



# Welcome!

## We Are Starting !

 **Simplex**

## FIRE DETECTION

Online Continuous Learning

By: Alan Ang

**Day 1, Session 2:**

*Breaking the Traditional rules of  
Notification*

**15:00 hrs till 15:45 hrs**

***Updating your Fire Detection  
Knowledge and Beyond***

# JOHNSON CONTROLS



# The JCI Story

- 1885 JCI Started with Warren Johnson
- 1940 Johnson Service Goes Public
- 1978 Acquired Globe Union - Battery
- 2005 Acquires York International
- 2005 Acquires Delph Battery Business
- 2014 Shanghai HQ – Growth Global
- 2014 Focus on Multi Industry Strategy
- 2016 Spin off Automatic Seatgan

130+ YEARS OF INNOVATION

117,000 EMPLOYEES

316,000+ VOLUNTEER HOURS  
Recorded in 2015

4+ MILLION CUSTOMERS GLOBALLY

\$30 BILLION ANNUAL REVENUE

MORE THAN 8,700 ACTIVE PATENTS

LEADER

- Building Products, Technologies & Integrated Solutions
- Energy Storage

\$78 MILLION IN CHARITABLE CONTRIBUTIONS in the Past 5 Years

PAID CONSECUTIVE DIVIDENDS SINCE 1887

HEADQUARTERS:  
Cork, Ireland  
Milwaukee, WI, USA  
Shanghai, China



NEARLY 2,000 LOCATIONS WORLDWIDE

SERVING CUSTOMERS IN 150+ COUNTRIES

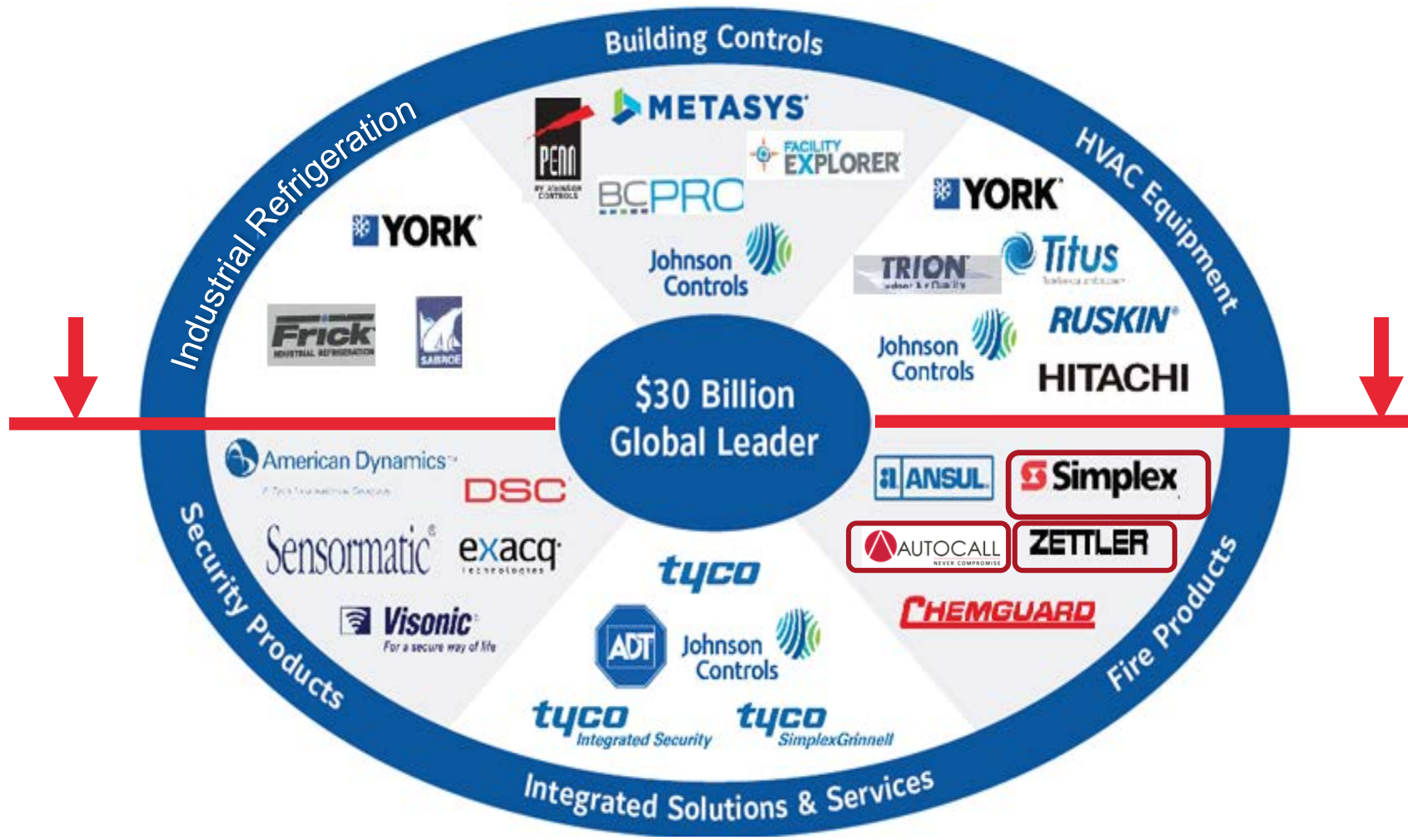
# The Tyco Story

- 1892 Grinnell Fire Protection Started
- 1960 Tyco founded as Research lab
- 1975 Tyco Acquires Grinnell Fire
- 1997 Tyco and ADT Merge
- 2001 Tyco Acquires Simplex
- 2002 Corporate Governance started
- 2007 Spin off Healthcare & Electronics
- 2012 Split 03 Group, Dedicated fire & Security

2016 Merger of Johnson Controls & Tyco



# Leading Brands Across a Comprehensive Portfolio of Products and Services



**#1 in HVAC, Controls, Fire Detection and Protection, Security and Power Solutions**

# Notification Solutions Ahead of it's Time



This is all about the most important function of Fire Alarm Systems i.e. the Notification Circuits that is typically overlook. we will shared on some key challenge faced for Fire Detection systems on notification design and the basic approach to ensure the most important devices i.e. the Notification systems are individually supervised and able to automatically test according to NFPA72 requirements.





## TrueAlert : A *Revolutionize* Fire Safety Notification Solution!



Brought to by:





If **you** don't break the **rules** the **rules** will break **you**.

## TrueAlert : A Revolutionize Fire Safety Notification Solution!

### Break The



*Take Charge* and *Adopt New Approach* for **Fire Alarm Notification** and elevate your **building Fire Safety** with you in Control.

- ✓ Simplified Design
- ✓ Installation
- ✓ Operation



Think Outside the Box

Brought to by:



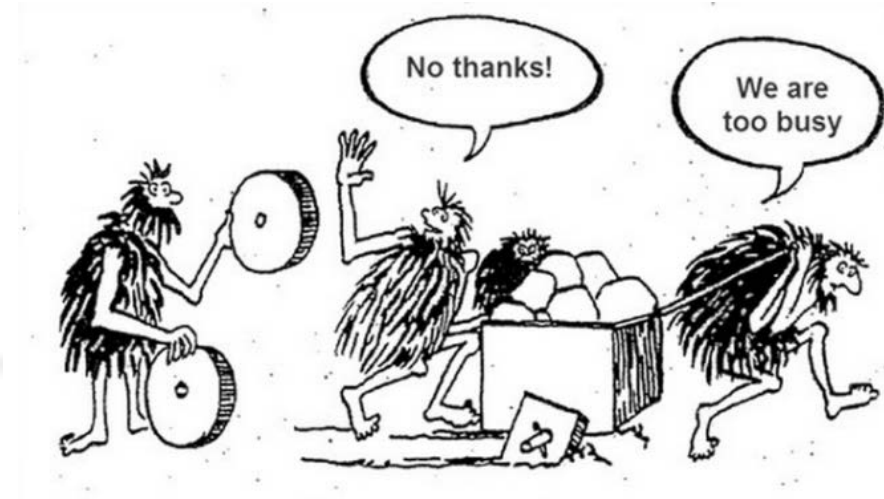


# Truealert Addressable Notifications

*Technology ahead of it's time*



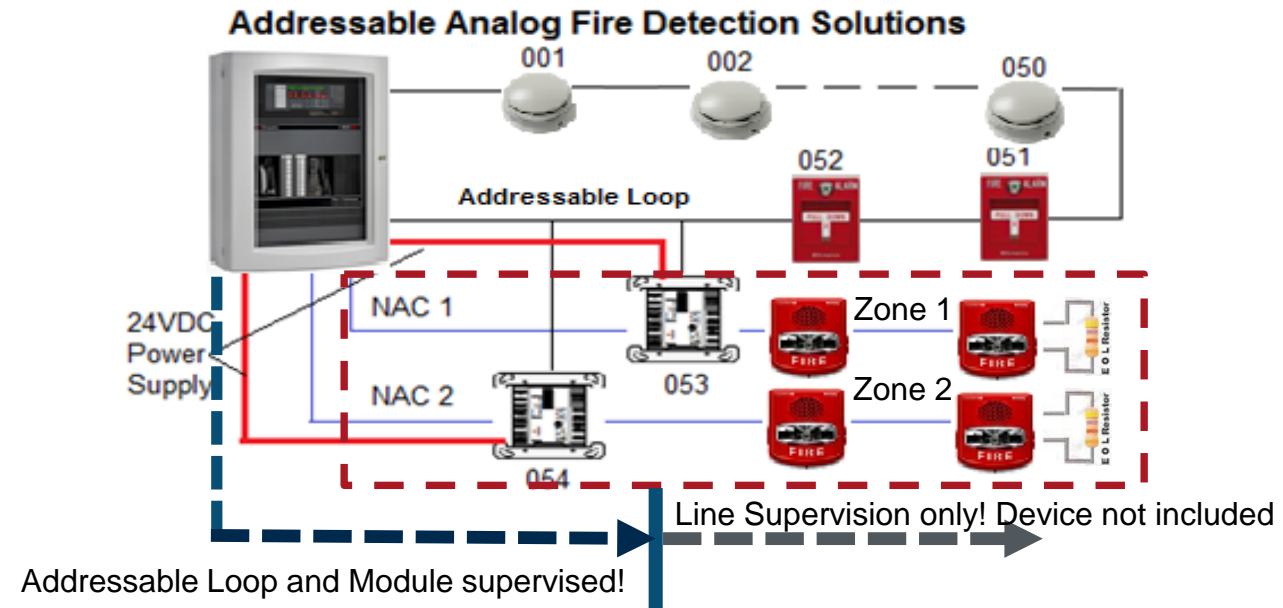
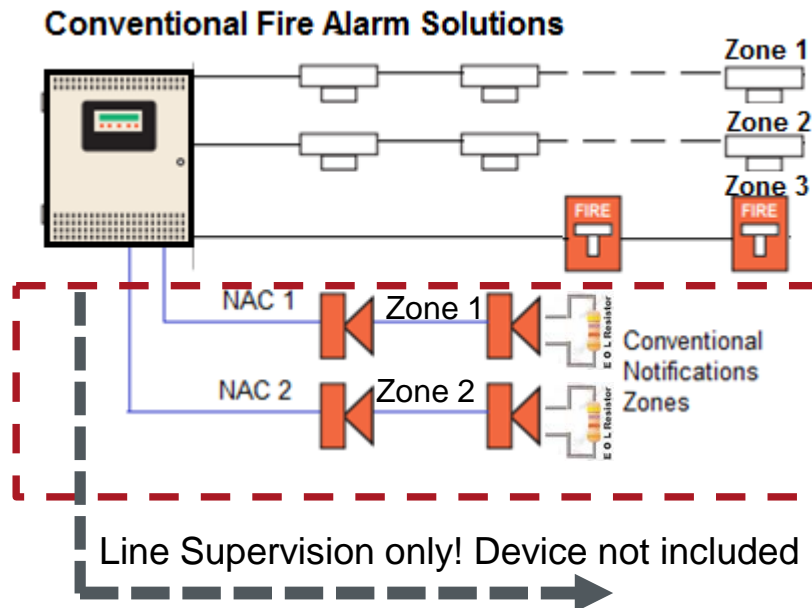
**Notifications Reinvented!**





# Notifications Trend Update and Building Trend Changes

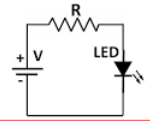
- Though fire alarm systems had progress to Addressable Analogy and provides major improvement utilizing address for detectors and modules The **NAC circuits** are still stuck in the **Conventional design** for some brands they Split the circuits into further zones thru Addressable Signal Modules or add network panel to overcome distance issue.
- The addressable loop devices are supervised but the notifications devices are only wiring supervised, **Mechanical, electronic failures** cannot be annunciated.



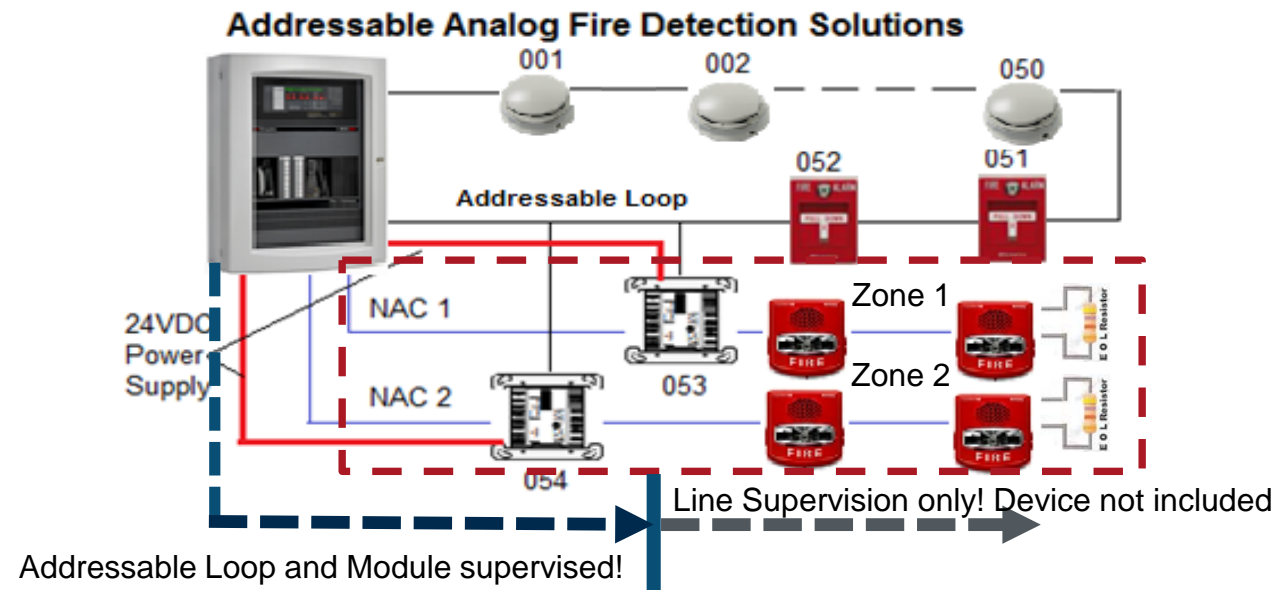
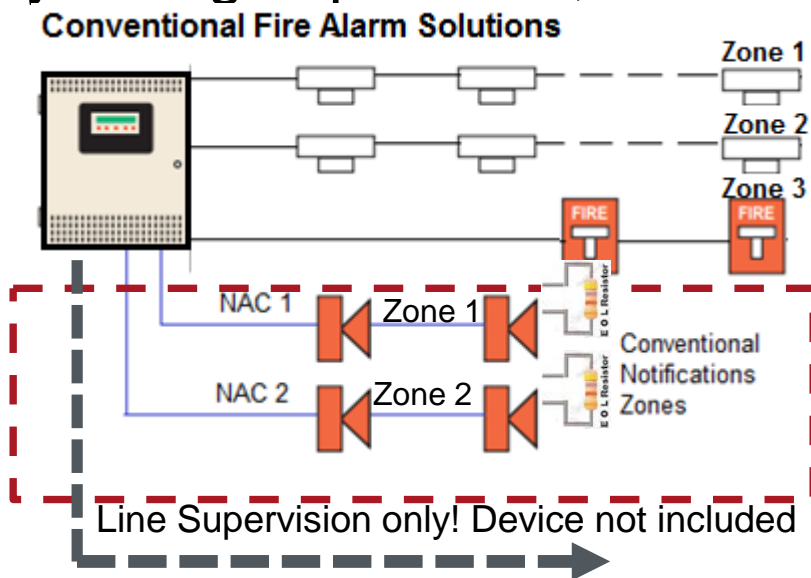
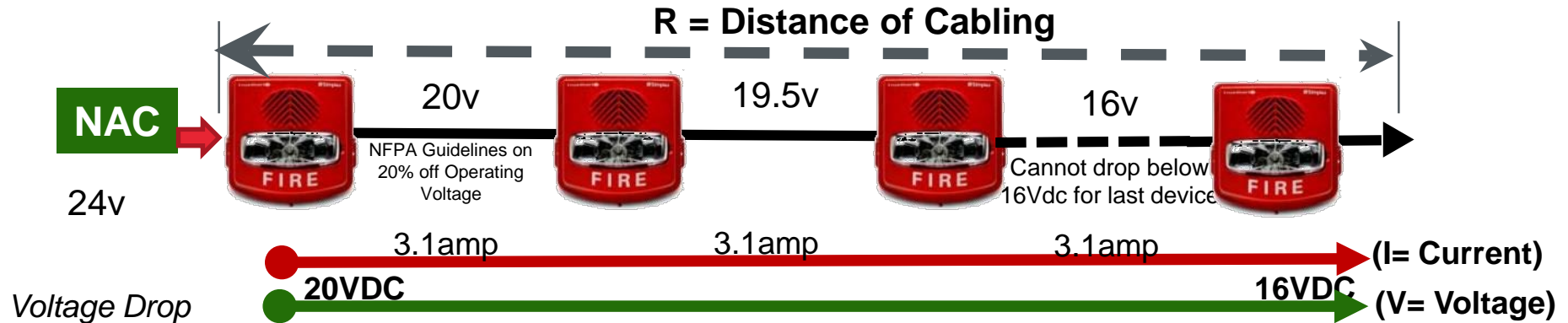
# Notifications Trend Update and Building Trend Changes

## Ohm's Law

$$V = I * R$$



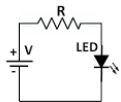
- ✓ V= **Voltage** to maintain the Notification Devices Operational
- ✓ I = **Current** provided by Fire Alarm Notification Circuits.
- ✓ R= The Distance run possible determine by Voltage drop Calculation



# Game Changer: Addressable Solutions with Design Flexibility

## Ohm's Law

$$V = I * R$$

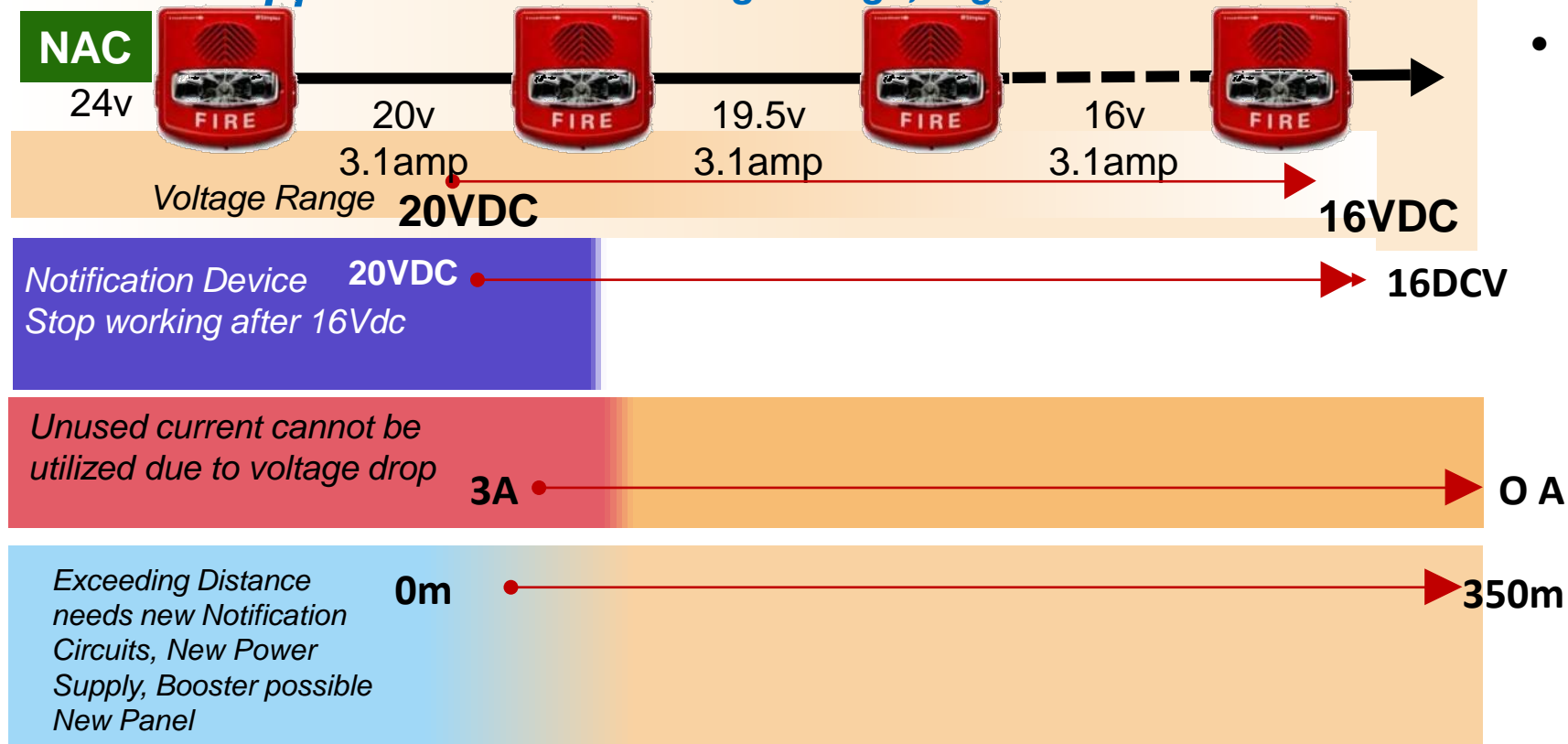


\*\*Note: Estimate Market Conventional Notifications Circuits

- < 10 sets of Strobe/Horn or < 20 Horn or < 7 mix of each
- Estimate Maximum Distance: 350 to 380metres for each Circuits

## Conventional Notification *Voltage, Wiring & Design* Limitations

### Previous Approach: Smaller Voltage Range; Higher Current Use



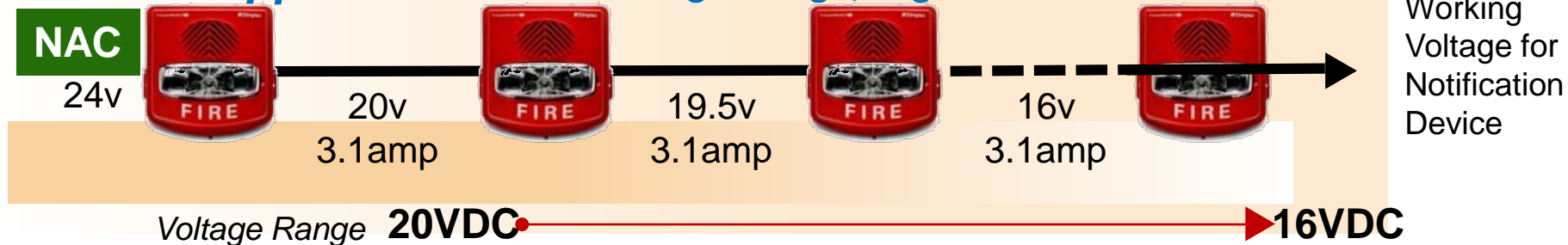
- Current Conventional Notification Circuits whether **direct** from NAC circuits or thru **addressable modules** are still base on **Zone circuits**.
- The limitation of Conventional Notifications are:
  - ✓ **Distance limitation,**
  - ✓ **Cable limitation,**
  - ✓ **Zone restriction**
  - ✓ **Mandatory to loop from device to devices for addition or deletion of notification devices in between.**
  - ✓ **Operation Restriction: End user Building Fire Safety Operations needs to tie with how the notification zones are allocated**

# Game Changer: Addressable Solutions with Design Flexibility

**Pushing the Boundaries** of Safety Level and Extend Beyond **Current Market Limitations!**

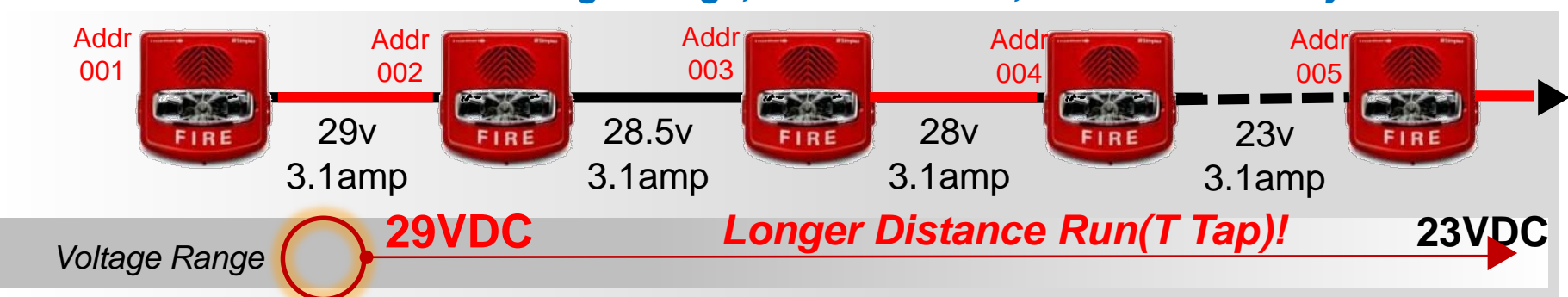
Conventional Notification *Voltage, Wiring & Design* Limitations

*Previous Approach: Smaller Voltage Range; Higher Current Use*



- ✓ **Addressable Notifications**
- ✓ **Only one pair of cable** for both Signal & Power to Device
- ✓ **Higher Starting Voltage for longer distance run.**

*TrueAlert ES: Increased Voltage Range, Lower Current, Greater Flexibility*



**Signal and Power on one pair of cable**

\*\*Note: Estimate Distance advantage is about 1.5 to 1.7 times compared to Conventional Notification Circuits distance run.

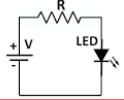


*TrueAlert ES appliances function over a wider voltage range and use 20-50% less current than conventional Simplex appliances.*

# Game Changer: Addressable Solutions with Design Flexibility

## Ohm's Law

$$V = I * R$$



## Conventional Notification Cct

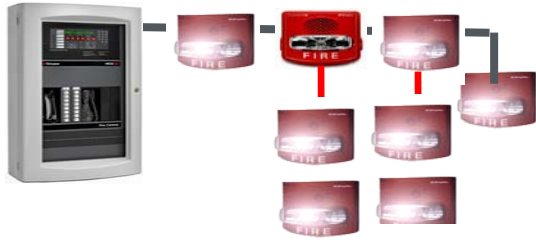
\*\*Note: Estimate Market Conventional Notifications Circuits

- < 10 sets of Strobe/Horn or < 20 Horn or < 7 mix of each
- Estimate Maximum Distance: 300 to 350metres for each Circuits

## Addressable Notification Cct

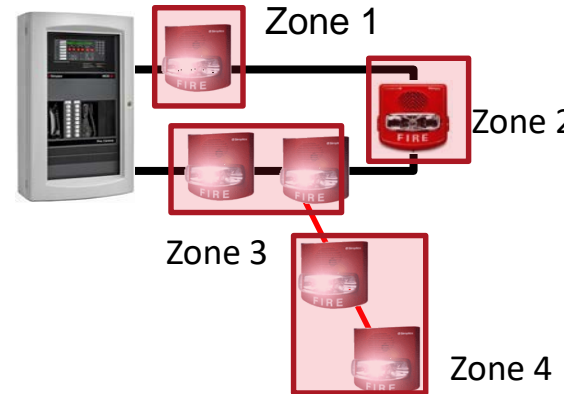
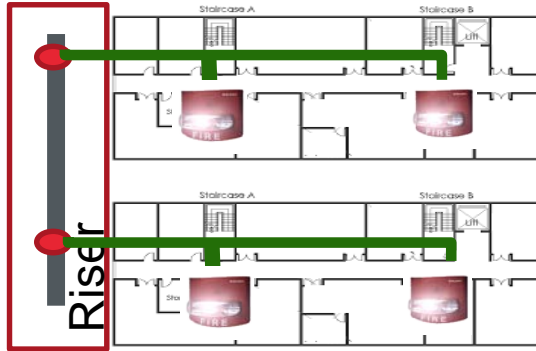
\*\*Note: Estimate Addressable Notifications Circuits

- < 18 sets of Strobe/Horn or < 46 Horn or < 12 mix of each
- Estimate Maximum Distance: 300 to 350metres for each Circuits



T Tapping allowed

\*\* Class B T Tap extend notification wire distance –Not possible with Conventional Wiring



✓ **Addressable Notifications**

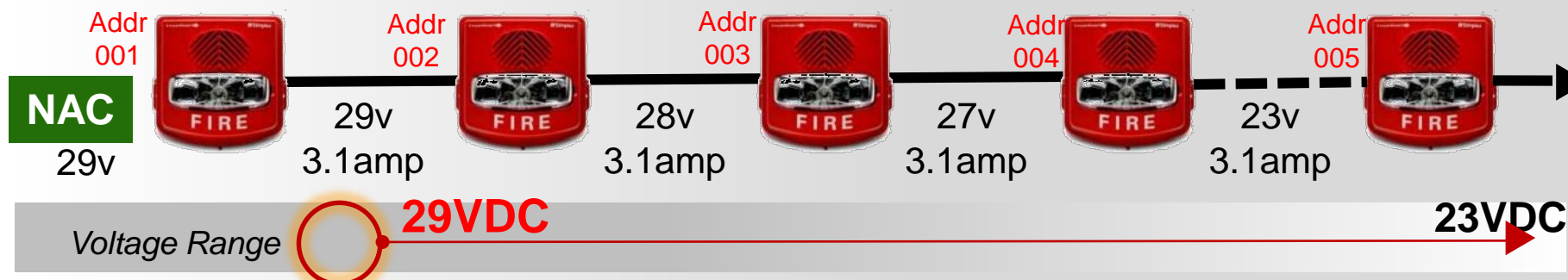
✓ **Only one pair of cable** for both Signal & Power to Device

✓ **Higher Starting Voltage for longer distance run.**

✓ **Flexible Notifications Design** overcome with **T Tap Wiring**

✓ **Software Zoning** to take advantage of T Tapping.

## TrueAlert ES: Increased Voltage Range, Lower Current, Greater Flexibility

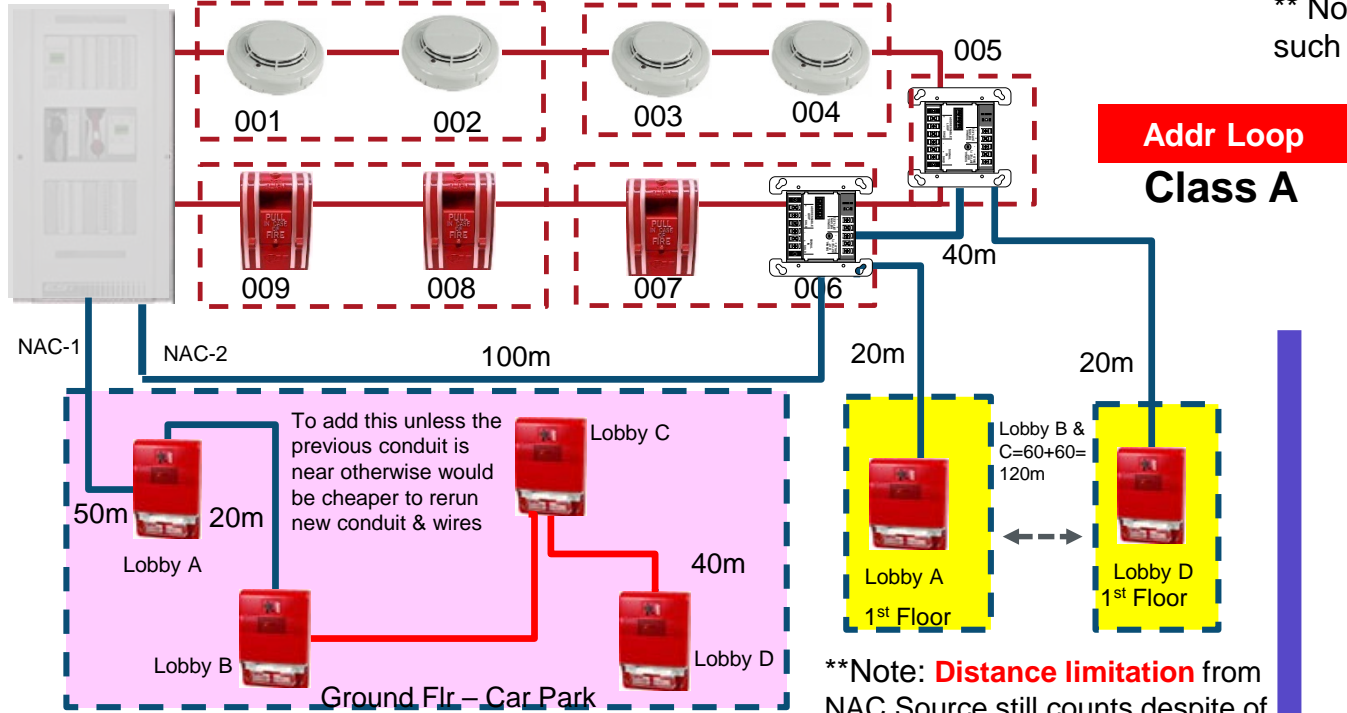


**TrueAlert ES appliances function over a wider voltage range and use 20-50% less current than conventional Simplex appliances.**

# Current UL Market Offering

# Simplex UL & FM Fully Addressable Offering

## Addr Devices but Conventional Notifications Zones



- **01 Zone per Circuit**
- Or **Multiple Zone** thru additional modules and NAC wiring still need to be in place and the risk of all coming from one single circuit.

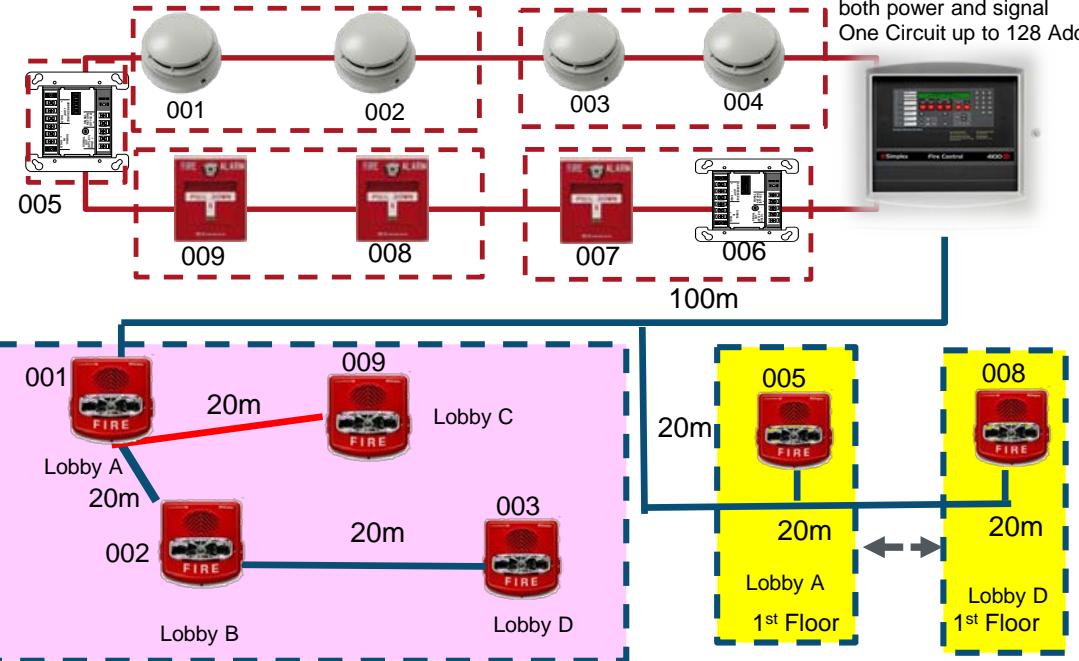
**Conventional Notification Zone**

**Class B**

## Full Addressable and Individual Programmable

\*\* Note: Addressable Notifications and Detections are on different wiring loop as such **NO CONCERN on Integrity** of detection over notification.

\*\* Note: One pair of cable for both power and signal One Circuit up to 128 Address



To add this would be easy just look for the nearest devices to T tapped and will still be in compliance with Class B notification circuits requirements as per NFPA72 guidelines.

\*\*Note: **Distance limitation** Overcome and improved vastly with T Tap, Software Zoning and higher starting voltage.

**Addressable Notifications**

**Class B**

Carpark=100+20+20+20=160m  
 1st Flr Lift Lobby: =  
 20+20+20+20+20=100m  
 Only one NAC Circuit  
 Total 260m

# Summary of Benefits with Fully Addressable Notifications

---

## Game Changing Product

- Fully Addressable that meets Fire Authorities Expectation
- Able to adjust to end user exact Fire Evacuation Operations and Seamlessly tied to their Daily Operation
- Flexibility of T Tapping extend the coverage and maximize Notification cabling distance.
- Software address meets every imaginable cause and effect requirements.
- Different Tones possible with individual Notification devices able to create customize building Operations
- No compromising of Addressable loop of Initiating device as does not draw current or take up the loop address, it is a Signal addressable loop by itself

# Currently in the market only way to test is **Manual**

Sound Meter



Light Meter



Talk No Evil



Current Fire Detection Industry  
Fire Safety Compromise with Traditional Design that  
cannot catch up with Current Complex Building  
Operation!

**Notifications  
Working?  
How Safe is your  
Building?**

- There is mandatory yearly test on all addressable or conventional detectors but what about Notification devices?
- What is a worth of a Fire Detection Systems if some of the Notifications don't work? Safety Compromise!

- ❖ Device can failed due to Mechanical, Electronics, improper connection of power supply, shorted.....etc.
- ❖ Wiring from Notifications circuits can only supervised the cable right to the point of the notification devices

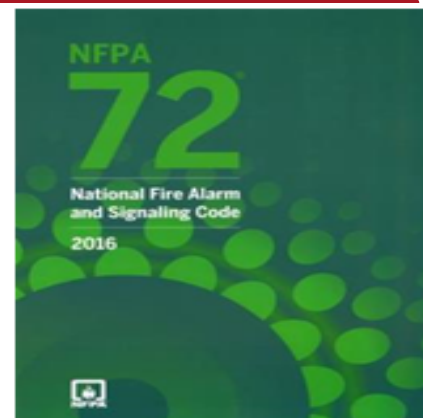


# Game Changer: Addressable Solutions with Design Flexibility

**Pushing the Boundaries** of Safety Level and Extend Beyond Current Market Limitations!

## 14.2.8 Automated Testing.

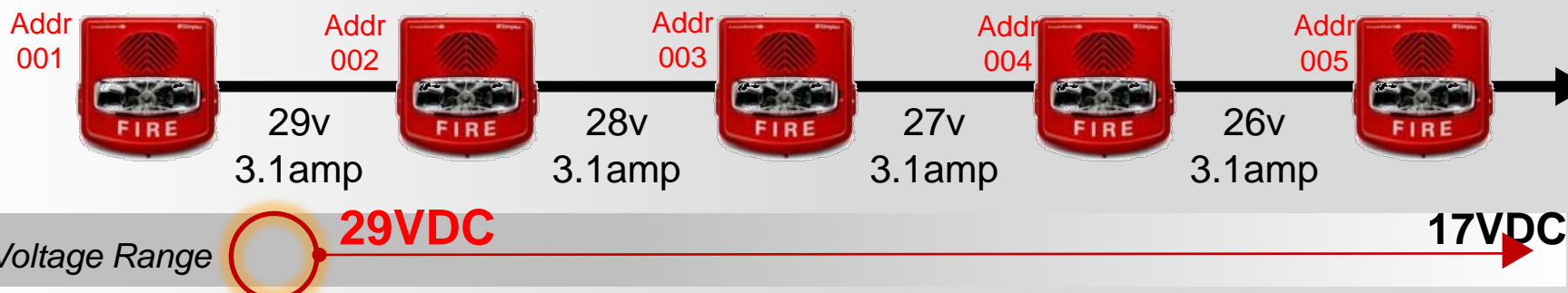
14.2.8.1 Automated testing arrangements that provide equivalent means of testing devices to those specified in Table 14.4.3.2 at a frequency at least equivalent to those specified in Table 14.4.3.2 shall be permitted to be used to comply with the requirements of this chapter.



Each device contains built-in sensors to measure sound/light output



## TrueAlert ES: Increased Voltage Range, Lower Current, Greater Flexibility



## Self-Test Enabled

A sensor hears the audible device being tested and sends a pass-fail signal to the panel.

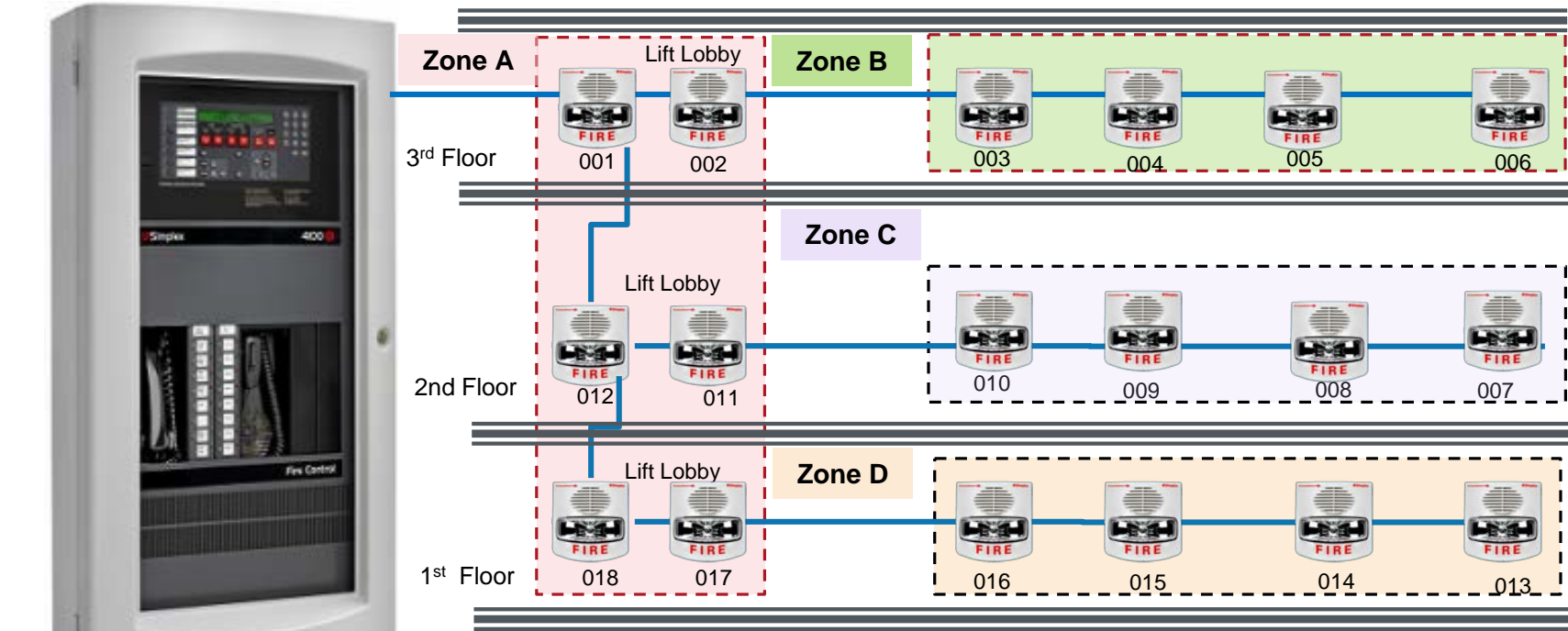
**TrueAlert ES appliances function over a wider voltage range and use 20-50% less current than conventional Simplex appliances.**

# Self Test Method 1: One Person in Front of Panel



For Example if the location that is convenient for testing is **Zone A Lift lobby** and only device number **007 and 013**, the engineer select and run the test.

- **Method 01** is conducted by a *engineer in front of the panel* where he can **selected** the required software **Zone or individual devices** for test and just press a button to perform that.
- All device will **pulse the horn for one second and flash the strobe one second.**
- **Application:** This method is suitable for **Test Area that is Accessible** and **do not affect the business operation** of that area.

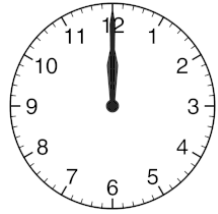


Each Device pulses Horn for 1 second

Each Device flashes Strobe for 1 second

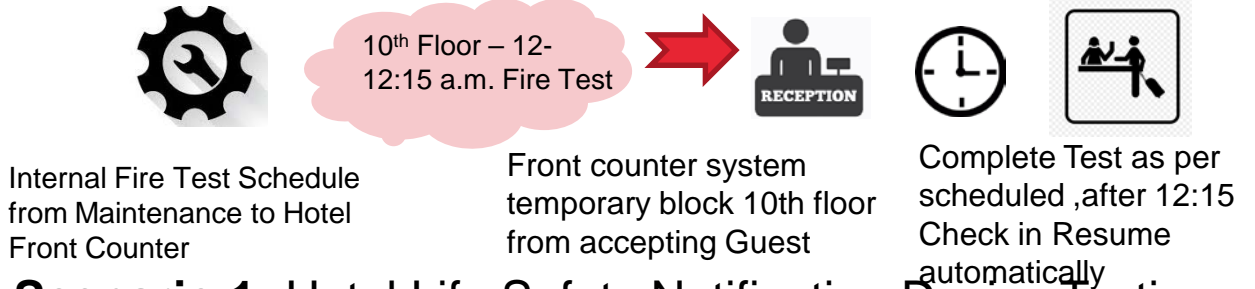
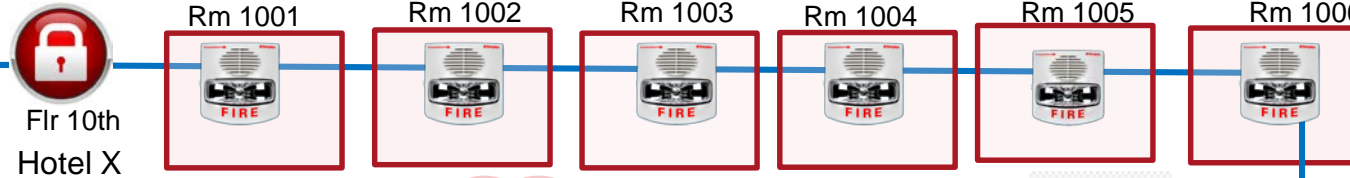
Each device sends status to generate Pass/Fail report at panel

# Self Test Method 2: PreProgrammed timer after office hours

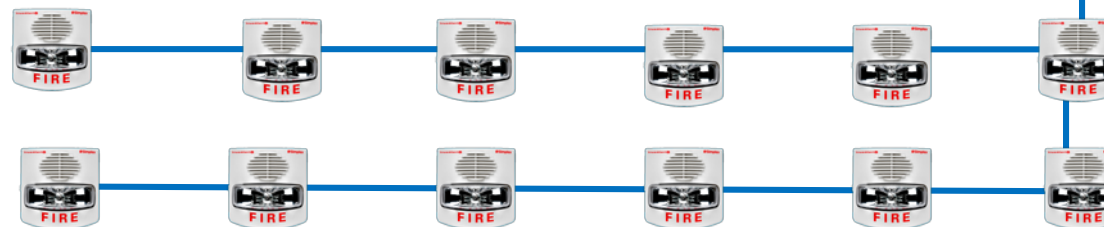


- **By Schedule:** Preprogrammed to Automatically test all Notification devices in advance


- **Method 02** is to **pre program** with a **scheduled time** for the selected zones or device to test and only required **not more than 1 min.**
- Application: This is most suitable for **office, factory, hotel** where typically preferred timing to access to the location is out of office hours and a very tight time frame.



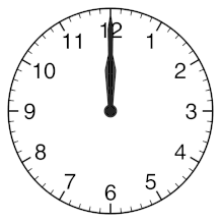
**Scenario 1: Hotel Life Safety Notification Device Testing**  
without affecting Revenue of Room Rental



\*\*Note: This also helps that you do not need to enter the premises or required occupants to standby for the test.

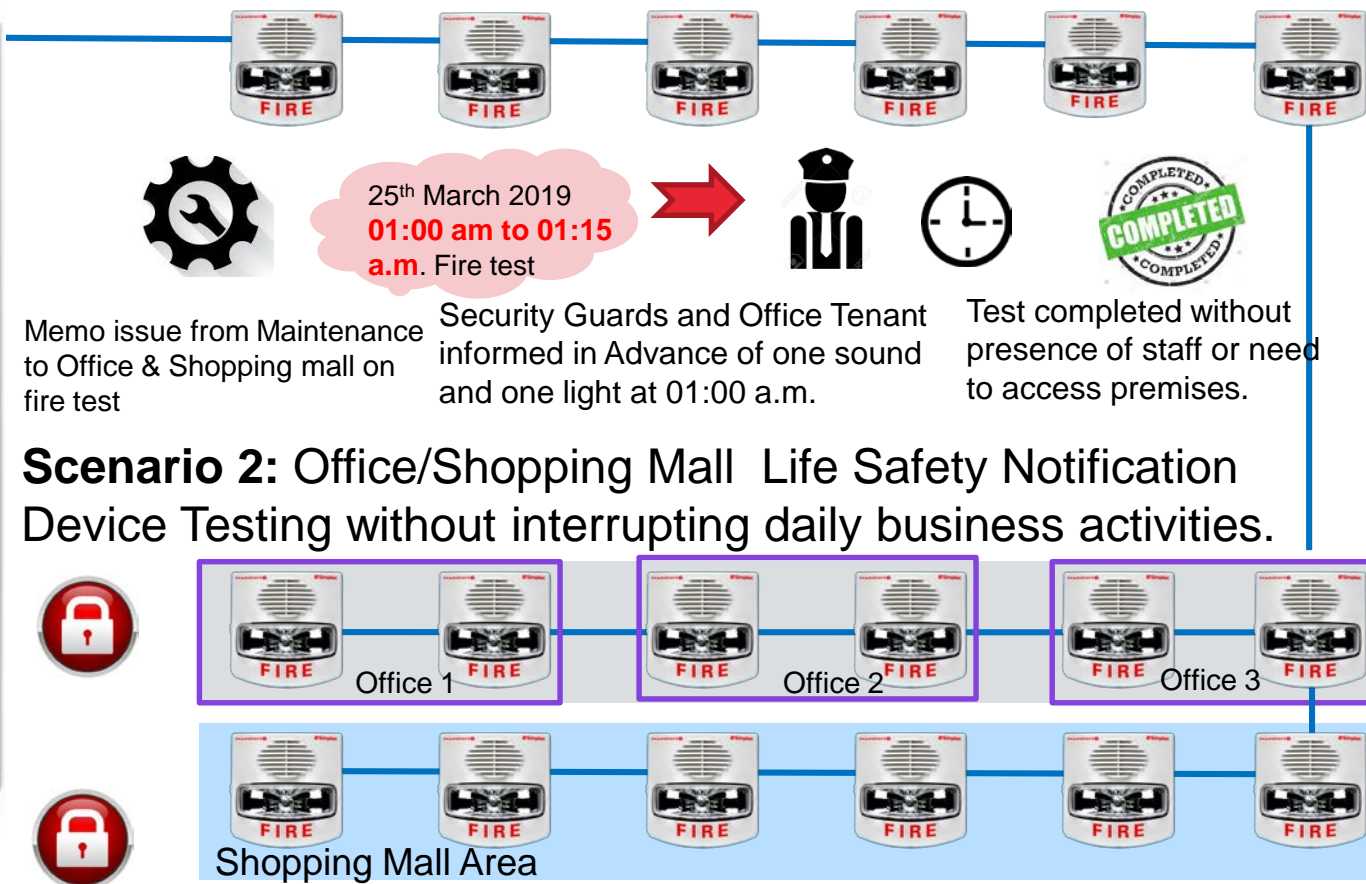
 Premises Locked and do not need the presence of staff

# Self Test Method 2: PreProgrammed timer after office hours



- **By Schedule:** Preprogrammed to Automatically test all Notification devices in advance

- **Method 02** is to **pre program** with a **scheduled time** for the selected zones or device to test and only required **not more than 1 min.**
- Application: This is most suitable for **office, factory, hotel** where typically preferred timing to access to the location is out of office hours and a very tight time frame.



Memo issue from Maintenance to Office & Shopping mall on fire test

Security Guards and Office Tenant informed in Advance of one sound and one light at 01:00 a.m.

Test completed without presence of staff or need to access premises.

## Scenario 2: Office/Shopping Mall Life Safety Notification Device Testing without interrupting daily business activities.

\*\*Note: This also helps that you do not need to enter the premises or required occupants to standby for the test.

Security Guards and Customer informed in Advance of Fire Test at 11:00 p.m. There will be a single flash and Sound.



Test completed without presence of staff or need to access premises.



Premises Locked and do not need the presence of staff

**\*\*Note: TrueAlert –Hospital  
Example**

# Alternate Aesthetically Pleasing Low Current consumption LED Solutions

Smallest LED Strobe – Size of Iphone

iPhone 7



6.22" x 3.06" x 0.28"	5.25" x 3.50" x 1.62"	5.87" x 2.96" x 0.35"
15.79 cm x 7.77 cm x .71 cm	13.34cm x 8.89cm x 4.11cm	14.9cm x 7.53 cm x .89cm

Full Candela Range From 15 to 185



Lowest Current Drawn 125mA at a 185 Candela



Best of both worlds can mix both Xenon and LED Strobes



Fully Addressable



## Summary

- Aesthetically pleasing
- Low Current Drawn
- LED Lifetime beyond 50,000 hours of operation
- Low Current Consumption
- Low backup batteries
- Maximised quantities loading on Loop
- Fully comply with NFPA72 20ms requirements

# Colored Lens Options and Wire Guard for Building Maintenance **Internal Communications**

- Two audible only, four AVs, and nine VO
- Five amber alert VO appliances
- Four emergency alert **colored lens** covers for TrueAlertES wall mount indoor appliances
  - **Amber, green, red** and **blue**
- **Mounts over** clear strobe as a cover
- Guard for AV and VO Appliance
- Two complete AV and VO white weatherproof appliances
  - Ten white weatherproof covers
  - White weatherproof back box



# A Color Approach to Simplified Building Fire Alarm Operations.



## Alert Blue



## Evac Red



## Release Amber



Utilising Truealert Addressable Strobe with cap on lens for :

1. **Alert Blue** is for Alert warning, one detector in alarm reported.
  2. **Evac Red** is when a EVAC condition happens in the Building.
  3. **Release Amber** is when the 1<sup>st</sup> Alarm for Suppression is being Triggered.
- **This make use of human ability to react to Color and Specified Sound**

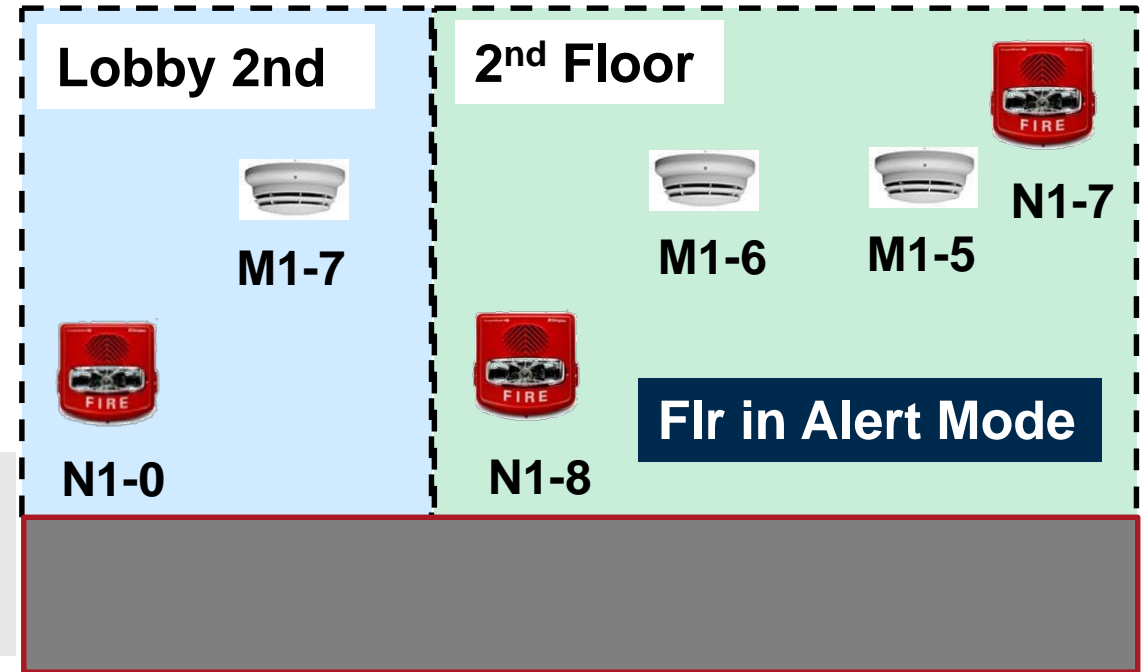
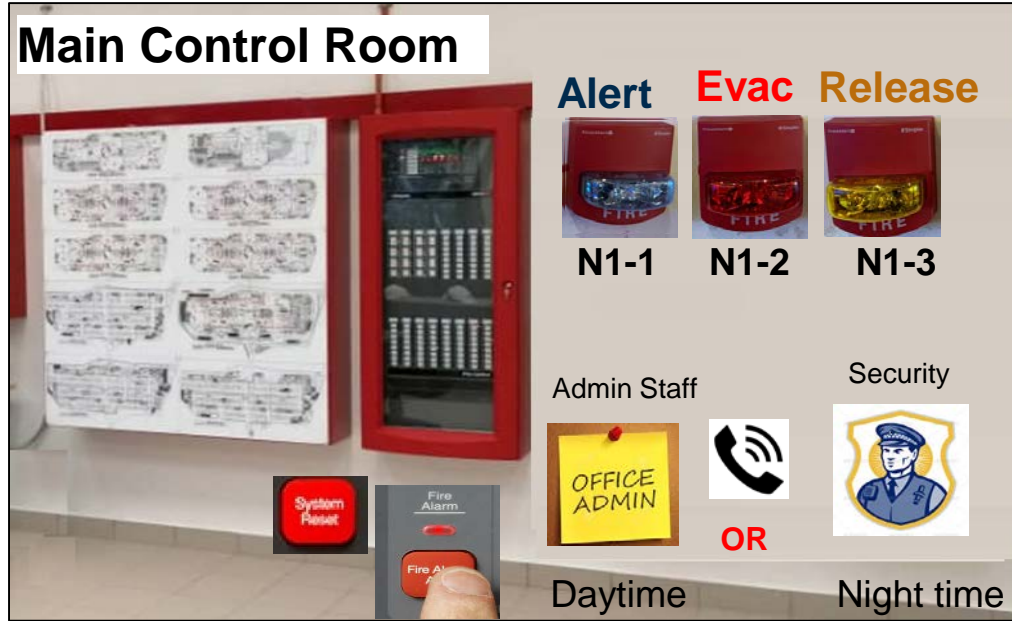
**Rational:** Colors to get Non trained staff to alert trained maintenance staff.

\*\*These are only mounted at Primary and Secondary Control rooms as needed.

\*\*Note: Different Horns sound can be assign as Temporal Code 3, March Time pattern, continuous; or Temporal Code 4, controlled separately from visible appliances on the same two-wire circuit , Selectable March Time rates of 20, 60, or 120 beats per minute



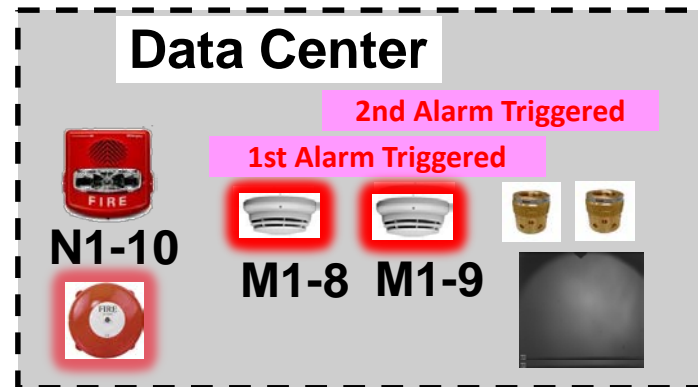
# Simplex Addressable Notification Solution



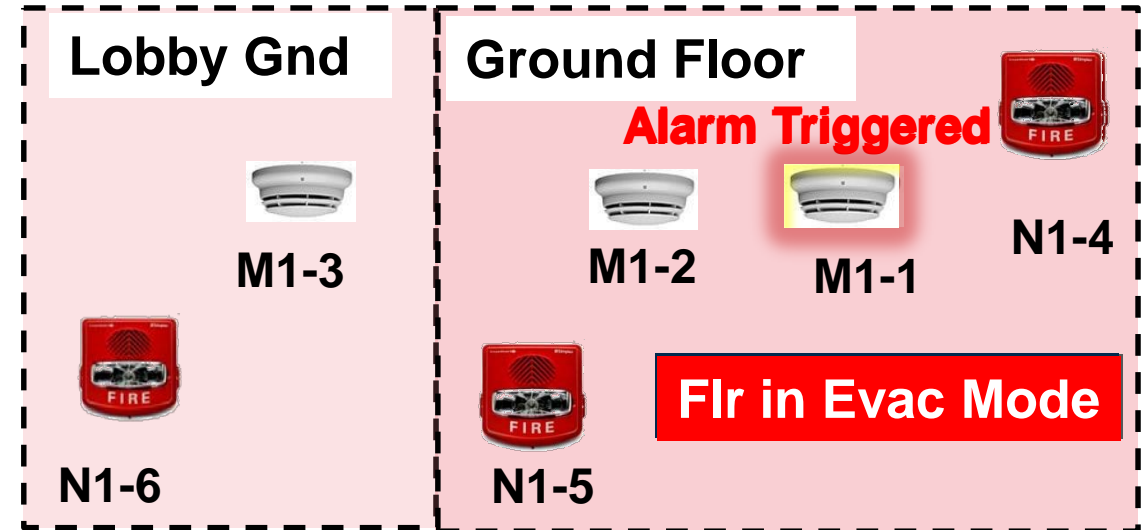
**Blue Alert**  
Strobe Triggered

**Red Evac**  
Strobe Triggered

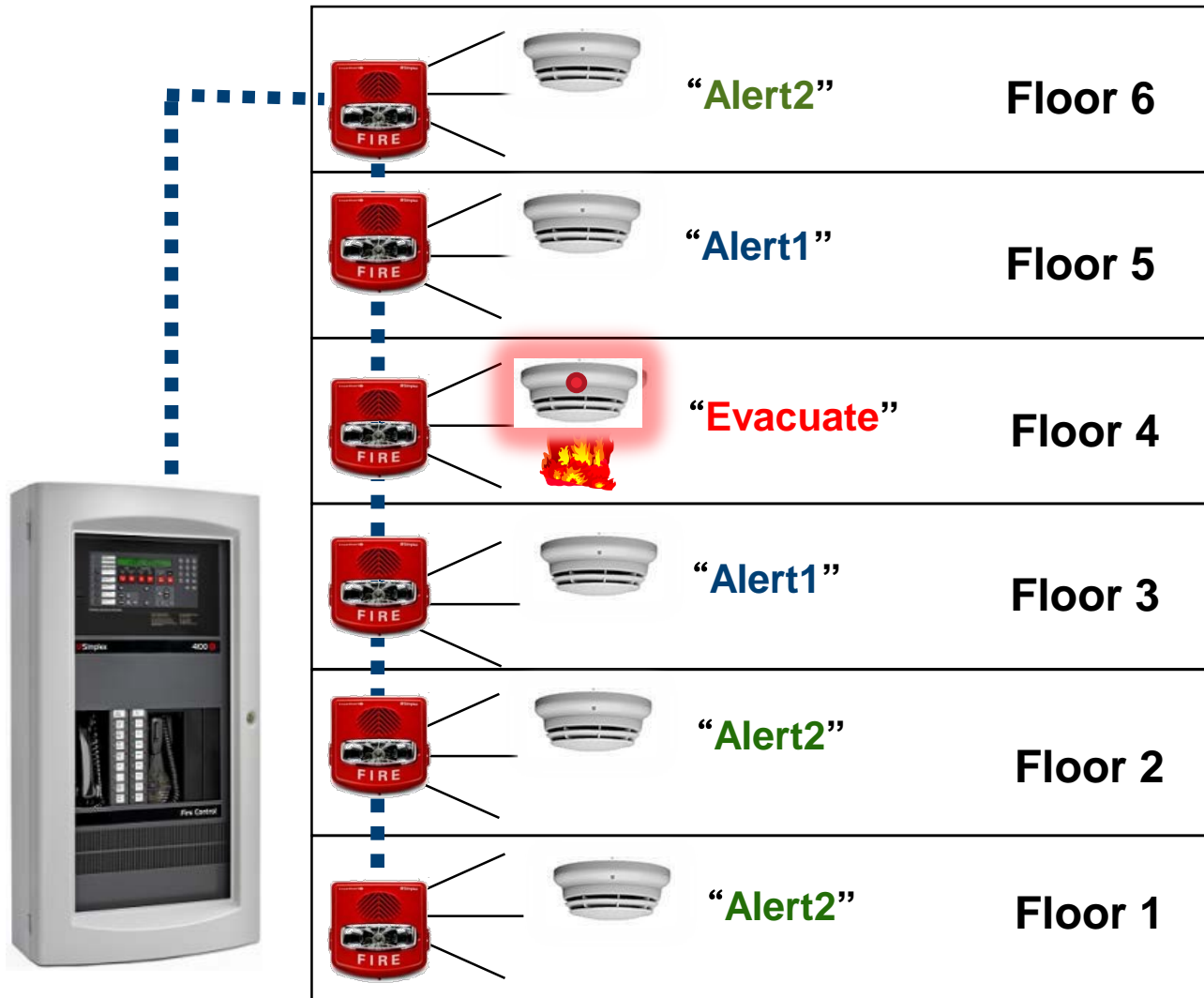
**Amber Release**  
Strobe Triggered



**Gas Released!**



# Building Going into Full Evacuation Mode with Strobe & Horn Notifications Floor Above and Below Evac and Alert Tone(Sandwich)



When in Building Evac Mode, Alert activated

Alert Mode for Floor Above

Full Evacuation Mode for Floor Activated

Alert Mode for Floor Below

When in Building Evac Mode, Alert activated

When in Building Evac Mode, Alert activated

# TrueAlert ES

## Addr Speakers



Brings a new Level of Intelligence to your Fire Alarm Panel !

Networkable  
Campus wide  
Voice Evac Soln

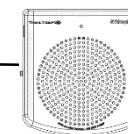
Mass Notification  
merging with  
Voice

Addressable  
Voice Evac  
Solution



Integrated Analog  
Voice Evac  
Systems with Fire  
Alarm Systems

Digital Voice  
Evac Solution



001

002

003

004

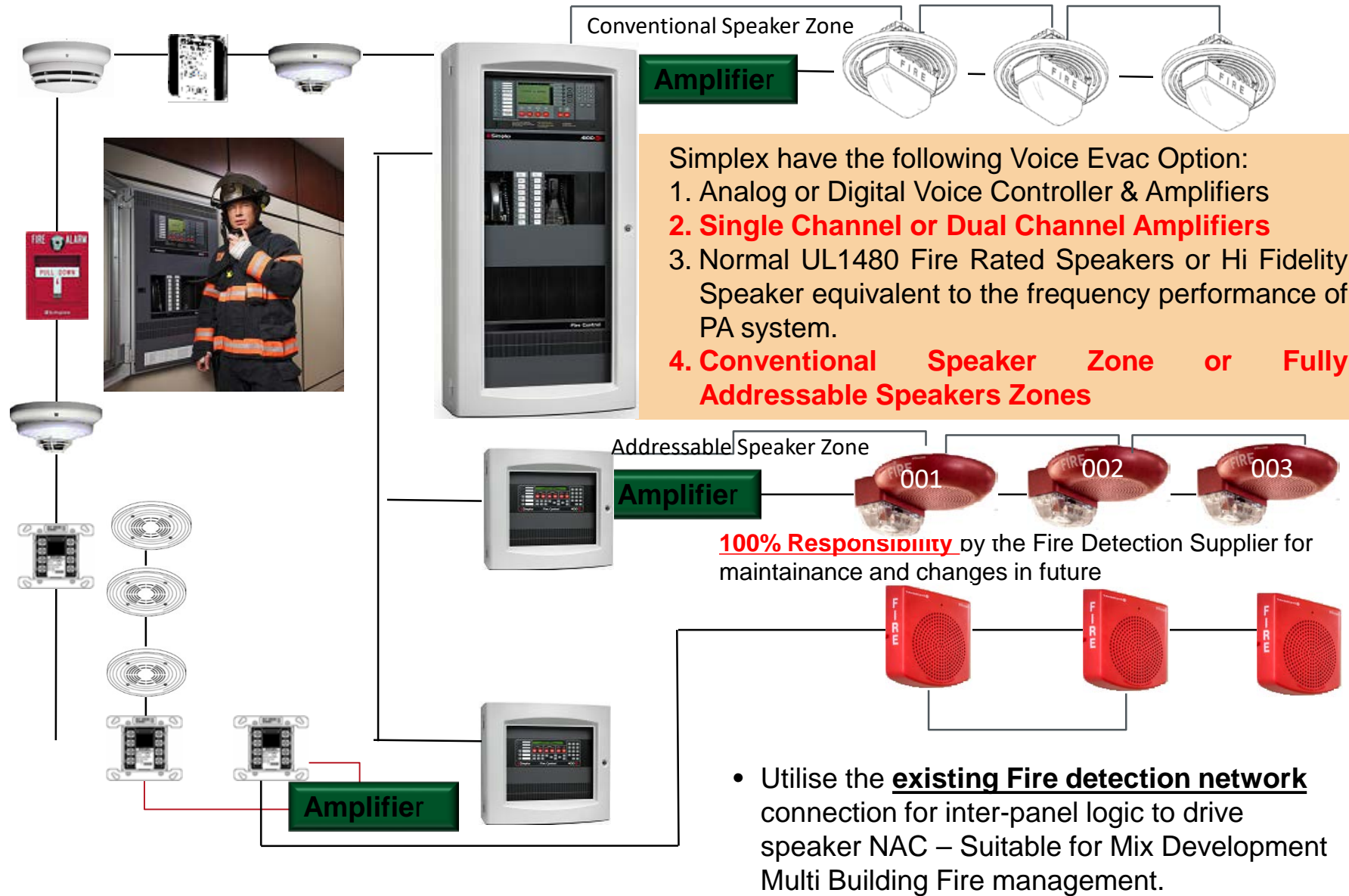
005



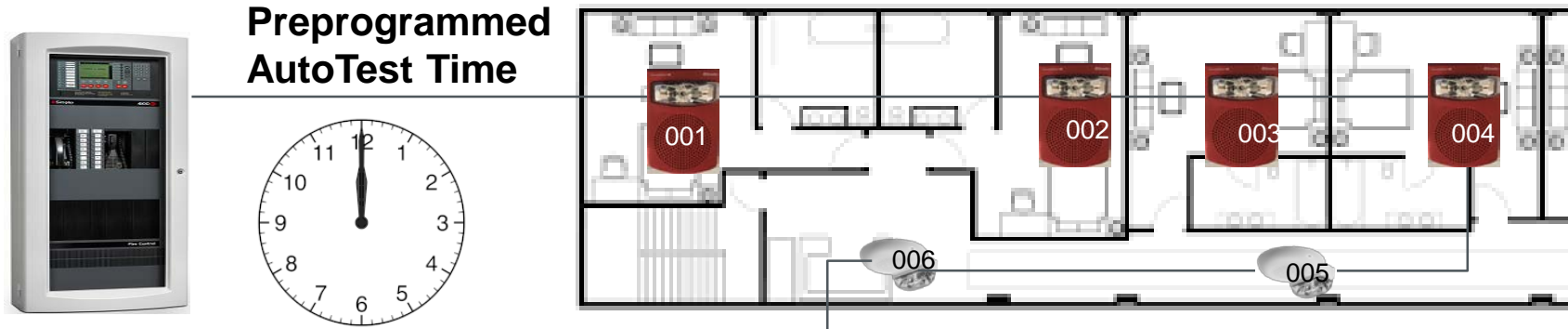
PA &  
Standalone  
Voice Evac  
Soln

### Manual Voice Warning and Bells

# Seamless Integrations of Voice Evac and Fire Detection Systems



# Feature & Benefit – Self Test (Manual/Auto Mode)



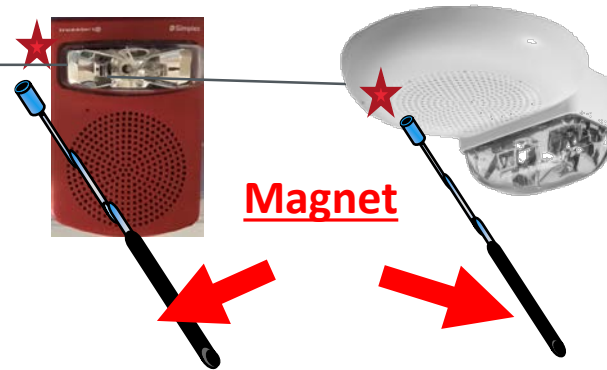
**Benefits!**

~~disrupt~~

Industry that can benefit e.g. Hotel, Shopping Mall, Offices, Factories...etc

**100%** Functional Life Safety Systems

**Manual Selective Test**



★ Self Test Location using Magnet Speaker will sound once

# TrueAlert ES Addressable Speakers

---

Complete family of wall ceiling mount speakers

## Individually identified, supervised and controlled speakers

- Each speaker has a unique address allowing individual unit supervision, control, and configuration
- Unit disconnection or failure is quickly detected, pinpointed, and reported

## Revolutionary self-test capability

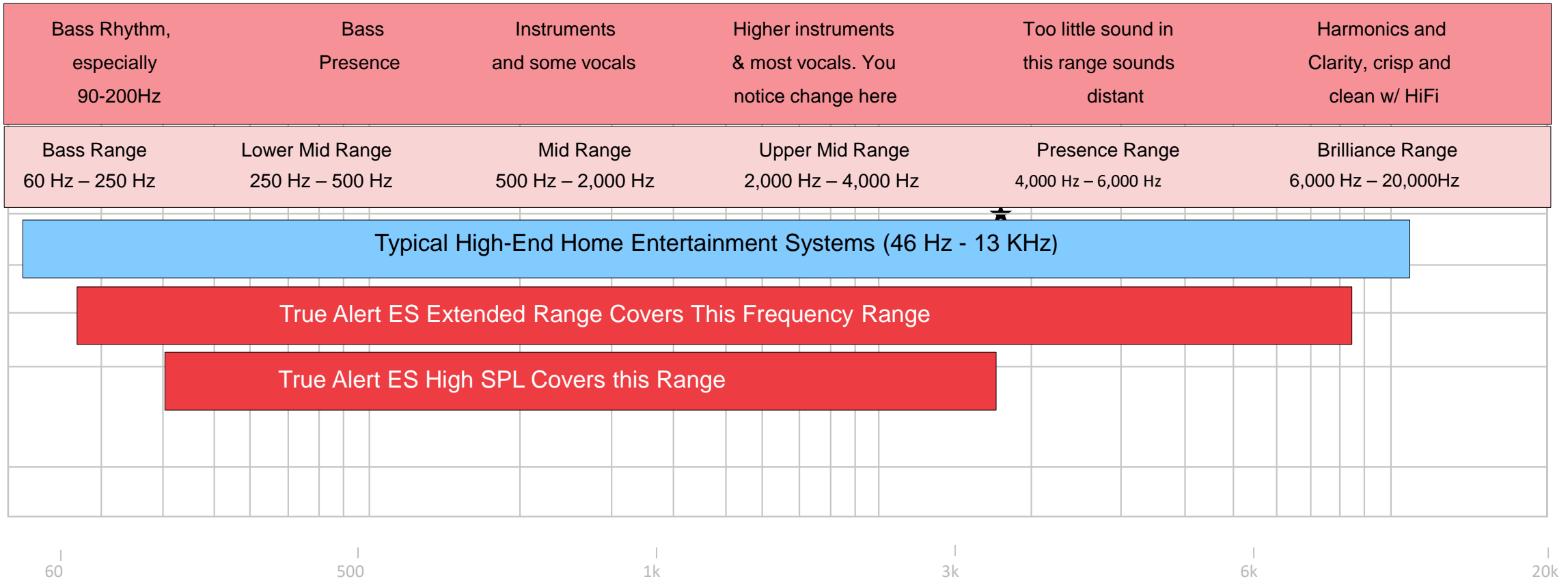
- Testing is fast, easy, and non-disruptive
- Test information for each appliance is stored in the panel

## T-tap audio , software Zoning and highly flexible NAC wiring

- Easier to design, install, expand and modify
- Use less wiring, smaller gauge wiring, and power supplies and batteries



# These are Fire Alarm Speakers?



**Wider frequency range means better sound quality and clarity**

# Simplex Smart Fire Alarm Panel that Talks to you!



**Alert Blue**



**Evac Red**



**Release Amber**



**Field Speakers**



Utilising Truealert Addressable Strobe and addressable speakers with cap on lens for a smart Fire Alarm Panels that talks to Maintenance staff.

1. **Alert Blue** is for Alert warning, one detector in alarm reported.
2. **Evac Red** is when a EVAC condition happens in the Building.
3. **Release Amber** is when the 1<sup>st</sup> Alarm for Suppression is being Triggered.

**Rational:** Colors to get Non trained staff to alert trained maintenance staff and with the right message broadcast in the control room would make it simple for untrain staff to understand.

At the field using message to guide the maintenance to the right location.

\*\*These are only mounted at Primary and Secondary Control rooms as needed.



# A sound solution for optimal protection

The flexible wiring architecture of SIMPLEX TrueAlert ES Addressable Speakers makes systems easier to design, install and expand. Individual speaker on/off control and audio circuit t-tapping—both industry firsts—give you total control of your emergency notification system.

Control exactly where an announcement is broadcast—and which announcement is played in different areas

Flexible audio grouping controlled through programming not wiring

**NOTE:** Simplex Audio Amplifiers support a maximum of two simultaneous audio signals across three available audio circuits. Additional messaging can be cascaded.

Individual speakers can be configured to be part of up to three audio groups

**\*\* Inform the individual Condo unit of Fire Detected in their unit**



# A sound solution for optimal protection

The flexible wiring architecture of SIMPLEX TrueAlert ES Addressable Speakers makes systems easier to design, install and expand. Individual speaker on/off control and audio circuit t-tapping—both industry firsts—give you total control of your emergency notification system.

**EVENT 2** | As the fire spreads, smoke triggers a sensor in the hallway and all residents on the floor are alerted.

Audio group two is used to broadcast an announcement both inside the apartment and across the entire floor.

*"Smoke has been detected on your floor—please evacuate."*



The diagram illustrates a multi-unit residential floor plan. It features three distinct units: UNIT 02 (yellow), UNIT 03 (purple), and UNIT 04 (green), along with a central Common Lobby. Each unit is equipped with a speaker icon. A red banner at the top of the diagram area states 'EVENT 2 | As the fire spreads, smoke triggers a sensor in the hallway and all residents on the floor are alerted.' To the left, a callout box explains that 'Audio group two is used to broadcast an announcement both inside the apartment and across the entire floor' and provides the message: 'Smoke has been detected on your floor—please evacuate.' On the right, a 3D architectural rendering of a building shows a red horizontal line on one of the upper floors, with lines connecting it to the corresponding floor plan, indicating the location of the fire.

**\*\* Inform the neighbouring condo unit of fire and for possible actions to be taken**

# A sound solution for optimal protection

The flexible wiring architecture of SIMPLEX TrueAlert ES Addressable Speakers makes systems easier to design, install and expand. Individual speaker on/off control and audio circuit t-tapping—both industry firsts—give you total control of your emergency notification system.



**EVENT 3** | Residents on the floors above and below the fire are alerted to the potential emergency so they can prepare to evacuate.

Alert

Alarm

Alert

"Smoke has been detected on a nearby floor. Please await further instructions."

**\*\* If after certain timing, no actions from maintenance to trigger alert message.**

# Questions and Answers?



Pertanyaan  
問題  
질문  
សំណួរ  
Асуултууд  
čŹńčĚ ĚŒĆ  
Mga Tanong  
Câu hỏi

Termina Kasih!

謝謝!

Salamat!

Баярлалаа!



Sales Region: All Except in grey colors



ćŽńčĚ ŘĚĆ!

សូមអរគុណ!

Cảm ơn bạn!

감사합니다!

- Any further Questions and Support look for our nearest sales Channels in your countries and they can help you with information you required

- If you required a copy of this presentation, we will need the basic information as below:
  - ✓ Name
  - ✓ Email
  - ✓ Company if possible WebsiteBest approach is to contact our sales Channel within your country.

**Brought to by:**





# Basic One on One

## Beginner Fire Detection Concept Orientation

This Training comprises of the following:

1. Section 01: Introduction to Fire Alarm System
2. Section 02: Initiating Devices
3. Section 03: Notification Devices

Day 1

4. Section 04: Emergency Controls
5. Section 05: Supplementary Equipment
6. Section 06: **Power sources & Supplies**
7. Section 07: Examples of Other Region Applications
8. Section 08: Common Operating Features
9. Section 09: Quiz 1
10. Section 10: Quiz 2
11. Section 11: Common Do and Don'ts

**Bonus Cause & Effect Chart**

Day 2

29<sup>th</sup> April 2020  
10:00 till 10:45 a.m

12. Section 12: NFPA72 Device placement Guide
13. Section 13: New Class A, B, C, D, E , X and N Versus previous
14. Section 14: New NFPA72 Pathways Updates
15. Section 15: New Installation Survivability Levels
16. Section 16: Fire Disaster Case Studies

Day 3

30<sup>th</sup> April 2020  
10:00 till 10:45 a.m

Johnson Controls 

