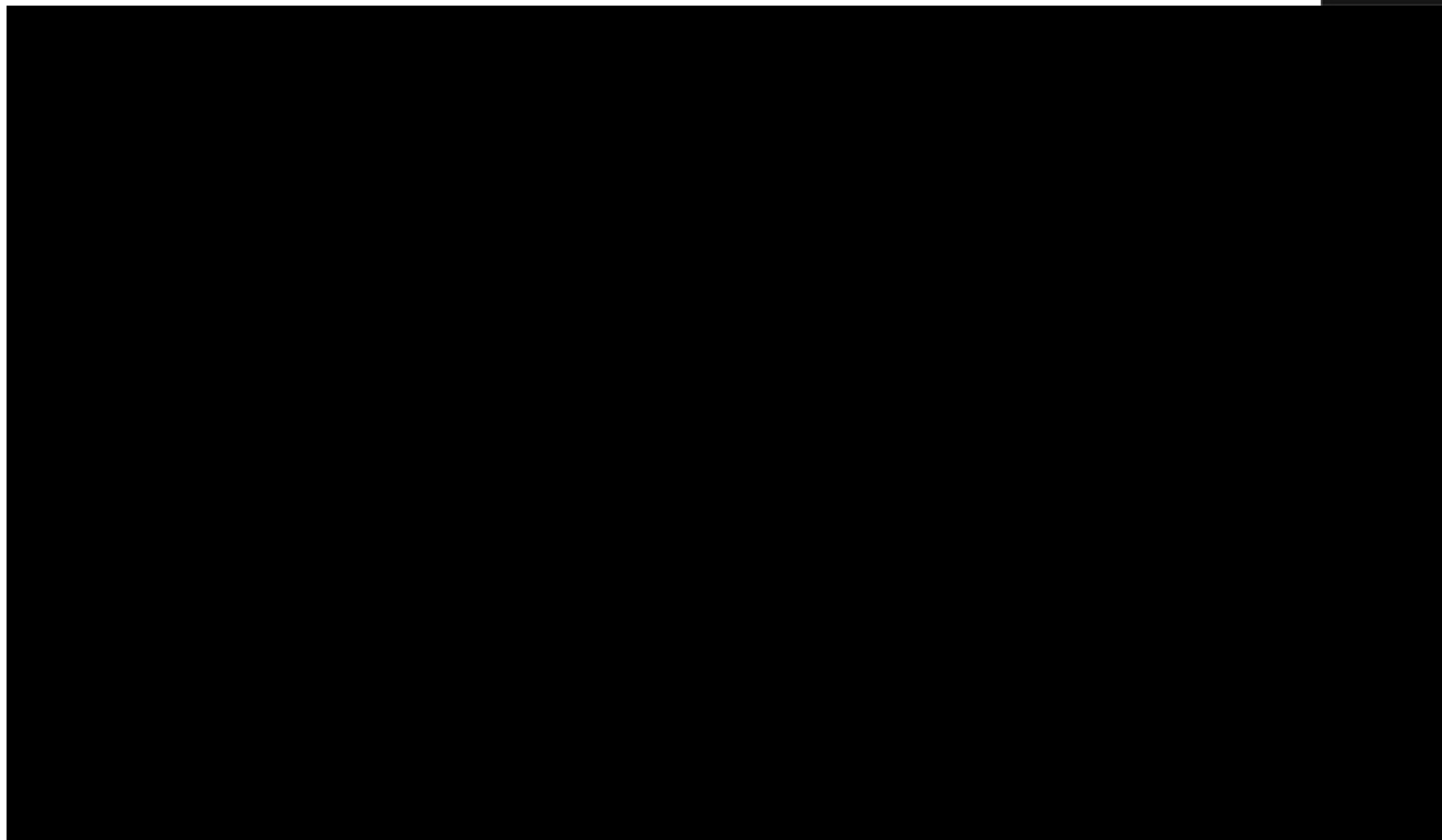


## US Census Data



SOURCE: CENSUS BUREAU

# Today's Furnishings and Fire



# Lightweight Construction Hazards



- ▶ Exterior Signs Required by Florida Law



(not in 1- and 2-family dwellings)

# Why Residential Sprinklers?



- ▶ Risk of fire death is reduced 80%\* when sprinklers are present
- ▶ **Sprinklers reduce property damage by 70%\***
- ▶ 85% of the time only **ONE** sprinkler head activates
- ▶ Sprinklers activate early in the fire event using minimal water to control or suppress the fire

\*NFPA data

# Why Residential Sprinklers?



- ▶ Reduce the chance of flashover occurring
- ▶ Reduce the chance of building collapse
- ▶ Increase fire fighter safety and survivability



What are the arguments against installation of residential sprinklers?

# Counter Argument 1



- ▶ We have a Fire Department to put out fires and there is plenty of time to get out.

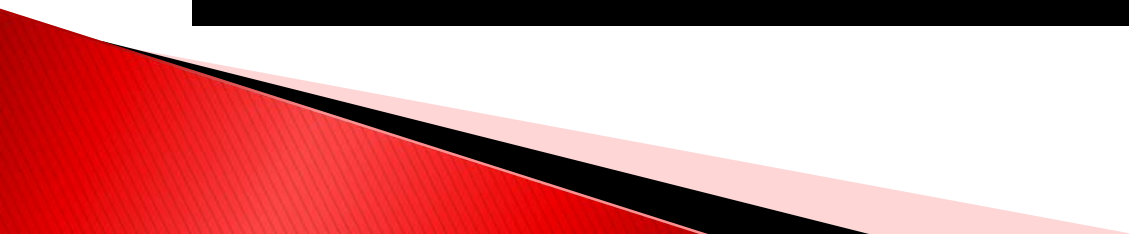
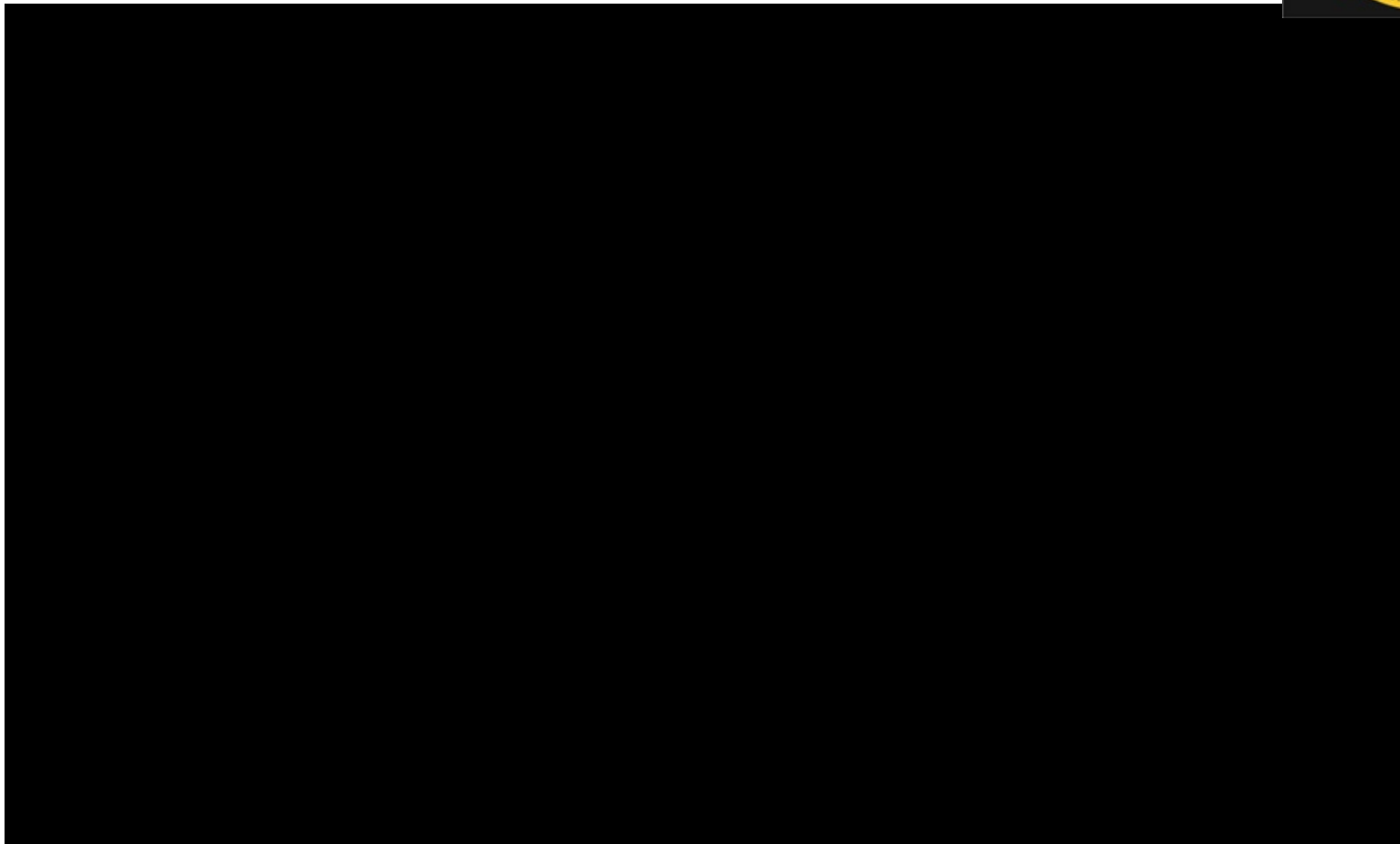


# The Facts

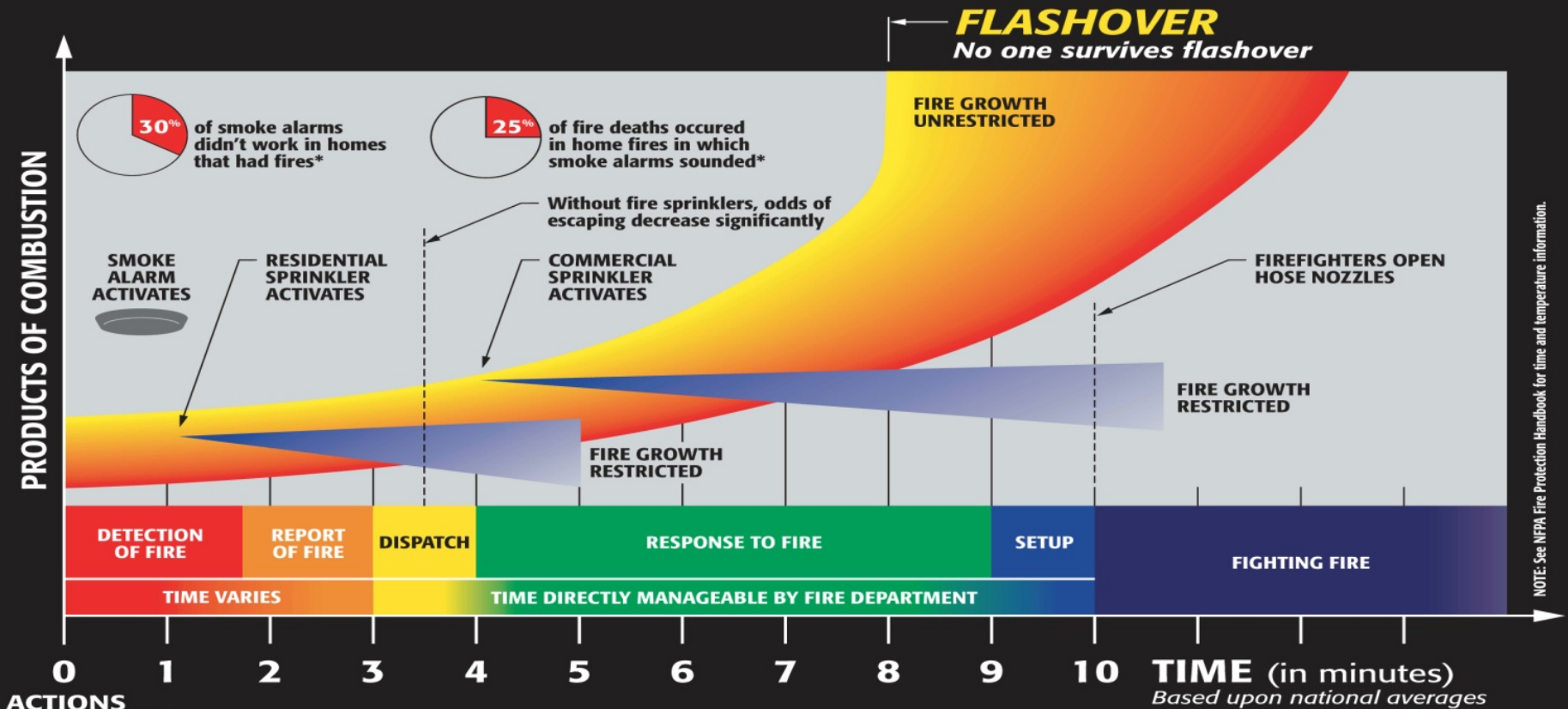


- ▶ Change in construction materials produces collapse much quicker
- ▶ Modern furnishings burn much hotter than legacy products
- ▶ Fire Department response is 4 to 6 minutes after the fire is discovered and reported
- ▶ Flashover is occurring more quickly in today's homes. Smoke detectors are often not maintained reducing escape time

# Are New Homes Safer?



# TIME vs. PRODUCTS of COMBUSTION



NOTE: See NFPA Fire Protection Handbook for time and temperature information.

## ACTIONS BEFORE FIRE

- 1) TEST SMOKE ALARMS
- 2) CONDUCT FIRE ESCAPE DRILLS

\*U.S. Experience With Smoke Alarms and Other Fire Alarms. NFPA. September 2001.



Northern Illinois  
Fire Sprinkler  
Advisory Board  
FireSprinklerAssoc.org



## Counter Argument 2



- ▶ A small fire or burned toast will activate all the sprinklers

# The Facts



- ▶ Sprinklers are activated only by heat (135 to 165 °F)
- ▶ Only the head nearest the fire will activate
- ▶ All of the sprinklers do not activate at the same time
- ▶ Sprinklers do not activate by smoke
- ▶ Chance of accidental activation of a sprinkler is 1 in 16 million\*

\*NFPA data

# Counter Argument 3



- ▶ Sprinklers are too expensive

# The Facts



- ▶ Our Economic Cost Benefit Analysis estimates average costs at \$1.60/sq foot for Estero 1- and 2-Family Dwellings
- ▶ State law requires an insurance premium discount for sprinklers
- ▶ Sprinklers make up between 1% and 1.5% of a home's total cost
- ▶ For each home used in our Economic Impact Analysis, the insurance savings over 30 years more than paid for the installation of fire sprinklers

## Homes use in economic impact analysis

Home #1 SFR 2013 sq ft Sprinkler cost \$3160

Home #2 Duplex 2868 sq ft Sprinkler cost \$5350

Home #3 SFR 2828 sq ft Sprinkler cost \$4240

Home #4 SFR 1968 sq ft Sprinkler cost \$2970







**From our Analysis...SFR 2,828 square feet**  
(Estimated value \$450,000)

Cost of sprinklers installation for 2,828 square feet = \$4,240  
\$4,240 amortized over 30 years @ 4.0% = \$20.24 per month  
Average insurance savings per year = \$210/12 months =  
\$17.50 per month savings

True cost of sprinklers \$20.24 - \$17.50 = \$2.74 per month

Cost of sprinklers installation for 2,828 square feet = \$4,240  
\$4,240 amortized over 30 years @ 4.5% = \$21.48 per month  
Average insurance savings per year = \$210/12 months =  
\$17.50 per month savings

True cost of sprinklers \$21.48 - \$17.50 = \$3.98 per month

## Garage and Alarm Costs\*

- ▶ Home#1  $\$3,160 + \$800 \text{ (garage)} + \$400 \text{ (alarm)} = \$4,360$
- ▶ Insurance savings over 30 years and 2% increase per year = \$4,705
- ▶ Home#2  $\$5,350 + \$800 \text{ (garage)} + \$800 \text{ (alarm)} = \$6,950$
- ▶ Insurance savings over 30 years and 2% increase per year = \$7,058
- ▶ Home#3  $\$4,240 + \$800 \text{ (garage)} + \$400 \text{ (alarm)} = \$5,440$
- ▶ Insurance savings over 30 years and 2% increase per year = \$8,519
- ▶ Home#4  $\$2,970 + \$800 \text{ (garage)} + \$400 \text{ (alarm)} = \$4,170$
- ▶ Insurance savings over 30 years and 2% increase per year = \$5,111

▶ \* does not include the \$300 in fees waived by EFR

# Counter Argument 4



- ▶ There are smoke detectors in homes and that's all I need.

# The Facts



- ▶ **Properly** maintained smoke alarms are important warning devices.
- ▶ Fire continues to spread and grow as the detector is sounding.
- ▶ **40% of all fire deaths occurred in homes where the smoke alarms activated**
- ▶ There is **NO** other fire safety technology or training program that produces as great a reduction in the risk of death from fire as **FIRE SPRINKLERS.**

# Counter Argument 5



- ▶ The installation of the sprinklers will delay the construction schedule

# The Facts



- ▶ Residential sprinklers will take 3 to 4 days to install, test, and inspect
- ▶ Installation will take place after framing is completed
- ▶ Other trades can continue to work uninterrupted by the sprinkler work

# Counter Argument 6



- ▶ People should have the right to choose what safety features are in their homes.

# The Facts



- ▶ People don't get to choose what safety features are in their homes now!



# Mandated Safety Requirements in new home construction



1. Smoke Detectors
2. Carbon Monoxide detectors- fossil fuel appliances, fireplaces, attached garages
3. Window for escape-from all sleeping rooms
4. Bathroom doors must be able to be unlocked from outside of bathroom
5. Pools must be fenced, have 2 main drain openings, and self closing gates

# Mandated Safety Requirements in new home construction (continued)



6. Electrical disconnect required at outside air conditioner unit
7. Stairs must have certain tread and riser requirements
8. Handrails are required for certain stairs
9. GFI circuits are required where electricity is in use around water
10. Arc fault circuits are required for sleeping areas
11. Etc.

# Counter Argument 7



- ▶ If sprinklers are required, it is going to cost money to have them maintained.

# The Facts



- ▶ No requirement to have the system inspected by a sprinkler contractor (F.S. 633.318(9))
- ▶ The HOMEOWNER can complete monthly maintenance
- ▶ That maintenance includes:
  - Visually inspecting sprinklers for obstructions
  - Inspection of valves to ensure they are open
  - Test water flow alarms *where installed*
  - Ensure that no sprinkler covers have been painted

# Counter Argument 8



- ▶ Sprinklers will cause more damage than the fire.

# The Facts



- ▶ One sprinkler uses about 20 gallons per minute to control or extinguish the fire. One fire department hose line uses 250 gallons per minute or more.
- ▶ Sprinklers reduce property damage by 70% or more.\*
- ▶ Fires in sprinkled buildings are usually confined to room of origin.
- ▶ 85% of the time only one sprinkler head activates.\*
- ▶ **Fire has a destructive effect on buildings.**

\* NFPA data

# How could sprinklers have made this worse?



(They couldn't – Cape Coral, 2015)



# Counter Argument 9



- ▶ Sprinklers or sprinkler piping can leak potentially causing damage or mold



# The Facts



- ▶ Residential fire sprinkler systems are required to be tested at normal street pressure (65-80 psi) for 2 hours (minimum).
- ▶ Most Estero systems are tested at 50 psi **over street pressure** for 2 hours.
- ▶ Domestic water piping is tested at 50 psi for 15 minutes.

# The Facts



- ▶ The odds of a sprinkler activating for no reason is 1 in 16,000,000\*
- ▶ Odds of being struck by lightning 1 in 1,190,000 (NWS)
- ▶ Domestic plumbing ruptures and leaks are 1000 times more frequent compared to fire sprinkler system ruptures

\* NFPA data

# Counter Argument 10



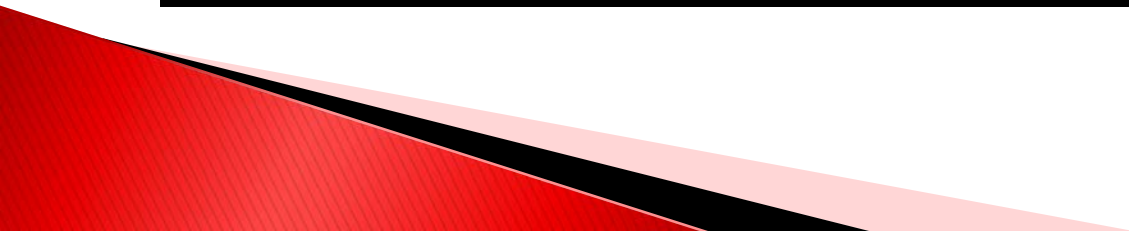
- ▶ A Residential Sprinkler mandate will destroy the real estate market

# The Facts



- ▶ ***There is no evidence to support such a claim***
- ▶ Factors such as land costs have a direct effect on housing prices
- ▶ Studies show that requiring sprinklers has no effect on housing markets
- ▶ Sprinklers increase the value and safety of homes in which they are installed

Sprinklers are like having a firefighter in your house  
24 hours a day



# The Summary



- ▶ Sprinklers increase the chance of surviving a home fire
- ▶ Sprinklers minimize the chance of flashover
- ▶ Sprinklers minimize the risk of building collapse
- ▶ Sprinklers reduce property damage
- ▶ Sprinklers use a minimal amount of water compared to hose lines

# The Final Word



## Residential Sprinklers Save Lives

***This is an indisputable fact***



# Questions